

Education by Radio: America's Schools of the Air

By William Bianchi

As an educational media, radio has a long and complex history in the United States, but its most extensive and important use in education took place during the School of the Air (SOA) movement. From roughly 1929 to 1975, commercial broadcast networks, state universities and departments or colleges of education, and local school boards operated over a dozen SOAs. One continued broadcasting into the mid-1990s. In their heyday, SOAs reached approximately 2.5 million students nationwide (nearly 10% of the nation's school children) and involved tens of thousands of teachers and children directly in radio broadcasting. They also generated reams of scholarly studies by universities, government agencies, and foundations.

Despite these achievements, educational scholars who mention SOAs dismiss them as failed experiments in educational technology. Their assessments are drawn from research conducted in the early 1940s, which concluded that despite high hopes, the SOA movement had never attracted more than 10% of the potential universe of student listeners, K-12 (Reid, 1941a, 1942). Researchers at the Ohio State University concluded that, as of 1943, "radio had not been accepted as a full-fledged member of the [American] educational family...but remained a step-child of education" (Woelfel & Tyler, 1945, p. 2). Cuban (1986) asserts that teachers never accepted radio in the classroom, and Paul Saettler (1990) while more supportive, implies that educational radio declined rapidly after World War II and was nearly defunct by 1950.

I argue that these scholars rushed to judgment. They over-emphasized the significance of audience studies and audience size and neglected

to define any other criteria for measuring SOA success. Moreover, they failed to document the accomplishments of the most successful SOAs such as NBC's Music Appreciation Hour, the Wisconsin School of the Air, and the Portland School of the Air,

By providing a brief overview of the origins of the SOAs movement and an in-depth look at several of the most successful SOAs, this article demonstrates that in individual incidences, education by radio performed successfully for many decades, though typically with niche audiences. This article partly fills gaps in our knowledge and understanding of an important chapter in the history of American education and educational technology.

What Was a School of the Air?

As the name implies, schools of the air were more than just another form of educational technology. They were in fact similar to schools in their organizational structures and operations. Scholars from the mid-1940s, defined SOAs as radio programs intended for in-school use that:

- Presented courses of study (series) in a subject that was parallel to or integrated with either a specific or typical school curricula,
- Arranged programs in a series to assist in cumulative learning
- Designed individual program series for specific grade levels
- Developed broadcast schedules that coincided with the school year
- Distributed learning support materials such as teacher and student guides
- Designed series for students between kindergarten and 12 grades (Levenson, 1945; Woelfel & Tyler, 1945)

In addition, some conducted extracurricular activities and presented awards, a few tried to take attendance—through audience research—and many attempted to evaluate their programs by gathering feedback from school administrators, classroom teachers, and parents. Unlike other forms of educational technology of that day—which tended toward enrichment of discrete lesson topics—SOAs offered the possibility for supplementing curricula by presenting complete lessons, an entire learning unit or in some cases, a semester’s curricula. For some mainly rural schools, SOAs provided the entire curriculum in select subject areas,

Historical Background

In the early 1920s, just as later with the Internet, an astounding new communication media raised hopes among educators for a quick technical solution to the deficiencies of American education (Carpini, 1995). Some educators speculated wildly about radio’s potential as a teaching device. Through the connectivity of radio they reasoned, a single dazzling teacher could inspire thousands of bored students to learn and become educated (Douglas, 1987),

In the spring of 1924, Chicago-based Sears, Roebuck and Company funded the first SOA, the *Little Red Schoolhouse of the Air*. Sears provided free airtime on its fledgling Chicago-based radio station, WLS (whose call letters stood for World’s Largest Store (Taylor, 1974)) and a small salary for the schoolmaster, “Uncle Ben” Darrow, who later would play a major role in the SOA movement (Lawson, 1942; Leach, 1983; Taylor, 1974). Under Darrow’s direction, the school launched a diverse curriculum that included art, music appreciation, geography, science, and farming. Because of limited funds, Darrow had to figure out how to produce educationally effective programs with no money. His solution was simple: Let the children and teachers do it.

Several days prior to the broadcast the pupils and teachers were called into the studio for one rehearsal and to learn microphone techniques. They were then encouraged to continue rehearsing in their own classrooms until the date of the program. Darrow discovered that even young children were able to present satisfactory programs and that the children in the listening audience preferred them to adult presenters. (Lawson, 1942, pp. 5–6)

Within a year, the school’s programs reached an estimated 28,000 students in classrooms across northeastern Illinois, northwestern Indiana, and even into Michigan (Lawson, 1942),

A National School of the Air?

A visionary, Darrow foresaw that radio had created the possibility of a global village, “Who can vision the significance of the fact that...by voice the world becomes one neighborhood.” Darrow joined the Payne Fund in an effort to create a privately funded national SOA. When their proposal failed to gain support from the National Education Association and funding sources fell through, Darrow turned his attention to creating a state-based SOA in Ohio. However, others at the Payne Fund along with allies among college radio station administrators sought to persuade the federal government to set aside part of the radio spectrum exclusively for educational use. That move was fiercely opposed and eventually defeated in 1934 by the nation’s private broadcasters, lead by the newly formed broadcast networks (Barnouw, 1966). Though unsuccessful, the struggle to create a federally supported national SOA helped to stimulate the development of SOAs at different levels throughout the country. Instead of the single coordinated national effort that Darrow and others had hoped for, many independent SOAs emerged as national, state, and local entities,

“For some mainly rural schools, SOAs provided the entire curriculum in select subject areas.”

Network Schools of the Air

While the federal government and educational organizations avoided making a commitment to a national SOA, the newly formed commercial broadcast networks, the National Broadcasting Company (NBC) and the Columbia Broadcasting System (CBS), saw great benefit in such programming. They wanted to demonstrate that they could be trusted to make responsible use of the public airwaves. Broadcasting for the schools would help them fill airtime during the day and encourage greater use of radio. From roughly 1929 through 1945, two network SOAs flourished: NBC’s *Music Appreciation Hour* (MAH) and CBS’s *American School of the Air* (ASA). At their peak, they reached a combined weekly audience of approximately two million students, about 7% of the nation’s K-12 school children (Reid 1941a, 1941b).

Music Appreciation Hour (MAH)

In October 1928, NBC launched MAH under the direction of Walter Damrosch, longtime conductor of the New York Symphony Orches-

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tra. Damrosch, a self-proclaimed missionary of European classical music to the American hinterland, quickly fashioned the MAH into the most popular school radio series in the country (Woelfel & Reid, 1945). By the late 1930s, at least 600,000 students nationally tuned in regularly to the challenging classical music series (Reid, 1941a). Carroll Atkinson (1942b), prominent scholar of education by radio, declared that the MAH was “unquestionably responsible, more than any other program, for the introduction of radios into the American classroom” (Atkinson, 1942c, p. 42).

MAH Curriculum

In developing the series, Damrosch accommodated different age groups by creating a four-level instructional design, which is shown in Table 1.

The grade levels served as suggestions only. Classroom teachers were encouraged to have their students listen to whatever series seemed most suitable for them, regardless of grade or age. Each series ran 30 minutes, and two were

coupled to fill the one-hour weekly MAH broadcast. Professionally produced teacher guides and student handbooks were available for minimal charge (Atkinson, 1942c).

Each series presented a specific educational focus.

Series A highlighted the orchestral instruments, which Damrosch described as members of his musical family. He described them with colorful language and illustrated their special qualities with short piano pieces (Martin, 1983; Sanders, 1990). Series B was devoted to music as an expressive and emotional medium, dealing with subjects entitled “Nature in Music,” “Fairy Tales in Music,” and “The Dance.” Series C explored musical structure and form, such as the round, the canon, and the symphony. Series D studied specific composers from early polyphonic composers to late-19th-century ones such as Brahms and Wagner (Wiebe & O’Steen, 1942, p. 2). The final program of each series, the

Students’ Achievement Program, served as a review and test (Martin, 1983). Of course, only the classroom teacher could grade the results. For each broadcast, Damrosch incorporated a five-step instructional process: greeting, recall, preview, demonstration, and presentation.

Despite being acclaimed the most successful application of technology to education (Martin, 1983), educational researchers found that MAH instruction resulted in no significant difference in learning when compared to students who received similar music instruction without radio (Wiebe & O’Steen, 1942). However, the same researchers did find that listeners to the MAH expressed greater appreciation for, and interest in, classical music than those who did not receive radio instruction, a result that Damrosch had always embraced as most important (Wiebe & O’Steen, 1942, p. 9).

Damrosch never envisioned that his programs would substitute for local instruction. Though his lectures and teacher manuals provided good instruction, he said that they would not fulfill their proper mission unless supported by the classroom teachers’ instruction and encouragement (Damrosch, 1930). Probably the most important result of MAH broadcasts was that they enabled small, under-funded schools to provide a high level of music instruction that otherwise would have been unavailable.

NBC’s decision to air unsponsored instructional programs aimed at the schools grew out of a complex stew of motives, starting with a desire to sell radio receivers. A bigger concern was the need to mollify the public’s distrust of chain broadcasting. Some scholars assert that the main impetus was the need to fend off the growing movement among educators to have the federal government set aside 15% of all channels for public service and education. They argue that the networks used Damrosch’s dedication to the highest standards of music education as a shield against government interference in their dominance of the radio dial (Barnouw, 1966; McChesney, 1993).

State-Based Schools of the Air

During the mid-1940s, even as the networks were closing down their national SOAs, state-based SOAs flourished in Ohio, Wisconsin, Texas, Oregon, and Minnesota (Woelfel and

Series	Grades	Subject
A	4–6	Orchestral instruments
B	7–9	Music as expressive media
C	10–12	Musical structure and form
D		Specific composers

Table 1. MAH Series Organization (Damrosch, 1930, p. 373)

Tyler, 1945). A sixth, New York's Empire State FM *School of the Air*, began operation in 1948. Compared to the network offerings, state-based SOAs were long lived; three of six operated for four decades or more. Several influenced state educational curricula, and all paved the way for educational television in the classroom. The state-based SOAs succeeded probably because they focused on helping teachers in rural schools meet local educational needs. Also, they mostly broadcast over state-owned radio facilities and received resources and support from state universities. In that sense, they succeeded in becoming part of their states' educational families.

Wisconsin School of the Air. For nearly a half century, the Wisconsin *School of the Air* (WSA) broadcast a curriculum of music, art, science, literature, current events, social studies, government, and conservation to hundreds of thousands of elementary students in Wisconsin and neighboring states. Its success was confirmed by high enrollment, longevity, numerous awards, and influence on school curricula. The WSA succeeded because it 1) used radio in innovative ways to serve unmet educational needs, 2) focused on supporting classroom teachers, 3) built communities of learners, and 4) became part of a powerful statewide broadcasting network dedicated to education,

The WSA was created at the University of Wisconsin at Madison (UW) and represented a logical outgrowth of the school's guiding philosophy known as, "The Wisconsin Idea". The term carried several meanings, but the one that inspired the WSA is captured in a slogan, "The boundaries of the campus are the boundaries of the state" (Apps, 1996, pg. 97). This meant that the UW was dedicated to serving the educational needs of all the people of the state no matter what their occupation or economic status.

In the spring of 1930, with support from the Payne Fund, the UW designed an experiment to measure the effectiveness of radio in teaching current events and music to students in rural schools. Researchers believed that in those areas of curriculum, the rural schools provided few educational offerings. However, researchers emphasized that radio's greatest potential lay in supplementing, not replacing, the teacher (Barr, Ewbank, & McCormick, 1942; Schneiker, 1949). Following that successful experiment, the university created the WSA as a program function of the UW's radio station, WHA (Lowe, 1972; Schneiker, 1949). On October 5, 1931, with no public fanfare, a student announcer stepped up to the big box-like microphone: "'Station WHA presents the first broadcast of the Wisconsin School of the Air!' So began a [n instructional]

service that spanned a period of more than forty years" (McCarty, n.d., p. 1).

WSA Programs. Within a few years, with the help of UW professors and teachers from the Madison public schools, the WSA developed the programs that would gain popularity and make their radio teachers household names throughout Wisconsin. By the late 1940s, well after the network SOAs had ceased, the WSA offered a curriculum of programs that attracted nearly one-third of Wisconsin's K-8 school students. Table 2 shows the schedule for 1948-1949 with grade level and subject.

A few of WSA's most innovative and popular programs were *Let's Draw*, *Let's Sing*, *Book Trails*, *Exploring Science*, and *Young Experimenters*.

Program	Time	Grade	Subject
<i>Monday</i>			
A Field with Ranger Mac	9:30	5 - 8	Conservation and natural science
Democracy in Action	1:30	5 - 8	Social Studies
<i>Tuesday</i>			
Let's Find Out	9:30	2 - 4	Natural science
Let's Draw	1:30	4 - 8	Drawing and art skills
<i>Wednesday</i>			
Exploring Science	9:30	5 - 8	Experiments in physical science
Journeys in Music Land	1:30	4 - 8	Music, singing and note reading
<i>Thursday</i>			
Music Enjoyment for Children	9:30	1 - 4	Music appreciation for youngsters
News of the Week	1:30	5 - 8	News and background
<i>Friday</i>			
Rhythm and Games	9:30	K - 3	Games, rhythmic movement
Book Trails	1:30	3 - 8	Dramatic reading of children's literature

Table 2. WSA Schedule, 1948-49

Let's Draw. At first, the idea of teaching drawing by radio seems incredible. However, for 34 years, radio teacher Jim Schwabach, a university extension specialist in arts and crafts, broadcast art education and drawing to tens of thousands of students in rural and small town classrooms. Following an experiment with educational television, Schwabach concluded that radio allowed children to exercise their creative

Year	Total WSA Course Registrations	Total Students Enrolled in WSA*	Total State Enrollment, K-8	Percent WSA of Total State
1938 – 1939	285,172	95,013	381,973	25%
1948 – 1949	394,911	121,570	339,352	36%
1950 – 1951	457,478	124,782	355,668	35%
1953 – 1954	639,864	213,288	389,602	54%
1959 – 1960	704,614	281,845	504,688	56%
1968 – 1969	770,326	308,130	657,409	47%
1970 – 1971	603,695	241,478	679,887	36%

* Based on data gathered from the registration forms

Table 3. WSA Enrollments and Analysis, 1938–1969 (WSA 1932-71)

imagination more than did TV. For the most part, his approach reflected the influence of John Dewey’s progressive thought, which focused on activity-based learning. Schwalbach stated, “Actual experience is the best teacher. By looking at a cow, a child learns to draw a cow” (Schwalbach, 1952). *Let’s Draw* influenced art education in Wisconsin for many years (Kelly, 1990).

Let’s Sing. When WSA took to the air in the fall of 1931, UW music professor E. B. Gordon’s *Let’s Sing* was one of the initial offerings, and by the early 1940s, it attracted as many as 50,000 school children per semester (WSA, 1932-1971). Gordon’s regional and statewide community music festivals attracted over 12,000 WSA students annually (Schneiker, 1949).

Book Trails. The series featured story telling drawn from 28 featured books selected by the radio teacher. In order to synchronize the broadcast with classroom readings, the WSA mailed out in the spring the list of books to be used in *Book Trails* the following year. The list enabled rural teachers to order the books ahead of time from their county libraries. In this way, the WSA informally established the reading curricula followed by thousands of Wisconsin teachers (WSA, 1948, 1958, 1962).

Exploring Science and Young Experimenters. It seems remarkable that elementary students could perform science experiments in their classrooms under the direction of a distant radio teacher. The broadcasts, *Exploring Science* in the 1940s and 1950s and *Young Experimenters* in the late 1950s and 60s, were geared to 5th through 8th grades. Madison school science teachers, Mr. and Mrs. Lloyd Liedtke, shaped the series on the premise that listeners should participate actively in the learning process. A participating class organized itself into several experiment committees. Each week, one committee performed the experiment for that week while other class members observed and took notes. The process con-

tinued until all the committees had performed an experiment. These broadcasts enabled students in schools with no science resources to receive instruction on basic experimentation from qualified teachers (WSA, 1947-1948).

What’s striking about WSA programming is that it often attracted genuine affection from teachers and students. Apps (1996) tells a story that testifies to the popularity of *Ranger Mac*, a long-running conservation program. A country teacher in a school so poor it could not afford a radio found a way to overcome this obstacle because he was dedicated to *Ranger Mac*. When it was time to listen to the program, he took his class outside, gathered around his Ford, and listened on the car radio. “Got a little cold sometimes,” the teacher recalled, “but we never missed a program” (p. 91).

WSA Audience. WSA broadcast over Wisconsin’s statewide FM radio network, a fact that helped the WSA to attract, during its long history, between 25% and 55% of Wisconsin’s K-8 school population, more than any other SOA at any level (WSA, 1932-1971). A summary and analysis of enrollment data are provided in Table 3.

Unlike many SOAs, the WSA supported its remarkable audience claims with hard data. Each school in the state received a WSA newsletter and schedule containing an order form that asked teachers to “sign-up” for a series, indicate the number of students in the class, and order a teacher manual. The completed order forms enabled the WSA to make accurate counts of their listening audiences for each series. The high level of participation documented here reinforces the argument that the WSA played an important role in the state’s education system.

WSA Impact. Like most SOAs, the WSA conducted no summary evaluations of its programs. However, Sanders’ (1990) study uncovered descriptions of the *Let’s Sing* regional and state music festivals that can be interpreted in an evalu-

ative mode. Stressing that radio teacher “Pop” Gordon placed the priority on learning at these live events, Sanders says:

In 1956, about 27,300 children [participated] in the regional [Let’s Sing] festivals...even with audiences of some 3400 children, there was absolute quiet between songs. When Gordon addressed the children, or asked them a question, they responded in unison, and their singing was remarkably together, in light of the number...present (Sanders, 1990, p. 176).

These comments imply that Gordon’s radio instruction prepared children to sing in unison and on key, demonstrating that WSA broadcasts created positive educational results,

Discussion

The WSA achieved high acceptance from Wisconsin teachers primarily because it dedicated itself early on to serving the unmet educational needs of rural students and their teachers. That dedication was highlighted in a statement by E. B. Gordon, one of the original and most popular WSA teachers. Speaking before the WSA went on the air, Gordon highlighted the WSA mission:

Do you know there are still more than 4,000 one-room rural and small state-graded schools in this state? Just think of those poor [teachers] out there, trying to teach all subjects and all grade levels. Most of them have had no training in music or art and the creative activities that children need. Let’s see how we can help them by radio (Gordon, 1930, in McCarty, n.d., quote from speech).

WSA’s association with the UW gave it great credibility among teachers, administrators and parents as well as access to Wisconsin’s powerful FM radio network. Finally, large-scale learning events such as the regional sings and art shows built a sense of community among the WSA, students, teachers, and parents,

Local Schools of the Air

Broadcasting for the schools received a shot in the arm in the early 1940s when the Federal Communication Commission (FCC) allocated part of the new FM radio band for educational use. By the end of the decade, thirty-one local school districts offered radio programming intended for the classroom, but radio scholars of the day deemed that only eight of those qualified as Schools of the Air. They included school boards in Cleveland; Chicago; New York; Detroit; Rochester, New York; Alameda, California;

Akron, Ohio; and Portland, Oregon (Atkinson, 1942a; Saettler, 1990, p. 197; Woelfel & Tyler, 1945, p. 89),

Portland (KPBS) School of the Air

Despite its status as a mid-sized city, Portland’s *School of the Air* (PSA) (also known as the “Portland Program” or KBPS) proved innovative and dynamic, and its 60+ years of operation from 1933 to the mid-1990s made it the longest running in the nation. The PSA distinguished itself in two ways. First, despite a small paid staff, it continually broadcast a full day of in-school and after-school programs. Second, more than any other local SOA, the PSA got students and teachers involved with the full range of creative radio work: writing, producing, performing, announcing, and engineering. Several student-written programs won national recognition and awards.

The PSA is best understood through the story of its student-run radio station, KBPS. Started in 1923 at Portland’s Benson Polytechnic High School, KBPS still broadcasts from the Benson facility as of March 2006, making it undoubtedly the country’s longest running educational radio station. KBPS’s story is unusual because it was one of the few, if not the only, educational station run by students, albeit under faculty direction (Swenson, 1958). KBPS directors decided early on that they wanted to serve the classroom, the student body, and the wider Portland community. Remarkably, long after other educational stations had given up on in-school instruction, KBPS continued to call itself the “Voice of the Portland Public Schools”. It boasted a full schedule of programming for in-school use covering “nearly every subject area and at nearly every grade level—all planned in cooperation with the curriculum department of the Portland Public Schools” (KBPS, 1988). The focus here is on PSA offerings during the years from 1978 to 1995.

PSA (KBPS) Curricular Correlations

Table 4 (on the following page) shows the program series offered for 1978–1979 by curricular area and intended grade level,

The chart includes 36 program series in eleven curricular areas. Remarkably, 15 series were developed by teachers or subject experts from within the Portland school system. Using a Master Matrix, the PSA staff further categorized each series according to the language arts skills it helped develop. For example, the main curricular thrust of *Arnie’s Art Shop* was art of course, but it could also be used to build the communication skills of listening, reading,

Portland Public Schools Curriculum Areas and Series Title	Recommended Grade Level				
	K-3	4-6	5-8	7-8	9-12
ART					
<i>*Arnie's Art Shop</i>	X				
	X				
		X	X		
	X				
CONSUMER EDUCATION					
<i>*Watcha See Is Watcha Get</i>			X	X	
<i>*Wise Choices I Make</i>	X				
<i>If You've Got a Dime, You've Got a Choice</i>		X	X		
HEALTH/PE					
<i>*Catch Yellow Bus</i>	X				
<i>Healthy, Happy and Wise</i>	X				
<i>Health, Well-Fed and Wise</i>	X				
<i>*Movin' Free</i>	X				
<i>Getting to Know You</i>		X	X		
LANGUAGE ARTS					
<i>Better to Listen With</i>	X				
<i>Drama</i>	X	X	X	X	X
<i>Listening/4</i>		X	X		
<i>Mr. Saymore Says</i>	X				
<i>News Capsules</i>	X	X	X	X	X
<i>*Spell Down I - II</i>	X	X	X	X	
<i>*Spelling Bee I - II</i>	X	X			
<i>Spotlight</i>	X	X	X	X	X
<i>The Poem Maker</i>		X	X		
<i>The Spider's Web</i>	X	X	X	X	X
<i>Turn On Your Ear</i>		X	X	X	
LAW RELATED					
<i>Inquiry: The Justice Thing</i>			X	X	
<i>* Law Is...</i>		X	X		
MATHEMATICS					
<i>*Make It Metric</i>			X	X	
<i>*Math Whizzes</i>	X	X	X		
<i>More or Less</i>	X				
MULTI-CULTURAL					
<i>Out of Many, One</i>		X	X	X	
MUSIC					
<i>*Catch a Sound</i>	X				
<i>Music and Me</i>	X				
SCIENCE					
<i>Exploring Science II</i>	X	X			
<i>Pollution/Energy</i>		X	X	X	
SOCIAL SCIENCES					
<i>Animal Focus</i>	X	X	X		
<i>Mail Bag</i>			X		
<i>*Who Cares?</i>	X	X			

* Indicates series mostly likely developed within the Portland Schools

Table 4. KBPS Radio Series 1978-1979 (Listening Text, 1979)

speaking, and writing as shown from the listing below.

Primary, K-3. *Arnie's Art Shop*

- Goals: Students will develop concepts and skills of art through a wide variety of media experiences.
- Description: Listeners participate actively following Arnie's directions as they explore painting, stitchery, appliqué and collage, and print making.
- Skills: Learning skills include problems solving/critical thinking, observation [sic]. Technical skills including material and tool use, drawing, painting, ceramics, textiles (Listening Text, 1979).

Student Involvement. In a memo dated 1982, long-time station director Patricia Swenson outlined the services that KBPS provided to the Portland schools. They included among other things:

- Career education in radio
- In-school programming in many subject areas prepared in cooperation with the curriculum department
- Musical and dramatic performance opportunities for students at all grade levels
- Participation in school dramas and city competition in spelling and math
- Assistance to school personnel in writing, producing and narrating radio programs
- Drama workshops (Swenson, 1982)

The last four items on Swenson's list relate to student participation in radio, which during the final years became the focus for KBPS's service to the school. The KBPS 65th anniversary brochure (1988) trumpets "many opportunities for creative student performances. Daily broadcasts include newscasts, storytelling, dramas, debates, panels and forums" (KBPS, 1988),

Remarkably, in 1993 more than a decade after all other local SOAs had gone silent, KBPS distributed a bouncy brochure, *KBPS at a Glance, 1993-1994*. It invited Portland classroom teachers to get their students involved in one of several student panel discussion programs. For a series on radio drama billed as "A whole-language learning experience," students performed and recorded plays that were broadcast later over KBPS. Scripts at the appropriate reading levels were written by KBPS staff or volunteer teachers. In one long-running scripted series, *Old Tales and New*, students celebrated Oregon history by performing radio plays about the Oregon Trail (KBPS, 1993).

Competition in math and spelling made up two popular series. *Solvit* gave fourth, fifth and sixth graders the opportunity to demonstrate their

math skills by solving word problems on the air. The goal was to promote skill in step-by-step problem-solving methods. Competitions for each grade level aired for two hours several times each semester. All on-air participants received recognition as a Challenge Winner or a First Round Winner. *Spell-down* was open to students in grades 3 through 5. Students first took a written spelling test. Those who scored 80% or better qualified to participate in the on-air spelling competitions. All participants and their schools were recognized (KBPS, 1993). While hard audience data is not available, it seems reasonable to conclude that the PSA relied heavily on student involvement to keep teachers and students engaged in the process of education by radio.

"When it was time to listen to the program, he took his class outside, gathered around his Ford, and listened on the car radio."

Summary and Conclusions

The radio SOA movement started with a doomed effort to create a national SOA. That in turn gave rise to two network supported SOAs that chiefly served the needs of corporate public relations. Nevertheless, NBC's MAH achieved remarkable acceptance among school-based music teachers. The state-based SOAs focused on the needs of rural students. The WSA earned a high level of acceptance from teachers and educational administrators mainly because the WSA focused on supplementing curricula with specific educational services rather than trying to compete with live classroom instruction.

Finally, the PSA seems to have gained wide acceptance from teachers and students by continually encouraging their involvement in all facets of educational broadcasting. It filled a need for active engagement that could not be adequately addressed in the classroom. Today, finding and addressing unmet educational needs might provide a successful approach for on-line instruction.

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