The Midwest Program on Airborne Television Instruction and the Ford Foundation

by Carson Benn
University in Kentucky

Abstract

The Midwest Program on Airborne Television Instruction (MPATI) was a major investment by the Ford Foundation and other philanthropies in the 1950s and 1960s. Project administrators used broadcast antennae on airplanes to provide educational programs to schools across a six-state region, with the goal of closing the gap between wealthy, higher-performing schools in the region, and poorer school systems in cities and rural areas. Furthermore, MPATI was envisioned as a potential model for other disadvantaged regions, such as Appalachia, as well as for other nations. This report draws primarily from correspondence between Ford Foundation officials and MPATI administrators.

The Midwest Program on Airborne Television Instruction and the Ford Foundation

The Midwest Program on Airborne Television Instruction (MPATI) has not been unknown to historians of technology and education, but its significance to both of these fields has been vastly underrepresented. From the late 1950s to the early 1970s, a team of researchers based at Purdue University in West Lafayette, Indiana, undertook an experiment that they saw as the ultimate realization of educational television. Endeavors to provide televised lectures and other programs to schools as a means of compensating for resource disparities were not new. However, MPATI administrators knew that these early steps had been limited to the range of single transmitter towers, and thus seldom went beyond individual cities. MPATI was conceived to aid an entire region within the US through television-transmitting airplanes. The program oversaw a diverse range of school types: urban and rural, rich and poor, high and low performing. Research into the Ford Foundation (FF) records at the Rockefeller Archive Center is crucial to understanding MPATI, as Ford was the program's primary benefactor, judging how well the airplanes served their purpose, and whether or not the program should continue. Correspondence between the Ford Foundation and MPATI is also essential, as the program's vision is therein revealed, through the reports of MPATI administrators like John Ivey.

Thinking in terms of region and regional transformation was a common thread throughout Ivey's career. A University of North Carolina alumnus himself, Ivey had earned a doctorate in sociology from Chapel Hill, and taught courses there from 1941 to1948, both in sociology and city and regional planning. For a brief stint in that period, he served as "Specialist in Education Evaluation" for the Tennessee Valley Authority, taking part in that herculean and holistic effort to transform an impoverished part of the southern mountains into a fully functioning and modern economy. After his time at UNC, Ivey spent two years as executive vice president at NYU. He not only served as the first director of the Southern Regional Education Board, he actually helped to found it, along with a

national institute for exchanging learning resources.[1] SREB would eventually incorporate television programs and other digital learning sources into its programs, but Ivey's role in the history of educational television (ETV) is far more ambitious. His inclination to region-specific broadcasting would lead him later to create one of the most sweeping, monumental, and—to present day observers — peculiar undertakings in the history of television.

The Midwest Program on Airborne Television Instruction adapted an idea first introduced by the Westinghouse Corporation for commercial broadcasting to educational teleision. Rather than simply coordinate the exchange of ETV programs among participating local stations, Ivey initiated instead a system where programs could be broadcast directly to interested schools over a six-state region, circumventing the need for established stations and transmitters in local areas within those states. As for how it worked, the name says it all: a decommissioned military aircraft would take off daily from an airfield near Purdue University, extend an "umbilical" transmitter antenna from the underside of the plane mid-flight, and broadcast classroom instructional programs throughout the day, as the plane flew in arranged patterns over the six states.

The MPATI system was briefly considered as an option by which educational television and other noncommercial broadcast programs could be distributed to other disadvantaged regions, such as the Appalachian mountain region. Ivey hoped from the beginning that his system would catch on in popularity and recognition and, consequently, be replicated in other disadvantaged regions—and he was not alone in that thinking. Ivey's airborne television system relied on key support from the Ford Foundation, only the funding records show that MPATI received far more support from the FF than any single state or station had received to that point. Along with its curious similarity to another Cold War-era institution, the Strategic Air Command, as well as for the agency's thorough articulation for exactly where and how educational television should be applied to benefit rural areas, MPATI represents better than any other historical era a moment of apparent, palpable need for region-specific public broadcasting.

In spite of the support behind MPATI and its wide recognition, the planes were

only in operation for less than a decade. Its shuttering in 1971 was due to many reasons: one being that the fantastical method of delivery by which it operated was soon eclipsed by the development and higher fidelity of cable access networks and satellite technology. More importantly though, Ivey's program faltered after it initiated a discourse among educational and public broadcasters as to how public television should be administered. Outside of the technological possibility of delivering educational broadcasts without the laborious and expensive process of securing a local channel permit and building local production facilities, the question emerged as to whether or not this was the ideal method. Ivey withstood legal challenges to his authoritative claims over public television in the areas the airplane covered, but plaintiffs in that suit, the National Association of Educational Broadcasters (NAEB), concluded even in defeat that local channels and production studios had better insight as to what kind of programming was needed in particular communities. In a slightly ironic twist, the members of NAEB appealed to localism, much in the same way that local school districts and communities challenged them as they offered programming in their own broadcast areas.

Furthermore, the general conversation around educational television in the United States continued to change. Though the Ford Foundation had in the late 1950s shifted its support away from general interest programs and continuing education in the home toward classroom applications and instructional television, the luster surrounding the idea of TV-equipped classrooms began to dim in the mid-1960s. MPATI, which had staked its position so firmly on the side of classroom instruction, was increasingly swept aside in favor of a growing appreciation for the idea of truly "public" television.

The MPATI system, in spite of its short life span and curious appearance, has not gone unnoticed by historians interested in television and education. Allison Perlman, author of *Public Interests: Media Advocacy and Struggles Over US Television* (2018), chronicles the history of the program in an earlier article in *Critical Studies in Media Communication*. In her examination of how Ivey and others involved in MPATI used their system to "counter entrenched understandings of the object of television" by the use of mobile airborne transmitters, Perlman also observes how the program's approval was so

dependent on the notion of a needy region—in this case, the Midwest.[2] Perlman expertly establishes and illustrates this connection (most notably in the contemporary she quotes for his analogy of MPATI as "educational crop-dusting"), but the success of the MPATI as a region-specific endeavor deserves further consideration in two specific areas.[3]

For the first, Perlman's observation that MPATI founders "intended for it to serve as a model for other regional educational systems in the United States," is accurate, but Perlman does not explore how this prototype was meant to be replicated in other regions.[4] The Ford Foundation's substantial investment in the program indicates its earnest attempt to improve education systems across the Midwest (a cause it had dedicated itself to well before television and radio), but Ford also encouraged Ivey and his colleagues to develop their system with the goal of fully transforming ETV and educational aid writ large.

Further investigation into Ford's educational television activities during this period reveals how the medium was increasingly perceived as an instrument of economic and social development in impoverished areas worldwide, particularly in developing nations. During this same period, Appalachia was also gaining recognition for its apparent similarities to third world environments, and it received aid through the Appalachian Regional Development Act (and the agency it created, the Appalachian Regional Commission) in a sort of domestic Marshall Plan redux.[5] The committee tasked with planning ETV's role in the mountains under the ARC's aegis did not consider MPATI as a serious option, but specifying where MPATI fell short of ARC's expectations is an instructive narrative for the broad issue of educational reform in Appalachia.

The technology and equipment involved in MPATI was first introduced a decade prior to the educational program as "Stratovision." The idea of broadcasting television via airplane rather than fixed transmitter installations was developed by the Westinghouse Electric Corporation in the final months of the Second World War. In spite of how peculiar the functional model of television via airplane may seem to present observers, historian James C. Foust, in his study of Stratovision, notes that this method once held the full faith and enthusiasm of the FCC and

commercial broadcasters for very practical reasons. Chief among these were the issues of interconnection and simulcasting, or the networks' ability to carry the same program simultaneously at all affiliated stations across the nation. As WUNC-TV faced the problem in the mid-1960s of how to share programs across multiple transmitter locations, so did commercial networks grapple with how to connect their many affiliated stations in the late 1940s. WUNC-TV chose, at considerable cost, to build microwave links between each transmitter location in North Carolina. Commercial networks had the same option for their nationwide reach, but along with the FCC, they briefly considered Stratovision as a much cheaper alternative.[6]

Through late 1948, Westinghouse conducted three dozen flight tests of the Stratovision relay program and, by and large, the company found the idea to be much more successful than many had expected. Test flight patterns centered on Pittsburgh, with the plane relaying the Steel City's local broadcasts during the day and signals from a Baltimore station during the evening. One of the more publicized tests was hosted by a country club in Zanesville, Ohio, where viewers 130 miles from Pittsburgh and nearly 300 miles from Baltimore, were able to pick up with standard home television equipment, a quality signal of the Baltimore station's coverage of the Republican National Convention. Program sponsors assured the event's attendees that "anyone with a television set within 250 miles of Pittsburgh could have tuned in."[7] Other high-profile demonstrations included prize fights and one game of the 1948 World Series.

Foust notes that, in spite of the considerable buzz Stratovision was generating following its tests, Westinghouse engineers were met with mixed reactions after making their case to the Federal Communications Commission (FCC). One thing for certain was the practical use of an airplane system to reach the millions of households that were then out of reach of the handful of operating stations at that time. Westinghouse Vice President Walter Evans made this point his primary argument in the FCC hearings. He contended that the "most attractive feature" of Stratovision was "that it is the only way that we know of, or have heard advanced so far, that anyone other than in metropolitan or suburban areas are going to get television." To Evans' knowledge in the hearing, Stratovision was "the only way that we know of that farmers in the rural communities, and those in the smaller

towns, are going to get television service in the forseeable future." Evans did not undersell the portentousness of his company's creation, and he made the case that the new concept could fundamentally alter the landscape of airwaves in the United States.[8]

Commissioners recognized the benefits airborne television could offer rural areas, but they were unwilling to entertain the system's potential challenge to the accepted logic of radio and television licenses. Moreover, they were concerned that granting a Stratovision plane license to retransmit broadcasts hundreds of miles away could lead to signal interference with ground-based stations already licensed to operate in that area, or at least undermine the autonomy of the latter's programming. The Federal Communications Commission denied Westinghouse's applications to carry the commercial broadcasts of any station, but approved the viability of Stratovision as a legitimate means of special projects in television broadcasting, should any such later endeavor be developed. The FCC's report affirmed the primacy of local ground-based stations in their approval process, and even though Stratovision would, in their view, "be a most useful instrument in providing service to the sparsely settled rural areas of the country," the demand for the airplanes' service in those rural areas had come from the metropolitan areas, and not the rural residents themselves.[9]

Stratovision was barred from carrying commercial broadcasts, but Westinghouse would eagerly sign on to the noncommercial, educational project being developed years later in West Lafayette, Indiana, by the Purdue Research Foundation. By the time Westinghouse entered into a contract with MPATI and Purdue, nearly a decade after the FCC's decision, Stratovision was merely a patented system. If Purdue wanted to use Stratovision to conduct its ETV experiment, the university would have to provide two aircraft for Westinghouse to modify and equip with umbilical antennae and other onboard hardware. Westinghouse's proposal to Purdue, submitted in December 1959, shows a clear desire to act efficiently and expediently. Should the aircraft be submitted to Westinghouse's Maryland facility by January 1960, the modifications and broadcasting capability would be ready in time for a July test flight and full operation beginning with the 1960 fall semester.[10]

As seen in the history of numerous educational television endeavors, the Ford Foundation's investments into ETV shifted increasingly in the 1950s toward instructional television and away from general audience programming. MPATI can thus be considered a high watermark for instructional television, as grant applications and correspondence between Purdue, MPATI, and the Ford Foundation reveal an enormous investment in the early 1960s, followed by a complete abandonment of the project by the end of the decade. It is also clear from communication within these various organizations that, while the plight of rural Midwestern schools spurred the interest and sympathy of the various organizations and investors, MPATI was conceived as merely a prototype for similarly ambitious television projects in other disadvantaged regions. In this regard, the noncommercial, philanthropic interests behind MPATI were similar to the commercial interests that first explored Stratovision: both envisioned the airplanes ushering in a new era of telecommunications and connectivity between rural and metropolitan areas.

The educators who first convened on the idea of an airborne television service in the Midwest were concerned that the benefits of rapidly developing instructional television programs would pass many rural and struggling urban schools by. In their initial funding request to President Henry T. Heald of the Ford Foundation, the early members of the Midwest Council on Airborne Educational Television cited three major obstacles to providing instructional television to schools. Similar to WUNC-TV's critics, they observed that though educational television stations operated in the Midwest's urban centers, "a large majority of school children, particularly in small towns and rural areas where educational help is needed most, are beyond the reach of these ETV stations." They also cited the closed-circuit networks some areas had constructed to reach schools outside a station's reach, but to the collective interests of a new Midwestern consortium of educators, this method would be too expensive to implement throughout the large area they oversaw.[11]

The third obstacle noted in this appeal to Heald of the Ford Foundation shows the beginning of MPATI's divergence from local ETV broadcasters. The Midwest Council made the novel argument that, even if the disadvantaged schools across the region were to receive the broadcasts of the existing ETV stations, the

programming of those stations was inadequate to the task of aiding those schools. "A single open-circuit channel," they remarked, "cannot serve a very significant portion of the whole curriculum or grade spectrum," limited, as such channels were, to "a maximum of 12 half-hour units of instruction in a six-hour school day, enough for only one half-hour per day at each grade level." Here they noted a unique advantage of Stratovision: the airplanes were capable of broadcasting six channels simultaneously.[12] Thus they set their sights on how MPATI could serve every grade level, including some college courses, at a given time every day of the week.

Initial correspondence between the Midwest Council on Airborne Television and Henry T. Heald also revealed an interesting and new perspective from the former on schools the airplanes would reach during the day. Not only would the instructional broadcasts serve as a helpful resource to schools that lacked the resources and advantages of urban and other wealthier districts—it would also improve the qualities of the teachers working in the disadvantaged schools. Frederick Hovde, president of the Purdue Research Foundation, said of the tentative educational program that it was "designed to bring courses of the highest possible quality to the schools and colleges in the area served." This would include courses that smaller and disadvantaged schools could not provide otherwise, but he also stressed that MPATI would "offer courses which are customarily offered in all schools, but whose quality is generally in need of substantial improvement."[13] Educational broadcasters had for years attested to the benefits ETV would provide to schools that were lacking in wealth and resources, especially in light of the burdens schools had to bear as a result of the baby boom generation. MPATI though took this concern a step further by assigning some of the blame for poorer performance in schools on the teachers themselves.

The slight towards teachers in the rural Midwest and in struggling urban schools in the region is subtle, but it reflects some of the dissent between local interests and the central authority of MPATI that would accumulate mutually over the course of the 1960s. Evidently, this condescension toward local teachers and administrators was present in other investments that the Ford Foundation was making into educational television in that decade. Henry Heald's address to a

National Parent-Teacher Association conference in New York City in early 1960 conveyed his enthusiasm for ETV and other technological improvements in US education, but his remarks were laced with similar jabs at schools near the conference site. An "educational revolution is beginning to sweep the United States," Heald remarked, one where "traditional academic walls are beginning to break down between the university campus and the school classroom, and between academic fields." There was, however, a "loss of perspective" to this revolution, and he identified struggling New York City schools as "one of the most dismal examples." He lamented further: "there is no mystery about why India and Africa lack first-class educational systems. But it is discouraging that New York—so richly endowed with human and material resources—is educationally undeveloped."[14]

Much of the planning within MPATI development thus revolved around teacher in-service training, with the intent that teachers in struggling Midwestern schools could be better acclimated to the technological revolution underway. Furthermore, if teachers and schools in the Midwest showed marked improvement through the use of MPATI courses, then those courses and new airborne networks could easily be pitched and implemented in other regions. In John Ivey's press release for his other educational agency, the Learning Resources Institute, he noted that "while the technical aspects of the airborne project are tremendously important, the educational and public administration efforts which must accompany such a project are just as vital." The combination of a corps of teachers continuously improving their skills through studying and implementing television courses, along with the interstate cooperation needed to sustain a project like MPATI, was the ideal achievement for Ivey. Doing so, in his view, would open up the possibility of "adapting the airborne television technique of the Midwestern experiment for underdeveloped countries which are seeking ways to break through the 'illiteracy barrier.'"[15] Replication was key for Ivey and other members of the MPATI Council: the plight of schools in the Midwest was the prime motivating factor, but they had to demonstrate MPATI's benefits and sustainability to the schools themselves, their colleagues, and Ford Foundation directors looking to develop similar experiments in other areas.

In spring 1960, MPATI conducted a nationwide "audition" for teachers interested in providing courses for the program. Over 300 teachers submitted kinescopes and 88 were eventually chosen as participants, as "the nation's most outstanding teachers," by MPATI's standards. Very clearly, the Council meant for its initial demonstrations to feature Midwestern teachers, since 13 of the 16 teachers who would produce courses for the trial run were from schools in the region. Nearly all of the initial teachers had experience in producing ETV programs, and the selection panel was chaired by a veteran producer of an early NBC educational program, so it is also likely that standards for the "audition" included some measure of on-air personality and performance. The first selected also had a wide variety in subjects and teaching level: a mix of elementary through university instruction, and subjects ranging from mathematics and history to drama, foreign languages, and elementary music.[16]

The initial demonstration courses for MPATI, transmitted by the aircraft, would not begin until the spring semester of 1961, but the summer of 1960 saw a number of workshops hosted by the agency for teachers in schools that planned to incorporate MPATI courses in the curriculum. The 19 host sites for these workshops—all higher education institutions—demonstrate that MPATI had attracted a very distinguished company of supporters to serve as "resource institutions." Area educators could attend workshops at a number of adjacent schools, including Purdue, Notre Dame, Northwestern University, DePaul, Ohio State University, the University of Wisconsin, and many others. Institutions serving as hosts designed the workshops "to acquaint Midwest school systems with the potentialities of using television in the classroom, to describe and discuss the airborne program, and to outline needs for receiving equipment," all with an attentive eye toward "the local needs and interests" of the adjacent schools. The press release announcing the workshops though, reiterated the same subtle indictment of the participating schools, noting that "the primary objective of the workshops, as well as that of the airborne project itself, is to help improve the quality of instruction in the classroom."[17]

Proponents of MPATI (or of ETV, in general) seldom gave any specific or exact diagnoses for where schools or teachers were falling behind. In MPATI's "Manual

for Area Coordinators and Area Committees," circulated in October 1960, some specific setbacks were noted, such as a lack of foreign language course offerings in many of the participating states, and also the considerable portion of mathematics and science teachers' college degrees that were based in subjects other than the ones they were currently teaching. For the most part though, MPATI highlighted the impending baby boom generation as the greatest threat to education systems in the Midwest. A troubling figure given by the manual held that "if all the graduates of our [midwestern] liberal arts colleges were to enter the teaching profession in 1970, we would still not have enough qualified teachers to take care of the demand for teachers in the elementary and secondary schools."[18] Under-resourced schools in the urban and rural Midwest may have felt this crisis more acutely than their more well-off neighbors, but MPATI stressed that the entire nation was facing this problem.

A case can also be made that MPATI, in spite of its lack of specificity in identifying problems, benefitted from the wave of enthusiasm for educational reform that followed the test of the Soviet Union satellite, Sputnik. Many historians of American education consider the late 1950s and early 1960s as a prolific moment for investments into educational reform, citing a general fear that American schools were not producing graduates as imaginative and technologically savvy as their Soviet counterparts. The visionary tone employed by Ivey and other MPATI boosters certainly fits along the "missionary zeal" Diane Ravitch associates with the post-Sputnik era in *The Troubled Crusade: American Education, 1945-1980*, where "on all educational fronts, innovation was the watchword," and "new technology, it was believed, had made the traditional, egg-crate school obsolete."[19]As an extension of Purdue University's Research Foundation, MPATI also exemplifies John Thelin's description of this era in higher education, as the four million dollars the Ford Foundation gave to initiate MPATI was but one token in what Thelin calls the grant "bonanza" of the 1950s, especially since it aimed at such conspicuous efforts in scientific and technological innovation.[20]

MPATI, though, was more than a simple bit player in this bonanza. Project administrators, for a brief period, saw their use of airplane broadcasting as an overture to a larger educational revolution. Television had opened up radical new possibilities in educational resources, but it had been limited to roughly the same

jurisdiction as a single school district. MPATI leaders felt that dissolving these boundaries would usher in an era of more advanced and equitable schooling in the United States and any other nation that could adopt the model. In the present era, where students in rural areas or impoverished urban communities struggle under the burden of inequitable funding mechanisms in American education, and lack the technological advantages of students in well-endowed schools, the historical example of MPATI provides a valuable tool for historians and educators seeking to alleviate this disparity.

---

[1] "Biographical Data on Dr. John E. Ivey, Jr., President: Learning Resources Institute," Reel 0207, Grants O-R, FA 732F, Purdue Research Foundation (06000035), Ford Foundation Records, Rockefeller Archive Center (RAC).

[2] Allison Perlman, "Television Up in the Air: The Midwest Program on Airborne Television Instruction, 1959-1971," *Critical Studies in Media Communication* 27, No. 5 (2010), 493.

[3] J.J. Scanlon, "Classroom TV Enters a New Era," *Saturday Review*, May 20, 1961, 51. Quoted in Perlman, "Television Up in the Air," 485.

[4] Perlman, "Television Up in the Air," 489.

[5] Ronald D. Eller, *Uneven Ground: Appalachia Since 1945* (Lexington, KY: University Press of Kentucky, 2008), 177. Eller likens the Appalachian Regional Commission to the Marshall Plan for its strategies of immense capital investment and infrastructure, technocratic regional development, and its direction by "a cadre of confident young bureaucrats and professional planners."

[6] James C. Foust, "The 'Atomic Bomb' of Broadcasting: Westinghouse's 'Stratovision' Experiment, 1944-1949," *Journal of Broadcasting and Electronic Media* 55, No. 4 (2011), 514-515.

[7] Foust, "The 'Atomic Bomb' of Broadcasting," 520; "Plane Telecasts Session: Stratovision Takes It 300 Miles from Ground Station," *New York Times*, June 24, 1948 (quotation).

[8] "Utilization of Frequencies In The Band 475 to 890 Megacycles For Television Broadcasting," (1948), Box 266-286, Docket 8976, FCC Docketed Case Files, NARA II, quoted in Foust, "The 'Atomic Bomb' of Broadcasting," 519.

[9] "FCC Studies Stratovision: Hears Pro and Con on Television Plane Relays in Pittsburgh Area," *New York Times*, July 27, 1948; Federal Communication Commission, *Third Notice of Proposed Rulemaking* (March 21, 1951), quoted in Foust, "The 'Atomic Bomb' of Broadcasting," 521.

[10] "Proposal for Airborne Educational Television: Presented to Midwest Council on Airborne Educational Television," 1-3, Reel 0207, Grants O-R, FA732F, Purdue Research Foundation, Ford Foundation Records, RAC.

[11] Clarence Foust to Henry T. Heald, August 21, 1959, p. 4, Reel 0205, Grants O-R, FA732F, Purdue Research Foundation, Ford Foundation Records, RAC.

[12] Clarence Foust to Henry T. Heald, August 21, 1959, p. 4-7.

[13] Frederick L. Hovde to Henry T. Heald, October 31, 1959, p. 4-5, Reel 0205, Grants O-R, FA732F, Purdue Research Foundation, Ford Foundation Records, RAC.

[14] "President Henry T. Heald Address to Annual Conference Luncheon of the United Parents Association," January 9, 1960, folder 165, box 6, FA1322, series 1, Ford Foundation Records, RAC.
[15] "Press Release from Learning Resources Institute," December 21, 1959, p. 6, Reel 0207, Grants O-R, FA732F, Purdue Research Foundation, Ford Foundation Records, RAC.
[16] "Press Release from Midwest Program on Airborne Television Instruction," July 5, 1960, Reel 0207, Grants O-R, FA732F, Purdue Research Foundation, Ford Foundation Records, RAC.
[17] "Press Release from Midwest Program on Airborne Television Instruction," June 27, 1960, Reel 0207, Grants O-R, FA732F, Purdue Research Foundation, Ford Foundation Records, RAC
[18] "Manual for Area Coordinators and Area Committees," October 1960, 1-2, folder 755, box 71, FA1395, series 4, Ford Foundation Records, RAC.
[19] Diane Ravitch, *The Troubled Crusade: American Education, 1945-1980* (New York: Basic Books, 1983), 232-233. For more recent treatments of the era, see Wayne J. Urban, *More Than Science And Sputnik: The National Defense Education Act of 1958* (Tuscaloosa, AL: University of Alabama Press, 2010), and Thomas D. Fallace, *In the Shadow of Authoritarianism: American Education in the Twentieth Century* (New York: Teachers College Press, 2019).
[20] John R. Thelin, *History of American Higher Education*, 3rd ed. (Baltimore: Johns Hopkins University Press, 2019), 277-279.