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Public interest standard characteristics in hybrid digital multicasts of noncommercial educational radio

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PUBLIC INTEREST STANDARD CHARACTERISTICS IN HYBRID DIGITAL

MULTICASTS OF NONCOMMERCIAL EDUCATIONAL RADIO

by

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ABSTRACT

Public Interest Standard Characteristics in Hybrid Digital Multicasts of Noncommercial Educational Radio

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Radio broadcasting implements digital multicasting in the United States with the adoption of HD Radio from iBiquity. Hybrid digital radio multicasts can upgrade either AM or FM facilities, and stations adopt the technology without loosing traditional analogue broadcasts. Broadcasting with digital technology creates additional channels of information, extending limitations of the electromagnetic spectrum. Scholarly research about hybrid digital technology considers motivations for adoption by stations but has not focused on content of existing multicasts. This study examines noncommercial educational radio multicasts for characteristics of service in the public interest.

Discourse characteristics find a mix of sounds that include both speech and music. There are generally multiple voices participating within 15 minutes of multicast content. The mix within a segment offers more than one kind of material, this and offering multiple voices in a segment are markers for public service. The mix of female, male, and other voices present in the sample advances demographic diversity. Two diversity characteristics, social role and language, indicate areas where content is usual presented by an adult speaking English. Demographic diversity scarcity offers areas of potential development for multicast service.

Normative information about a society can improve understanding of how individuals participate in the public sphere during a period of current converged, mobile, and digital media use. This study incorporates concepts of ritual media use that James W. Carey introduces in *Communication as Culture*. The exploration of public interest standards with the ritual media use model allows for discussion about created communities not bound by physical and geographic limitations.

This examines radio's hybrid digital multicasts as part of the public airwaves legislated through the 1934 Communications Act (1934, 1952, 1996) to serve the public interest, convenience, and necessity. Four perspectives clarify the meaning of public interest standards in the United States. These perspectives are democratic discourse, legislative history, administrative law, and judicial review. Informed with normative theory and a ritual media model, this content analysis of hybrid digital multicasts contributes to our understanding of media environments, transitions in media, public discourse, and democratic governance in the United States.

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CHAPTER 1

BACKGROUND

At the end of 2010 in the United States 3,311 noncommercial educational licensees account for over 10 percent of the total licensed broadcasters, and noncommercial radio licensees represent 22.7 percent of the 14,619 total radio stations in the nation, as reported in February 2011 (FCC, 2011). University-licensed stations are an understudied area that has long-standing history in broadcasting (Wall, 2007, pp. 35-36). Transitions and advances in communications technology change the ways in which people participate in daily life and social interaction. The ways in which people listen and learn to one another develop new platforms and receivers. Technology can impact casual activities and civic activities alike in a society. Noncommercial hybrid digital[1] channels offer a space for radio to develop diversity characteristics on the public airwaves. Studies of hybrid digital radio include motivations for station adoption (see Greer & Ferguson, 2008); however, examination of radio content includes older works that do not reflect the recent hybrid digital technology adoption. Motivation studies do not incorporate study of content using this system, the area of study for this research.

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[1] This study uses the phrase hybrid digital to describe the In Band On Channel technology, trademarked as HD Radio and developed by iBiquity with its media partners – CBS, COX Radio, Inc., Radio One, AM/FM, Clear Channel Communications, Inc., Entercom, Cumulus, Emmis Communications, ABC Radio Networks, Hispanic Broadcasting Corporation, Citadel Communications Corporation, Chase, and Gannett (Stull, 1999, slide 2). Hybrid digital technology needs a separate receiver from analogue radio, in competition with other products like satellite radio or DAB receivers.

While the United States adopts a hybrid digital system, trademarked as HD Radio by iBiquity, for its multicasts[2], other technology has roots in Digital Audio Broadcast (DAB) as adopted in Japan and Finland (Ala-Fossi & Stavitsky, 2003, p.63 & 66). These systems use different transmitters and receivers for access to the broadcast spectrum. "Simply as different technological platforms for digital audio broadcasting, the implementation of these systems would have distinctive social, political and economic consequences" (Ala-Fossi & Stavitsky, 2003, p. 75). One consequence Ala-Fossi and Stavitsky describe is the power of networks and media owners to influence adoption of technology or division of the public airwaves. The medium of radio broadcasting develops uniquely, distinguished by regulation of its nation, and through the technology used within its society.

Hargrave and Shaw (2009) examine public interest in the United States, United Kingdom, India, and Australia, find that accountability in broadcasting is increasingly important since the 1980s as international broadcasting relies upon free market economics more than before and digital technology creates finer divisions broadcasting spectrum (pp. 2-3). Reed Hunt, former FCC chairman, described three elements for testing the nature of public interest in license applicants: technology; funding; and "the social landscape, the group, large or small, to which a service was to be directed" (Hargrave & Shaw, 2009, p. 49). The type of license held may influence a station's "communicative capacity" (Hendy, 2009, p. 266). Commercial licenses, low power licenses, hobbyist licenses, military and emergency service licenses, and noncommercial educational licenses use their public airwaves in different ways.

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[2] Multicasts are the simultaneous transmissions of analogue and digital signals from a broadcast station. Digital signals transmit on HD channels (HD1, HD2, or HD3).

Radio and other electronic broadcasts take place on the electromagnetic spectrum, a regulated space and public trust guided by the public interest standard (Rowland, 1997, p. 314). The public interest standard for broadcasters includes serving the "public interest, convenience and necessity" as established in the 1927 Radio Act and upheld in the 1934 Communications Act (1934, 1996). As Secretary of Commerce in 1926, Herbert Hoover argued "… the public interest is paramount in all forms of radio activity … the interest of the public as a whole supersedes the desire of any individual" (Hearings, 1926). Hiram Percy Maxim of the American Radio Relay League was an amateur broadcaster representing and supportive of alternatives to commercial broadcasting at Hoover's radio conferences (1922-1925) (Robb, 2009, p. 21). Hoover's thoughts did not receive enduring support in the legislation of broadcasting in this period, yet became part of alternative views in broadcasting legislation as noncommercial educational advocates continue to challenge commercial radio's dominance in the United States.

Early Radio Regulation, 1920s – 1930s

Public interest standards guide radio broadcasters who multicast, though the standard depends on context and is not clearly defined. The legislative terms of the public interest standard originate in public utilities and railroads legislation, and in the 1927 Radio Act sections 10 and 21 indicate applications for licensing consider character, financial, technical, and additional qualifications of the station (Caldwell, 1930, p. 299-301). Federal Radio Commission (FRC) questionnaires summarize the time devoted to different types of programming including entertainment, educational, religious, agricultural, and fraternal interests (Barnouw, 1968, p. 30). These FRC records offer information about content that can help understand the interpretation of public interest

service at the time. Complaints about stations provide an additional record included in FRC review (Barnouw, 1968, p. 30). The FRC developed criteria for the public interest standard in *Great Lakes Broadcasting Co. v. Federal Radio Commission* (1930). Well-rounded programming, assessment of programming's fulfillment of the public interest standard for license renewal, frequency preference for stations operating longest hours, and order of no "propaganda stations" became the four elements FRC examines for licensees (Robb, 2009, p. 27). In *Federal Radio Commission v. Nelson Brothers Bond & Mortgage Co.* (1933) radio stations WIBO and WPCC agreed to share a frequency in Gary, IN. Another application for the frequency arrived from WJKS, which the FRC licensed because the content offered strong service in the public interest particularly for immigrant populations, including "Hungarian, Italian, Mexican, Spanish, German, Russian, Polish, Croatian, Lithuanian, Scotch and Irish people" (*FRC v. Nelson Brothers*, 1933, at 271). WIBO appealed the decision as "arbitrary and capricious," but the United States Supreme Court determined substantial evidence supporting the FRC decision (*FRC v. Nelson Brothers*, 1933, at 287).

As legislation of communications continued in the 1930s, the dynamics of radio broadcasting in the United States shifted to commercial dominance. McChesney (1990) critically examined Louis J. Caldwell's motivations for advocating administrative regulation, including his roles as Federal Radio Commission's First General Counsel and as American Bar Association Chairman for the Communications Committee. Caldwell foresaw the importance of the public interest standard and wrote, "The radio law of the future, unless radical changes are made in federal legislation, is going to be largely a matter of defining and applying this indefinite standard to problems and cases as they

arise" (Caldwell, 1930, p. 296). McChesney observed the early advocacy for advertising-supported and network-affiliated radio broadcasting contributions to societal acceptance of the system as "natural," which impedes scholarly research of political and intellectual issues in broadcasting. From over 200 nonprofit and university stations in the late 1920s, noncommercial stations became less common and by 1934 two-thirds no longer broadcast, less than 2% of total broadcasters in that year (McChesney, 1990, p. 33). Academic and noncommercial interests in early broadcasting were significant for the foundation of the public interest standard (Hargrave & Shaw, 2009, p. 162). Legislative priorities for United States broadcasting addressed alternative viewpoints, such as those from amateur and educational broadcasters.

Supporters of noncommercial radio included Joy Elmer Morgan the director of the National Committee on Education by Radio, Edward N. Nockels of the Chicago Federation of Labor station WCFL, John B. Harney of the Paulist Fathers[3] religious station WLWL, and American Civil Liberties Union Director Roger Baldwin (McChesney, 1990). Nockels, an electrical worker, founded WCFL, the first radio station owned and operated by a labor union (University of Washington, 2001). Attending a 1927 hearing about spectrum distribution, Nockels questioned, "Is it in the 'public interest, convenience and necessity' that all of the ninety channels for radio broadcasting be given to capital and its friends and not one channel to the millions that toil?" (Robb, 2009, p. 25). Morgan worked with Ohio Senator Simeon Fess in 1931, attempting to earmark 15 percent of radio resources in the United States for public agents, including

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[3] Paulist Fathers are an order of Catholic Christianity engaging the Bible with contemporary culture (Missionary Society of St. Paul, 2011).

educators (Leach, 1983). The Wagner-Hatfield amendment from Senators Robert Wagner and Henry Hatfield petitioned to designate one-quarter of the spectrum space for noncommercial broadcasting. The amendment was not adopted into the 1934 Communications Act, even with support from other noncommercial broadcasters like Paulist Father Harney (McChesney, 1990, p. 45). Legislative proposals like the Wagner-Hatfield amendment reflected motivations of various noncommercial and educational interests, from teaching in rural areas to sharing religious services with homebound individuals. The Paulist Fathers offer materials like "Busted Halo Radio Show" through satellite service and music recordings of Christmas programs now offered online (Missionary Society of St. Paul, 2011).

Several areas of community benefit from alternatives to commercial radio including educational institution, artists and musicians, and county councils, as local authorities. "The entire opposition movement was propelled by a profound desire to create a broadcasting system that would better promote its vision of a democratic political culture" (McChesney, 1990, p. 39). Commercial broadcasting, dominated by networks and advertising, would maintain the status quo, leaving unpopular and radical ideas off the airwaves, thus decreasing the democratic potential of radio broadcasting, McChesney argued. However, commercial ventures like the "Fireside Chats" held in the early 1930s by President Franklin D. Roosevelt addressed democratic goals presented by an elected official. Elements of democratic speech from within the system existed within the status quo, but they were not the challenging ideas McChesney envisioned.

Radio broadcasting offers methods of cultural assimilation for new immigrants, crosses barriers of illiteracy, and it is perceived as a way to engage the republic (Craig,

2008, p. 133). Ownership patterns in 1939 reflected social discrepancies, and African Americans in particular filled roles as listeners but not full participants in the creation of content or ownership of media (Craig, 2008, p. 136). Shifting relationships of minority groups and social class systems are areas upon which scholars reflect.

In 1926, high unemployment and decreased pay plagued employees, while earnings for big businesses in the United Stated increased, benefiting businesses like RCA, NBC, CBS, General Electric, and developing advertising field (Barnouw, 1968, p. 17). Corporations and businesses ownership of media, community interests, and radio use in the United States undergo judicial review using the public interest standard from the 1934 Communications Act.

Public Interest Standard Application in Radio, 1940s – 1960s

For the U.S. Supreme Court, the public interest standard is the "touchstone" of authority to regulate and licenses must be measured against the public interest standard (Robb, 2009, p. 29). "Educational radio developed ad hoc, as a collection of independent stations scattered widely, based primarily at colleges and universities" (Stavinsky, 1994, ¶ 14). Reservation of spectrum space for noncommercial FM broadcasters began in 1940, with five channels reserved for noncommercial use, and grew in 1945 to reserve the first 20 channels for noncommercial use (Smith, Wright & Ostroff, 1998, p. 584). The educational and noncommercial uses of radio find support from groups considering what media should do in a democracy.

The Hutchins report *A Free and Responsible Press* (1947) is a key document from the normative theory of social responsibility, which asserted the importance of noncommercial and educational broadcasting. "It can restore an element of diversity to

the information and discussion reaching the public by organizing the demand for good things and by putting out good things itself. … educational FM stations could put before the public the best thought of America and could make many present radio programs look as silly as they are" (Hutchins, 1947, p. 98). Reservations of the broadcast spectrum for educational channels continued with the efforts of FCC Commissioner Freida Hennock, an educational television and children's programming advocate (Beadle & Stephenson, 1997). During the FCC television license freeze (1948-1952) that provides FCC the opportunity to reduce conflicting signals for television broadcasters and direct the transition from black and white to color broadcasting, Hennock is "the principal moving force behind the creation of educational television" (Brinson, 2002, p. 118).

FCC Chairman Newton N. Minow demonstrated support for public interest service in his speech to the National Association of Broadcasters (NAB) delivered in Washington, DC in May 1961 (Minow, 1961). Minow advocated for balance in programming, saying in his first speech as chairman, "I believe that the public interest is made up of many interests. There are many people in this great country and you must serve all of us" (1961, at ¶ 30).

FCC decisions from 1949 into the 1960s permitted broadcasting stations the right to editorialize, while Fairness Doctrine obligations required stations to air public issues where overall programming of the stations provided different viewpoints on important, controversial issues (Smith, Meeske & Wright, 1995, p. 314). Limitations of spectrum space and First Amendment rights engaged with Fairness Doctrine requirements after a Pennsylvania radio station refused free reply time for personal attacks on author Fred J. Cook by program host Reverend Billy James Hargis.

In *Red Lion Broadcasting Co. v. FCC* (1969) the U.S. Supreme Court recognized the importance of the First Amendment for broadcasters, explaining how the First Amendment applies differently for broadcasters than it does for an individual or a printed publication (at 389 and 387). Because broadcasting operates with expanded abilities through a new medium and operates in a limited spectrum of government-regulated frequencies, broadcasters have unique obligations, and the government may advance the First Amendment status of viewers and listeners ahead of the broadcasting licensee's rights (Smith, Meeske & Wright, 1995, p. 326). Delivering the opinion of the Court, Justice Byron R. White wrote, "It is the right of the viewers and listeners, not the right of the broadcasters, which is paramount" (*Red Lion v. FCC*, 1969, at 390).

First Amendment Distinctions for Broadcasters, 1970s – 1990s

During the 1970s and 1980s technology made possible additional divisions of spectrum space, and broadcasters questioned the public interest standard; however, the United States Congress upheld the public interest broadcasting standard (Rowland, 1997, p. 312). The distinction between broadcast and print First Amendment rights emerged again in 1974 with the Supreme Court case *Miami Herald Publishing Co. v. Tornillo*. A collective bargaining agent with the Teachers Association ran for public office in the Florida House of Representatives. Following the publication of editorials in the Dade County press, Pat Tornillo demanded a right to reply under Florida statue. Print publications collectively provide readers with a marketplace for ideas and communication. There is a "profound national commitment" for the "uninhibited, robust, and wide-open" debate of public issues recognized by the Supreme Court *(Miami v.*

Tornillo, 1974, at 252-253). Ownership trends, like monopolies, impact the fields of media and communications.

Monopoly control of press impedes the commitment to public debate of issues, by infrequently presenting multiple views on an issue and lacking motivations for debate or education; instead, press controlled by monopolies may "inculcate in its readers one philosophy, one attitude – and to make money," as Justice William O. Douglas explained 10 years before (*Miami v. Tornillo*, 1974, at 253). Noting the value of these arguments that would require government to advance the First Amendment status of readers beyond those of the press, the Court determined that a paper's size and content, including the materials published, the materials not included in publication, and treatment of public issues and officials are areas of "editorial control and judgment" (*Miami v. Tornillo*, 1974, at 258). The government may not advance reader rights ahead of a newspaper in the same way *Red Lion* permits the government to advance listener and viewer First Amendment status over rights of broadcasting licensees.

The media fields of broadcasting and print may differ in regulation, yet they operate with some commonalities within United States society, like concerns about the motivations of monopolies owning media. Contemporary broadcasting ownership trends move towards corporate structures, which can discourage public affairs coverage of controversial subjects (Hargrave & Shaw, 2009). Ownership structures sold to ever-larger corporations can result in a muted democratic dialogue (Hargrave & Shaw, 2009, p. 166). As regulations in areas diverge and overlap, the FCC fines for infractions of profanity and indecency rules can happen to any station in the nation, potentially leading to judicial

review. In certain areas, like profanity regulations, broadcasting facility regulations apply to any type of license, regardless of the owner.

Muted dialogues need not arise from ownership concerns alone but also may arise from concerns of censorship or intrusion upon First Amendment rights. The Supreme Court interprets the First Amendment as means to advance certain values and achieve social functions; the First Amendment functions as a balance for governmental powers, a "safety valve for social discontent or a means of personal self-realization" (Trager, 2010, pp. 55-56).

Free speech is valued as a human right of individuals, having its own inherent value (Trager, 2010, p. 56). In April 1968 in the Los Angeles Municipal Court police arrested, for offensive conduct, Paul Robert Cohen who was wearing a jacket with the words "Fuck the Draft" to express the "depth of his feelings against the Vietnam War and the draft" (*Cohen v. California*, 1971, at 16). The words did not penetrate into the privacy of homes, and though potentially distasteful for unsuspecting or sensitive viewers, the presumed presence of unwitting individuals "does not serve automatically to justify curtailing all speech capable of giving offense" (*Cohen v. California*, 1971, at 21). The Court reviewed the dual roles of words as to communicate ideas and emotions. "In fact, words are often chosen as much for their emotive as their cognitive force" (*Cohen v. California*, 1971, at 26). Censorship risks suppressing ideas and unpopular views, free speech rights extend to cover informed, responsible speech, and speech that is foolish or not moderated (*Cohen v. California*, 1971, at 26). Profanity and indecency possess free speech values, and in broadcasting these types of speech cannot be banned from the airwaves entirely. First Amendment status concerns of individuals and society emerge

alongside protections for sensitive audiences and those unknowingly exposed to broadcasts in private spaces like the home.

When licensed stations broadcast profanity and indecency, and stations choose to challenge FCC decisions, the United States courts review television and radio together as one category. The George Carlin monologue "Seven Dirty Words" aired with an introductory warning during an afternoon discussion of contemporary language on Pacifica's non-commercial station WBAI-FM in New York. In October 1973 a father and child, traveling by car in the afternoon, heard the Carlin monologue, originally performed in California theaters. Not obscene under the Miller Test[4], the father's complaint resulted in a fine for the station by the FCC. In the majority opinion of *FCC v. Pacifica* (1978) the Court wrote, "We simply hold that when the Commission finds that a pig has entered the parlor, the exercise of its regulatory power does not depend on proof that the pig is obscene" (at 751). The decision of the Court elaborates on four areas in which broadcasting media regulations serve the public interest: (a) possibility of unsupervised daytime access to broadcasts by children; (b) broadcast media receivers extend into private homes where extra deference extends; (c) broadcasts can reach adults and offend without warning or consent; and (d) broadcasts take place on a limited spectrum (Smith,

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[4] In *Miller v. California* (1973) the Supreme Court establishes the three-part test for obscenity. In the Miller opinion by Justice Warren E. Burger interpretation of materials is through the eyes of an average person, applying contemporary community standards. The person must find materials on the whole as appealing to prurient, sexual interests. Materials must describe sexual conduct in a patently offensive way, and must lack serious literary, artistic, political, or scientific value (SLAPS) when using a national standard.

Meeske & Wright, 1995, pp. 361-362). FCC inquires may consider repetition of profanity and indecency, and contextual matters like audience, time of day, the method, and the medium when making determinations.

The DC Court of Appeals upholds regulation of titillating sexual discussions when the program airs while children are potential audience members. In *Illinois Citizens Committee for Broadcasting v. FCC* the FCC regulation "does not unconstitutionally infringe upon the public's right to listening alternatives" (*Illinois Citizens Committee*, 1974, at 406). FCC indecency and profanity regulation in the 1970s and 1980s continued and expanded to include materials discussing sex, incest, and child pornography either explicitly or using innuendos.

FCC inquiry for University of Pennsylvania station WXPN-FM examined broadcast materials from December 1975 discussing incest, sex, and using profane language in "The Vegetable Report" (Tickton, 1990, p. 58). Noncommercial educational station fines continued, as with a broadcast of "Makin' Bacon" by Pork Dukes during a 9:30 p.m. program in 1987 on the University of California, Santa Barbara station KCSB-AM. FCC inquiry questioned the station's leadership in the student-run environment (McDougal & Puid, 1989).

FCC inquiry of commercial broadcasters included "Erotic City," the Prince single, as an example that elicited fines in 1988 in Las Vegas and in 1996 further elicited fines for station KTFM in San Antonio, TX and KPTY, KBZR in Phoenix, AZ (FCC Indecency Fines, 2004). Syndicated shock radio personality Howard Stern repeatedly violated FCC indecency and profanity regulations until his move to satellite radio in 2006. In Pennsylvania, inquiries of Stern materials included Philadelphia's WYSP-FM,

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Pittsburgh's WXRK-FM, and stations WJFK-FM in Manassas, VA and in Los Angeles, CA station KLSX-FM.

In the case of broadcast profanity and indecency, FCC regulations restrict speech to safe harbor hours (midnight-5:59 a.m. for broadcasters operating 24 hours a day, seven days weekly), when children are unlikely audience members (Smith, Wright & Ostroff, 1998, p. 448). First Amendment rights engage with time, manner, and place content-neutral regulations (Trager, 2010, p. 64). While profanity and indecency cannot be banned completely from the airwaves, in the United States society seeks balance when protecting vulnerable people from profanity and indecency and embracing democratic free speech rights (Trager, 2010, p. 523).

Contemporary Noncommercial Educational Radio, 2000s – 2010s

The FCC evaluates noncommercial educational license applicants with a point system that considers a station's localism and diversity, qualities associated with the physical location of the licensee or its board of directors (FCC, 2010). Napoli (1999) refers to FCC diversity as source diversity, and provides two additional elements in understanding diversity: content diversity and exposure diversity. Source diversity relates to ownership of media outlets; content diversity relates to media presentations; and exposure diversity is when citizens partake of media to fulfill democratic and self-governing roles (Napoli, 1999, pp. 11-12).

Challengers of the point system evaluation in *American Family Association, Inc. v. FCC* (2004) include National Public Radio, Inc., the Association of Public Television stations, and the State of Oregon. The District of Columbia Circuit Court of Appeals decides in favor of the FCC, emphasizing content and location of production are not areas

of rational regulation (American Family Association, 2004, at 54). "With the FCC showing no indication of revisiting localism in any substantial form, it could very well be up to the radio industry itself to take the lead" (Sauls & Greer, 2007, p. 46).

Public interest service continues to offer a variety of interpretations in broadcasting, a reflection of past concerns in present circumstances. Limitations of spectrum space established the airwaves as a part of the public sphere, shared amongst various interests like military, research, emergency services, and public media. Sharing the space changes with technology, and can reflect concerns of previous media interactions. As radio receivers became prominent in homes, administrative regulations attempt to balance speech rights and freedoms. FM expansions of spectrum space offer a space for freeform programming to develop amongst counter culture groups of the 1960s. Regulations of offensive speech as profane and indecent create a balance of radio's development and its service to the public.

The Fairness Doctrine lost support in the 1980s, and following a commissioned Congressional study and challenges in the U.S. Court of Appeals, the FCC repealed the Fairness Doctrine in 1987, with the exception of rules for personal attacks and political editorializing (Smith, Meeske & Wright, 1995, pp. 328-329). "Public stations may not endorse or oppose a political candidate, although they may air editorials about public issues" (Trager, 2010, p. 469). Other regulations guide radio broadcasting speech, including regulations for profanity and indecency or on-air messages associated with financial contributions.

The FCC differentiates noncommercial educational and commercial speech in radio as with advertising and supporter recognition messages. For noncommercial educational

broadcasting, FCC standards prohibit qualitative language, calls to action, inducements to buy, and price information (Oxenford, 2011, ¶ 2).

Noncommercial educational radio broadcasting navigates amidst the commercial broadcasters and broadcasting interest groups, as all broadcasters consider the practical approaches in providing service to the public of the United States.

CHAPTER 2

LITERATURE REVIEW

Radio and the Digital Media Environment

The background of a national system of broadcasting regulation illuminates a

specified culture and society. As in industry, radio forms within the regulatory, economic,

technological, and social factors of its society (O'Baoill, 2009, p. 100). The hybrid

digital multicasts of radio in the United States exist in a digital media environment, with

global and converged characteristics. Radio is a medium where space and time should be

considered, since physical location no longer defines what is local because community

also forms in other spaces, like the Internet (Berland, 1990). However, Tacchi (2000)

observes that developing technology's incorporation into radio's definition emphasizes

place and time, which provides a nation context for radio (p. 296). Hendy (2009)

considers the temporal context of radio as linear and time-based with measurements

moving always forward in time, like the seconds of a jingle played and the weeks of a

broadcast series (p. 257). Radio moves further from its traditional definition, developing

similarities with visual forms, like the Internet, as radio adopts text-based features

(Coyle, 2000, p.70). In the digital media environment on-demand radio programs,

Internet streaming of traditional radio stations and podcasting are platforms differing due

to shifts in temporal contexts, and listeners may not retain the communal listening

experience typical with traditional radio (Neumark, 2006, p. 214). The digital media

environment is the one in which hybrid digital multicasts emerge.

While use of the Internet as a promotional tool is strong amongst traditional media,

websites for radio, television, and newspapers all lack audience interactivity (Seelig,

2008, p. 241). Seelig (2008) concludes, "for now at least, traditional media are playing it safe in their venture online by repurposing or simply extending content from their traditional counterpart" (p. 245). As traditional media explore the digital media environment, media users explore the diversity of content and platforms available. People engage digital media environments using multiple formats and various forms, experiencing radical changes in interactivity and consumption of media (Pilotta et al, 2004). The different methods and manners people use to engage media during their daily activities explore the complexities involved in researching the topic.

Pilotta et al (2004) examine people's simultaneous use of different media, discussing a dynamic where media become foreground and background for one another (p. 291). Foreground activities engage the primary attention of a person, and activities happening at the same time with less of a person's attention have a background status. The attention given to a medium may depend upon other tasks, including radio use, other media use, and face-to-face interactions. Multitasking during driving, including text messaging and talking on cellular phones, contributes to risky behaviors for drivers (National Safety Council, 2010). While people perceive themselves as successful while multitasking, it is not as efficient as assumed (Stanford University, 2009). Multitasking challenges assumptions regarding media exposure, use, and the experiences of people (Koolstra, Ritterfeld & Vorderer, 2009, p. 234). "Multitasking challenges the very idea of media users making a more or less deliberate decision about what kind of media they are going to use and what specific content they are willing to expose themselves to" (Koolstra, Ritterfeld & Vorderer, 2009, p 234). Media users choose form, select content, and experience individualized media. Individual participation and motivations for using

media should recognize converged digital environments, production's influences, and content as different forms of the medium of radio emerge globally.

<center>Uses and Gratifications</center>

Uses and gratifications research "has always provided a cutting-edge theoretical approach in the initial stages of each new mass communications medium," Ruggiero argues (2000, p. 27). Albarran et al (2007) apply a uses and gratifications approach to study music listening options of 18- to 24-year-old audiences. The motivations among audiences for radio listening include the need for companionship, filling a void in a daily routine, relieving boredom, altering the mood, gathering information, overcoming isolation, and participating in society as part of an audience (Albarran et al, 2007, pp. 93-94). People use media, more generally, to relieve tension, to find information, to supplement for what is lacking in real-life, to affirm and reinforce values, and to sustain membership in a valued group (Katz, Blumler & Gurevitch, 1973). Motivations for media use outlined by McQuail (2005) include: information, guidance, diversion, social contact, value reinforcement, cultural satisfaction, emotional release, identity formation, lifestyle expression, security, sexual arousal, and filling time (p. 428). The uses and gratifications approach studies media generally or narrowly, as with a specific technology for listening.

Examining audiences' gratifications for listening, results show MP3 technology highest ranked of listening options for college-aged students, except in the category of news and information gathering, for which AM and FM radio listening ranks highest (Albarran et al, 2007, p. 97). In younger audiences iPods substitute for traditional radio listening, especially with music content (Ferguson et al, 2007, p. 116). Music made

portable and individually selected for use on iPods includes features like podcasts (audio episodes shared online).

Podcasting audio materials intermingle media roles. "[P]roducers are consumers and consumers become producers and engage in conversations with each other" (Berry, 2006, p. 146). Berry argues consumers as producers represent a challenge for existing programming, especially for content. Individuals may decide to subscribe to RSS feeds and "like" particular songs, as seen in Pandora's Internet music program and TiVo's television programming. Such programs engage users and the media program, impacting future content for the users. Real-time web streaming services personalize on-demand materials to individuals, using the input of the end user and other users of the service (O'Baoill, 2009, p. 44). User interactivity in a digital media environment is increasingly considered essential in United States society.

In the history of traditional radio, interactivity with listeners is theoretical. "The danger of radio was not its rabble-rousing, but its individualizing ability ... Solidarity within the audience was at best a fetish, as was audience participation in the radio world" (Peters, 1999, p. 221). There are notable exceptions where listeners interact with traditional radio broadcasts. Calling into a radio program, a listener "enters" the studio and its social environment, with its spoken rules, unspoken rules, and other conventions (Hendy, 2009, p. 263). Without announcer or commercial interruptions, MP3s offer music when desired and with desired content; the use of converged digital media may require traditional broadcasters to "retune" radio's offerings (Ferguson et al, 2007, pp. 117-118). To understand the needs media fill and the gratifications people derive from media use, including sociological and psychological elements, consideration of

alternative and older ways of fulfilling needs aid in obtaining a clear view of media's

roles (Katz, Blumler & Gurevitch, 1973, p. 511). Motivations for listening will help to

determine audiences' instrumental and ritual usage, with consideration of variable

audience activity (Ruggiero, 2000, p. 9). Recognizing the active selection of media by

individuals employed with the uses and gratifications approach, a ritual view considers

the society in which individuals use media.

<div align="center">Ritual and Transmission Uses of Media</div>

Ritual views of communication and transmission views of communication are

concepts James W. Carey developed in *Communication as Culture* (1989, 2009).

Individuals can broadly distinguish media use as a transmission (where information

passes across distances in space and time) and as ritual (where representations of shared

beliefs maintain society) (Carey, 1989, pp. 12 & 15). Chicago School scholars, including

John Dewey and Harold Innis, "characterized communication as the entire process

whereby a culture is brought into existence, maintained in time, and sedimented into

institutions" (Carey, 1989, p. 111). Politics, art, customs, and architecture are part of

communication as a cultural process; the Chicago school emphasizes study of public life.

Broadcasting in the United States is an activity taking place through the public airwaves

that act as a public square for ideas and discourse.

Perceptions about citizens include adjectives like irrational, apathetic, and illiterate

about civics (Landemore, 2007, pp. 48-51). Cognitive diversity becomes a counter point

to such perceptions (Landemore, 2007, p. 277). Cognitive diversity and discussion of

active audiences develop additional understanding of citizenship. Butsch (2008) clarifies

the concept of active audiences for democratic participation through three types: citizen-

publics, crowd-masses, and individuals. Programs with democratic and educational goals are able to build a citizen-public type, yet understanding of radio audiences in the United States tends to examine crowd-masses and individuals, where emotional responses are favored over critical thought (Butsch, 2008). In a 1998 interview appearing in the *Journal of Communication Inquiry*, Carey discussed the perception of people consuming media. "From 1890 forward progressively and unevenly, everyone was absorbed into the 'great audience,' that is, a national audience for news, entertainment, education, and diversion" (Game, p. 121). Conceptualizing audience and media interactions as mediation understands senders, receivers, and a medium, important in examining media; however, Carey considered ecology conceptualizations as the "set of complex adaptations wherein media interact with each other, carving out ecological niches (that are more than markets) to reach a stable relationship" (Game, 1998, p. 123). Relationships of people, media, and participation in society are complex.

This study approaches the cultural participation of a citizen in the public sphere of broadcasting as a negotiation of informational media use and ritual media use. Regular participation in the public sphere establishes recognized behaviors and connections of a culture organized and maintained with shared interests, tastes, and tendencies. To consider the ritual use of media, commercial and noncommercial radio broadcasting models highlight differences in the cultures created and maintained through and with the medium of radio.

Commercial

Commercial broadcasting regards listeners as consumers, while public broadcasters consider listeners more as rational social beings participating in the public sphere

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(Hendy, 2009, p. 267). Examination of commercial control of the media from the Hutchins Commission (1947) considered nonprofit media as investors in the cultural development of the United States, recognizing that "[t]he radio, the motion picture, television, and facsimile broadcasting are most powerful means of molding the minds of men. That is why we worry about their exclusive appropriation by agencies engaged in the pursuit of profit" (pp. 97-98). Commercial media and noncommercial media coexist with differing motives.

Commercial culture is described as a "formatted" media, and public service media compose "programmed" media and develop specialty programming like jazz music, classical music, and news headlines (Sterling & Kittross, 2002, p. 637). Here the authors distinguish programmed media as niche programming, akin to freeform programming of radio in the 1960s. "What is clear about the commercial motive that predominantly drives American culture is that its product is substantially different from culture produced for other motives" (Rothenbuhler, 1996, p. 126). Hendy (2009) describes the communicative capacity of media as the potential of a medium to fulfill multiple purposes as outlined by Rothenbuhler (1996, 130-131): activity-intrinsic, meaning-intrinsic, and extrinsic purposes like efficiency and sufficiency. Individuals make meaning as they use media within society.

Media interact with many groups within the society; additionally, through the interaction of media with individuals, media values develop for groups outside of primary interactions (Baker, 2009, p. 91). The value given to media by advertising groups and recording interest groups (often a market rating) depends upon the listeners available through a medium. Baker (2009) describes such a media product as having positive and

negative externalities; additionally, media have interests in serving the public good (pp. 91-92). "The point is merely that the combination of multiple purchasers (audience plus advertiser) creates multiple allegiances" (Baker, 2009, p. 95). Alternatives to a commercial system of broadcasting emphasize community and service of the public interest.

Noncommercial

Noncommercial educational broadcasting, public broadcasting, and community broadcasting are terms that frequently depend on context. McCourt (1999) discussed ownership, control, public input, state influence, programming, motive, and audience as defining features and contexts through which radio terms take their meaning (p. 186). Close examination of defining features and contexts in radio should include a various perspectives and viewpoints. Alternative approaches to commercial radio are outlined in what Kahn (2010) calls community radio. "Alternatives to commercial media serve the community, provide alternatives to mainstream culture, belong to civil society, and are … fluid depending upon the needs of civil society and media impact on social movements" (Kahn, 2010, pp. 4-5). British and Canadian public services provide examples of nationalized service standards sharing common goals found in community radio. Funding in the nationalized model is not the norm in the United States, and proposed funding cuts for public broadcasters emerge during budgeting debates in government. "Public broadcasters regard the lack of long-term, insulated funding as their chief external pressure" (McCourt, 1999, p. 76). Activities, like volunteering, may not generate funds directly but can decrease staffing expenses for a station. Membership support for stations may include pledge drives, underwriting, grant writing, and donations to gather funds.

Educated and wealthy demographics, who can contribute funds to a public

broadcasting service, are served by public broadcasters, not an inclusive public (Hirsch,

2006, p. 137). Professionals in public radio, in concert with reliance on member support

and a commercially dominated broadcasting tradition, result in public radio of the United

States targeting specific demographic groups and offering a more narrow range in content

than found in other nations (O'Baoill, 2009, p. 115).

O'Baoill (2009) examines podcasting and webcasting as alternatives to hybrid digital

radio adoption by stations in the United States, focusing specifically on the case of

community radio. Localism and automation considerations are pertinent in a station's

choice of technology available in the digital media environment, explains O'Baoill whose

experiences in community radio in the United States and Ireland inform the topic (2009,

p. 2). Hubbard (2010) reports some listener preference for programming of local origin

and indifference to ownership, which supports the conclusions of other studies (p. 421).

Radio in the United States emerges as a centralized speaker to a dispersed audience

(encouraged to participate by only listening) amidst many possible broadcast options

(O'Baoill, 2009, p. 105). With the dominance of centralized speakers, radio professionals

influence their stations.

Guardianship models of broadcasting provide information to citizens based upon

what is "best" for people, which people may not themselves recognize (Hirsch, 2006, p.

36). A professional model of noncommercial educational broadcasters is another

approach. Professionalization of public radio impacts public participation in radio

(Hirsch, 2006, p. 43). Noncommercial radio stations, particularly those licensed to

educational institutions, regularly hire on-air staff with specific knowledge about the

music playing (Rothenbuhler, 1996, p. 138). Professional staff can fill additional roles, like those of general manager, operations, and production. With information and media, concerns of the public good lead to consideration of normative theory.

<div align="center">Normative Theory</div>

For democratic participation, citizens need access to information and an open system of the public sphere for opinions to form (Walton, 2007, p. 370). "[T]he public sphere must be accessible, devoid of privilege or rank, include diverse populations, and most importantly, fulfill all of these by right" (Hirsch, 2006, p. 31). For citizen participation in a successful democracy, inclusion, equal participation, free information, and deliberative process principles must apply (Walton, 2007, pp. 373-374; Hirsch, 2006, pp. 134-135). In the United States, First Amendment freedoms of speech and the press are important features for the public sphere and citizen access to information.

Carey (1989) explored the role of journalists in the public sphere, considering divisions within society. "The civic landscape becomes increasingly divided into knowledgeable elites and ignorant masses. The very existence of a commodity such as 'information' and an institution called 'media' make each other necessary" (Carey, 1989, p. 129). Through divisions of civic landscape and divisions of labor, the public sphere alters.

Splichal (2002) reevaluates the division of media elite and citizens with attention paid to developing powers in society, applying the human right to communicate alongside the division of labor and "principle of cooperation" (p. 23). Journalists, media elite, and citizen-publics negotiate divisions and environmental challenges. Embracing a plurality of opinions in a deliberative model, Habermas (2006) considers the possibility of a public

sphere with mediated political communications, and he argues for success and legitimacy in society. Self-regulated media must gain independence in social environments and "anonymous audiences grant feedback between an informed elite discourse and a responsive civil society" (Habermas, 2006, pp. 411-412). Responsibilities of media in society are key examinations of normative theory.

Journalism and public affairs coverage in democracies are frequently the focus of media normative theory. In the United States, normative theory incorporates ideas from the past three hundred years (Baran & Davis, 2009, p. 98). Baran and Davis (2009) outline the importance of John Milton's self-righting principle in normative theory where in a fair debate, truthful arguments win public support, which are ideas further developed by Thomas Jefferson in the Declaration of Independence (p. 101). In the marketplace of ideas, public affairs coverage serves democracy and the public good. "Media products are unlike the hypothesized "typical" product, such as a car or can opener … Each difference complicates any economic claim concerning the wisdom of reliance on markets" (Baker, 2009, p. 91). Rothenbuhler (1996) explained that a substantial difference exists with culture produced for commercial purposes and when culture is produced for other motives (p. 126). Normative theory examines media using chosen purposes, internal to the institution, and external expectations (McQuail, 2005, p. 186). Reflection upon purpose and expectations of media in the United States gained visibility following the conclusion of World War II and related concerns about propaganda in media.

The study of media obligations in the United States includes *A Free and Responsible Press*, the 1947 publication of the Hutchins Commission. With funds from Encyclopedia Britannica and Henry R. Luce, the editor-in-chief of *Time*, the Commission studied "the

role of the agencies of mass communication in the education of the people in public affairs" (Hutchins, 1947, p. vi). There are five elements of social responsibility in the report: (a) truthful accounts that provide meaning for daily events; (b) a forum for comment and criticism; (c) representation of social groups; (d) access to information; and (e) presentation of society's values and goals. The Commission's publication offers recommendations to government, press, and the public in order to uphold press freedoms and advance these five elements. The recommendations to the public are more specifically directed to universities and educational institutions, lacking an understanding of active audiences. "In fact, the Commission's major advice for the individual citizen was negative: refrain from boycotting the press" (Bates, 1995, Part 14). The Commission's publication reflects divisions of knowledge, like those that concerned Carey. Universities and non-profit organizations educate journalists, and educators are tasked with "trying to make the peoples of the earth intelligent now" for living in peace (Hutchins, 1947, p. 99). The Commission also recognized that "people need variety and diversity in mass communication" (Hutchins, 1947, p. 83). Developing from pluralism found in the Chicago School of thought and the diversity recommendations of the Hutchins Commission, social responsibility theory adopts elements from each.

Social responsibility theory examines journalistic codes of ethics and the larger meaning for journalism in society (Singer, 2006; Christians & Nordenstreng, 2004; Splichal, 2002). The study of ethical codes reflects concerns about self-censorship in media, which is also a self-regulated system, and addresses the public affairs coverage of media institutions and ethical choices of individuals working in media. Singer (2006) explores the definition of journalist using an existential approach and social responsibility

theory. Recognizing that journalists make individual choices to participate as agents of public service and recognizing the past gatekeeper function of media professionals, journalists currently function as trustworthy interpreters of information (Singer, 2006, p. 11). Individual journalists adopt accuracy, ethics, and objectivity in reporting that distinguishes journalism from media of questionable responsibility to public affairs or partisan affiliations (Singer, 2006, p. 14). The codes journalists adopt establish professional practices, demonstrate self-reform when needed, and exist internationally (Singer, 2006, p. 6). International journalist codes increase in importance in digital media environments as understandings of global and local elements interact and are redefined.

Three international codes of ethics and ethical principles for news media practices are respect for human dignity, truth telling, and nonviolence (Christians & Nordenstreng, 2004, pp. 21-23). Incorporating the ethical principles into normative theory is inclusive of genders and diverse cultures (Christians & Nordenstreng, 2004, p. 25). Christians and Nordenstreng (2004) examine citizen-centered journalism "…whereby the citizens and their civil society are seen as the ultimate owners of freedom of information" (p. 16). Citizens are empowered in this approach of social responsibility theory. Focus on participation in radio can develop discourse and decrease material demands on stations (McCourt, 1999, p. 189). Normative theory and principles examine the developing public affairs coverage in media, and engages journalists and the public internationally.

<center>Content Analysis Methodology</center>

Studies of audio content include the random sampling of natural conversations and social environments using electronically activated recorders (EAR) to provide access to verbal behaviors (Mehl & Pennebaker, 2003). The EAR observation of students measures

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itself against self-reporting studies of student social environments and conversations, finding a noticeable difference in television and music listening rates (Mehl & Pennebaker, 2003, p. 866). The researchers attribute these differences to individual interpretations of the activities. The unobtrusive observation available with EAR provides a new point of view, along with ethical and legal concerns (Mehl & Pennebaker, 2003, p. 868). Student social environments appear in other studies of language and media.

Social environment and conversations studied by Cameron (1969) focus on taboo words in three sampled contexts: college student usage at leisure, adult usage at work, and adult usage at leisure (pp. 101-102). Classification of taboo words in the study are sexual, excretory, and sacred; "damn" ranks as the most frequent profanity in the study (Cameron, 1969, p. 103). Cameron's results for use of taboo words addresses an area of research into human behavior and communication avoided in much academic work in social science (1969, p. 104). Academic research increasingly relies upon computers, and this is also true for media studies.

Sound class examination of audio content using computers is a content analysis approach of Lu, Zhang, and Jiang (2002). The classification into sound class examines the audio (or visual) characteristics using mathematical algorithms and normal distributions. Classifying with sound class offers advantages of identifying units as speech, music, environment sound, and silence; it offers advanced indexing potential as well (Lu, Zhang & Jiang, 2002, p. 515). Developing a classification system influences research projects, creating an important area for review and criticism.

Classification influences society directly and indirectly. Bowker and Star (1999) defined classification as "a spatial, temporal, or spatio-temporal segmentation of the

world" (p. 10). Classification and creating lists are characteristics found amongst advanced human societies, allowing for coordination in time and space (Bowker & Star, 1999, p 137-138).

In study of quantitative radio content analysis, Albig (1938) highlighted studies of listener habits and preferences, and examined content. From 1931-1934, H.S. Hettinger collected a small sample from commercial stations for the classification of content using 15-minute segments (Albig, 1938, p. 341). Albig (1938) reviews one month's aired content from WBZ, Boston in October 1933, using station records from a study by H. Cantril and G.W. Allport; this information aids Albig's classification of content (p. 341). In the study of nine stations from 1925-1935, Albig (1938) provided music as a category with possible sub-divisions such as plays and celebrities, or foreign and children's programming; additionally, he noted specialty areas of interests, like sports, market reports, church services, news, weather, and women's programming (Albig, 1938, p. 344). The study found music accounted for an estimated 70% of studied broadcasts, with observed increases in news and sports programming (Albig, 1938, p. 347).

This literature review offers some base observations from previous studies, from which this project moves forth to study the public service characteristics in noncommercial educational hybrid digital multicasts.

CHAPTER 3

METHODS

Of the 29 Las Vegas stations multicasting with hybrid digital technology, two are associated with AM stations and 27 are associated with FM stations. Using the HD Radio (2010) website, this study identifies noncommercial hybrid digital multicasts appearing between 88.1 and 91.9 MHz in Las Vegas, NV and verifies the information using the FCC's FMQ FM Radio Database Query (2010b) online. Nine multicast channels meet requirements for this study.

Research Question: Do noncommercial educational multicasts serve public interest standards?

The term "noncommercial educational" is operationally defined by two continuous interval variables (Babbie, 2008, p. 454), frequency and channel. There are three possible channels: HD1, HD2, and HD3 (also written as -1, -2, and -3 when following the frequency). Frequencies between 88.1 and 91.9 (only odd decimals) are licensed to noncommercial educational facilities. "Multicasts" are operationally defined as the 15-minute hybrid digital segment with a specified beginning time, a continuous and interval variable. The term "public interest standards" is operationally defined as (a) discourse, (b) diversity, and (c) localism. These are measured with nine discrete variables (Babbie, 2008, p. 454) and their 57 attributes. Seven of the variables are a nominal level of measurement: sound class, speech characteristics, sex of voice, language, location, affiliation, and profanity-indecency. An eighth variable, ordinal, is role of voice. The ninth variable, ratio level of measurement, is the number of voices. (For a list of attributes used to operationally define "public interest standards," see the example code sheet found

in Appendix 1.) These attributes serve to examine the hybrid digital multicasts of noncommercial educational radio facilities during February 2011.

The nine licensed noncommercial educational facilities in Las Vegas operating hybrid digital multicasts are: KCEP at 88.1; KNPR at 88.9, 88.9-2, 88.9-3; KCNV at 89.7, 89.7-2, 89.7-3; KUNV at 91.5, 91.5-2. Two translator facilities, K211DC and K215EN, are excluded from this study. Two frequencies listed as noncommercial education facilities with the FCC do not offer hybrid digital channels: KSOS at 90.5 and KVKL at 91.1. Three stations, KSOS, KVKL, and KUNV, do not have hybrid information provided in the FCC database as of December 23, 2010; however, KUNV submissions to the FCC include hybrid digital upgrades (FCC, 2010). KCEP, KNPR, and KCNV are listed as hybrid broadcasters with the FCC. Table 1 summarizes ownership information and multicasting. Information for KUNV from HD Radio lists the owner as University of Nevada, while the FCC lists the licensee as University System of Higher Education. In fact, it is the Nevada System of Higher Education and its Board of Regents who hold the University of Nevada, Las Vegas KUNV broadcast license. From the area nine facilities, content for analysis was collected.

The unit of analysis is a 15-minute segment of multicasting content. Each segment is coded for nine variables, which reflect operational definitions of discourse, diversity, and localism. This study embraces the 15-minute segments for content analysis used by Albig (1938) for observation of longer-form styles of speech, like debates and oratories. The 30-second segments used in the Mehl and Pennebaker study (2003) represent the minimum duration of content coded. Four variables (language, location, affiliation, and

Table 1

Noncommercial educational radio facilities in Las Vegas

Call Sign	Frequency	Channel	License Holder	Location of Owner
KCEP	88.1	FM, <u>HD1</u>	Economic Opportunity Board of Clark County	Las Vegas, NV
KNPR	88.9	FM, <u>HD1, HD2, HD3</u>	Nevada Public Radio Corp.	Las Vegas, NV
KCNV	89.7	FM, <u>HD1 HD2, HD3</u>	Nevada Public Radio Corp.	Las Vegas, NV
KUNV	91.5	FM, *<u>HD1, HD2</u>*	**University System of Higher Education**, *University of Nevada*	Reno, NV
KSOS	90.5	FM	**Faith Communications Corporation**	Twin Falls, ID
KVKL	91.1	FM	**Southern Nevada Educational Broadcasters**	Las Vegas, NV

Note. Las Vegas, NV, is the physical location of these radio facilities. Italics indicate information from HD Radio website and bold-faced information is from the FCC website. Regular type indicates information common to both sources. Underlined information indicates inclusion in this study.

profanity-indecency) are exceptions to the minimum duration. This study codes all content for these attributes, no matter its duration.

The category of discourse examines sound class, speech characteristics, and number of voices. The variable sound class has five possible codes: speech, music, environmental noise, white noise, and silence. These five codes are adopted from computer analysis of audio (Lu, Zhang & Jiang, 2002). There are five possible codes for the number of voices: no voices, one, two, three or more, and cannot determine.

Mikhail Bakhtin describes discourse as a jumble of voices (Peters, 1999, p. 264). Baran and Davis (2008) describe discourse as dialogue and debate (p.204). In *Red Lion Broadcasting Co. v. FCC* (1969) the United States Supreme Court includes "vigorous debate of controversial issues of importance and concern to the public" as pertinent in the public interest standard (at 386). Voices in dialogue and debate in the common areas of society, including multicasts taking place on public airwaves, compromise a cross-section of public discourse. This study employs six codes for speech characteristics: polemic speech (like individual monologues and opinions), public debate (including political and educational debates), public discussion (including meetings, legislative sessions, and other discussions), news reports (including scheduled news reports, unscheduled news bulletins, and other information), other speech (which coders specify in the comment/notes portion of the code sheet), and cannot determine. Content analysis codes from the works of Cappella, Turow, and Hall (1996) and Lombard et al (1999) inform the coding schema of this study.

Diversity is a term found in a variety of research areas, including communications, urban planning, linguistics, sociology, ecology, psychology, and geography (McDonald

& Dimmick, 2003, p. 60). To define diversity more clearly, this study references the three elements of diversity examined by Napoli (1999), source diversity, content diversity, and exposure diversity. In this study, diversity uses Napoli's definition of demographic diversity, examined as part of content diversity. Demographic diversity is the racial, ethnic, and gender diversity featured within electronic media programs, and may include demographic groups that are age-related, like children and elderly (Napoli, 1999, pp. 21-22). Diversity in this study is operationally defined with three parts: sex of the primary voice, perceived social role of the primary voice, and language used in speech. With sex there are four coding options: no voice, male, female, and cannot determine. For the social role of the primary voice there are six codes: no role, child, adolescent, adult, elder, and cannot determine. The coding of Kimberly A. Neuendorf and Robert Ableman (1987) informs this study; however, the researcher does not differentiate young adult and mature adult as found in the Neuendorf and Ableman coding. Language codes are: no language; English; Spanish; other language; and cannot determine. Language in this application provides information about ethnic demographic diversity, and the inclusion of codes for English and Spanish anticipates popular languages of the southwestern region of the United States.

Localism is operationally defined with three parts: references to physical locations; affiliations mentioned within the multicast materials; and profanity or indecency found in the content. Profanity and indecency are nationally regulated by the FCC, which considers context within a community, like audience, when judicially reviewed. The operational definition moves beyond FCC evaluations for licensing to determine more details about the multicast content. Traditional understanding of localism for radio

broadcasting relates to the geographic or political entities a station serves, which is tempered with a developing understanding of localism as a social construction of shared interests and values (Stavinsky, 1994). The regions defined as local for this study are both Las Vegas, NV and Clark County, NV. In this study, social constructions of localism interact with the theory of ritual media use.

Of verbal behaviors, profanity is common in a range of social interactions and frequently excluded in social science research (Cameron, 1969, p. 101). Adopted from the content analysis of prime-time television profanity by Barbara K. Kaye and Barry S. Sapolsky (2004), possible codes for profanity and indecency are the seven dirty words, sexual words, excretory words, and other words (p. 439). To these the researcher adds the categories of no profanity or indecency, edited profanity, and cannot determine. Language is considered indecent if, in context that applies contemporary community standards for patent offense, sexual or excretory activities or organs are described (Hillard & Keith, 2007, p. 203). The content analysis of Kaye and Sapolsky reflects similar understanding of profanity as found in the Kevin Haninger and Kimberly M. Thompson (2004) study of profanity in video games (p. 859). Explicit music labels in the United States operate with similar understanding of profanity, as developed by the Recording Industry Association of America, the Parents Music Resource Center, and the National Parent Teacher Association (Fernandez, 2002). This study does not include discussion of drugs that explicit music labels incorporate, as a subject regulated by the Food and Drug Administration (consumer drug products) or the Drug Enforcement Administration (illegal drugs).

Discourse, diversity, and localism attributes in the hybrid digital multicasts operationalize the study's content analysis of public interest standard characteristics. Eight segments (2 hours) selected from each of the nine stations in the study during February 2011, represent a sample that is 1.2% of each station's weekly hours (168 hours). Dice rolls determine day, hour, and 15 minute segments for the study, an application of random selection sampling described in Earl Babbie's *The Basics of Social Research* (2008, p. 212). The online tool Freerecorder records hybrid digital channel multicasts as segments, saved for coding. When streaming multicasts are not available, a digital recorder captures the multicast broadcast using an HD Radio receiver. Capture through the digital recorder risks distortions from the recording environment and speaker system for the receiver. The researcher collects audio content during February 2011. This period includes the federal holiday (Presidents' Day) and social observations (Valentine's Day and Black History Month).

Two coders trained with and used the codebook developed for this study. During training, coders completed two examples and had an opportunity to further clarify the coding process. Coders may select any of the attributes present for a variable, as long as it has a minimum duration of 30 seconds. Segments for coding were available online for coders using a storage and sharing program, called Dropbox. Coding of segments included a 10% overlap (eight segments) for inter-coder reliability. Collected data were entered into SPSS for analysis. The variables describing discourse, diversity, and localism were used to code hybrid digital multicasts for public service characteristics.

CHAPTER 4

RESULTS

Treatment of Data

Descriptive statistics, variable frequencies, cross tabulations of variables, and bivariate correlations are statistical analyses used in this research. Cases entered as missing information or information that cannot be determined are treating as missing in statistical analysis. Quantitative data is used to address the research question: Do noncommercial educational multicasts serve public interest standards?

Several areas of hybrid digital multicasts serve public interest standards. Multiple voices participate in music and speech offered on HD channels. A mix of sexes is common in the news and information on these channels. Profanity and indecency are infrequently present, reflecting the advanced First Amendment protections of listeners. Statements of affiliation are generally mixed, as are references to physical location. Areas in which multicasts may improve in service of the public interest include diversity of social roles participating in hybrid digital radio and the types of speech presented in multicasts.

Data are entered and analyzed using SPSS 17 statistics program. Boolean operations using "and" SPSS values for variables can incorporate details about the presence of two or more attributes, as well as when one attribute is present in the 15 minutes of a segment. "Boolean operators are AND, the set theoretical intersection; OR, the set theoretical union; and NOT, the set theoretical complement" (Krippendorf, 2004, p. 270). Attributes undergoing Boolean operations include sex of voice, language of speech, references to physical location, affiliation references, and profanity and indecency.

Values for attributes with Boolean operations group the mixes as a new attribute, all

mixed items together. Sound class, speech, and social role of voice undergo Boolean

operations but are not combined into a new mixed attribute; instead, speech, social role,

and sound class variables use Boolean operations to share additional details as in Table 2,

examining the variable social role.

Table 2

Variable Frequency, Social Role of Voices

Valid N=77, Missing=3	Frequency	Valid %
No Role	3	3.9
Child	2	2.6
Mix of child and adult	1	1.3
Mix of adolescent and adult	1	1.3
Adult	68	88.3
Mix of adult and elder	2	2.6
Total	77	100.0

Inter-Coder Agreement

Inter-coder agreement analysis provides additional information about the study.

Lombard et al (2002) examine tests for inter-coder agreement in content analysis studies,

and establish standards to guide scholars in calculation and reporting of the important

validity measure. While percent agreement between coders is a standard approach to determine inter-coder agreement, Lombard et al (2002) recommend using a second index that considers agreement between coders that occurs by chance (p. 600).

In this study, the primary researcher is not a coder in the project. The coder training session lasted one hour, and provided an informal assessment of coder agreement. No formal pilot test was made for this study. To examine inter-coder agreement from the data, the two coders both completed the same eight segments randomly selected from the full sample. The common segments are roughly 10% of the total sampled content. Coders worked independently and apart during the study. This examination of inter-coder agreement considers percent agreement and Scott's pi indices. Scott's pi is considered a conservative index that uses the number of categories and distribution of values within each category to determine its value (Lombard et al, 2002, p. 591; Krippendorf, 2004, p. 245). Developed at the University of Washington by Deen G. Freelon, ReCal2 0.1 Alpha is an online tool launched in October 2008 that offers inter-coder agreement for professionals and scholars; ReCal2 calculations include percent agreement, Scott's pi, Cohen's kappa, Krippendorf's alpha, and tallies of agreement and disagreement for cases processed (Freelon, 2010).

Inter-coder percent agreement for the eight segment ranges from 77.2% agreement to 89.5% agreement. Values for Scott's pi range from 0.558 to 0.796 using the same content. Values nearing 1.0 for Scott's pi indicate greater agreement between coders.

<div align="center">Frequencies and Cross-Tabulations</div>

Multicasting channels and time of the multicast offer three areas when information exists outside of the coding process. These areas create control variables with which other

variables can compare. Multicasting HD1 channels are 45.0% (N=80) of the sample, HD2 channels are 33.8%, and HD3 channels are 21.3% of the sample.

The time of the multicast is simplified to reflect if the segment falls within or outside of safe harbor hours (midnight until 5:59 a.m.). In the sample, 16.3% (N=80) of segments take place during safe harbor hours. In the sample, profanity or indecency are not present in 92.8% of the valid sample (N=69, Missing=11). Edited profanity, other words, and a mix of attributes are identified in 7.1% of the cases. Pearson's R symmetry measure indicates no significance found when time correlates with the variable for profanity or indecency. Instances of profanity and indecency occur between 6 a.m. and midnight in this sample.

In the variable references to physical location, the created attribute mix of physical references occurs in 41.1% (29) of the valid sample (N=70, Missing=10) and is the mode attribute for the location variable. With 27.1% (19) of the valid sample, the attribute no location reference is the second most frequent for this variable. The attribute local reference is 14.3% (10) of the valid sample. International reference is 11.4% (8) of the valid sample, and national reference is 5.7% (4) of the valid sample.

In analysis of variable correlations, location references and time show significance of .001 with Pearson's R symmetric measure. Cross-tabulation of the time and location reference variables reveal that during safe harbor hours (midnight – 5:59 a.m.) there are eight segments that have no references to location, three references that are local references, and two segments with three or more references to location. Comparatively, the hours outside of that time frame include 11 segments with no references to location, seven local references, four national references, eight international references, and 27

references to mixed locations. Total location references during safe harbor hours to totals during daytime hours is a ratio of 13:57 for the valid sample (N=70).

The attribute most frequent for the variable language of speech is English that occurs in 77.6% (59) of the valid sample (N=76). Spanish language is found in 6.6% (5) of the sample, and a mix of languages (including English, Spanish, or any other language) occurs in 11.8% (9) of the sample. No language occurs in 3.9% (3) of the sample. Coders coded music with lyrics and vocals using the appropriate language attribute. The attribute no language indicates the presence of instrumental music without speech of any type. Using variable correlations, language of speech and location references show significance of 0.004 using Pearson's R symmetric measure.

In the variable speech, mix of news and information with other attributes is the most frequent attribute found in 28.2% (20, N=71) of the valid sample. The attribute news and information is 26.8% (19) of the valid sample. The attributes no speech and mix of polemic speech with two or more attributes each represent 14.1% (10) of the valid sample. The attribute "other speech" accounts for 11.3% (8) of the valid sample. The attribute "mix of discourse with news and information" is 4.2% (3) of the valid sample. The attribute "public discourse" is 1.4% (1) of the valid sample. In analysis of variable correlations speech and affiliation indicate significance of 0.001 with the Pearson's R.

The variable sound class does not create a new mixed attribute using Boolean operations. This provides additional details, displayed in Table 3. The Boolean combination of music and speech attributes are the mode for this variable, found in 36.7% (29) of the valid sample. The attribute music is 27.8% (22) of the valid sample and second most frequent. The attribute speech with 21.5% (17) of the valid sample is next

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frequent. Multicasts mixing three or more attributes (music, speech, environmental noise, white noise, or silence) account for 13.9% (11) of the valid sample. Using variable correlations, sound class and language indicate significance with a value of 0.001 for Pearson's R symmetric measure.

Table 3

Variable Frequency, Sound Class

Valid N=79, Missing=1	Frequency	Valid %
Music	22	27.8
Speech	17	21.5
Music and speech	29	36.7
Mix of three or more attributes	11	13.9
Total	79	100.0

Table 4 displays details on the variable affiliation. With the Boolean operations for the variable, the new attribute "mix of three or more attributes" is the mode of this variable found in 64.8% (46) of valid cases in this sample. The attribute "no affiliations" is the next most commonly found in 14.1% (10) of valid cases.

Correlations of affiliation and sound class show significance of 0.001 using Pearson's R symmetric measure. Using Pearson's chi-square test, 2-sided significance is 0.000 with a value of 45.332. For the chi-square test, 88.3% of cells have an expected count of less

than five, with a minimum expected count of 0.13, which indicates probability. A larger

sample size may offer a more meaningful chi-square value.

Table 4

Variable Frequency, Affiliation

Valid N=71, Missing=9	Frequency	Valid %
No Affiliations	10	14.1
Individual	5	7.0
Public and Nonprofit	8	11.3
Religious	1	1.4
Government	1	1.4
Mix of three or more affiliations	46	64.8
Total	71	100.0

With correlations of variables, affiliation and the number of voices show significance

of 0.000 using Pearson's R. The chi-square test for probability has a value of 37.098 and

2-sided significance is 0.001 for this relationship. In 87.5% of the cells, the expected

count is less than five. The minimum count is 0.04 for this instance. A larger sample size

may offer a more meaningful chi-square test. In cross-tabulation of these variables, 30

segments in the valid sample (N=68) have the attributes of three or more voices and are a

mix of three or more affiliations. No affiliations occur in nine segments, where three

segments have no voices, four segments have one voice, one segment has two voices, and one segment has three or more voices.

Using variable correlations, affiliations and the social role of voice show significance of 0.001 using Pearson's R. Adult roles occur in 61 (N=69) of the cases, and 41 of these adult roles occur in the segments with three or more affiliations. The attribute three or more affiliations also include one occurrence of a mix of adolescent and adult and two occurrences of mix of adult and elder. The role of child occurs once in a segment with public and nonprofit affiliation. Roles that are a mix of child and adult occur in a segment with individual affiliation.

The variable number of voices is a ratio level of measurement. With 56.6% (43, N=76, Missing=4) of the valid sample, the attribute three or more voices is the mode for this variable. The mean value for this variable is 2.2763, where the attribute no voices in SPSS is zero and the attribute three or more voices is valued at three. The standard deviation is 0.9324 for the variable number of voices. The attribute one voice occurs in 21.1% (16) of the valid sample, the attribute two voices occurs in 18.4% (14) of the valid sample, and the attribute no voices is least common, found in 3.9% (3) of the valid sample.

Using variable correlations the number and social role of voices indicate significance of 0.001 using Pearson's R. The total adult voices in this valid sample (N=74) is 64, found in each attribute of number of voices except the no voice attribute. The most adult voices (37) occur in segments with three or more voices present. Three or more voices occurs with one mix of adult and elder, one mix of adolescent and adult, one mix of child

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and adult, and one child role. One child role and one mix of adult and elder occur with two voices. There are three occurrences of no voices and no role.

The variable sex of voice with a created attribute of mix of male, female, and androgynous is the mode of the variable with 66.7% (50) of the valid sample (N=75). Male voices occur in 18.7% (14) of the valid sample, and female voices occur in 9.3% (7) of the valid sample. The attribute no voice occurs 4.0% (3) of the valid sample, and the attribute androgynous occurs in 1.3% (1) of the valid sample.

Using variable correlations the sex of voice and number of voices indicate significance of 0.001 using Pearson's R symmetric measure. Cross-tabulations offer additional details in Table 5.

<center>Chi-Square Test of Probability</center>

In the seven instances where correlations using Pearson's R indicate significance, tests for probability using Pearson's chi-square are used. In the chi-square analysis, cells with an expected count of less than five occur between 50% and 91.7% of the valid sample for the correlation pair. Meaningful interpretation of chi-square values would improve with larger sample sizes.

Pearson's chi-square test for consistency with variables location and time has a value of 13.173 with a 2-sided significance of 0.010. Of the cells (N=70) 50% have an expected count less than five, with a minimum expected count of 0.74. This indicates probability; however, a larger sample size may provide necessary data for a meaningful chi-square value.

The probability test for the relationship of language and location (N=67), Pearson's chi-square, value is 22.462 and has 2-sided significance of 0.033 for this relationship.

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With 80% of cells, the expected count in less than five with a minimum expected count of 0.04 in this instance.

Table 5

Cross-Tabulation, Sex of Voice and Number of Voices

Valid N= 72,		None	Male	Female	Androgynous	Mix of Sexes	Total
Missing=8, Pearson's R= 0.001				Sex of Voice			
Number of Voices	No Voices	3	0	0	0	0	3
	One Voice	0	4	4	0	8	16
	Two Voices	0	3	1	1	9	14
	Three or More Voices	0	7	2	0	30	39
Total		3	14	7	1	47	72

Pearson's chi-square test of probability with variables speech and affiliation (N=69) is a value of 82.180 and 2-sided significance of 0.000 for this relationship. There is an

expected count of less than five for 88.9% of the cells in this test and a minimum expected count of 0.04.

Testing for probability in the correlation of sound class and language (N=75), the Pearson's chi-square 2-sided significance is 0.001 for this relationship. Of the cells, 75% have expected counts less than five, with a minimum expected count of 0.44 for this test.

Examining the relationship of affiliation and social role, the chi-square value is 40.397 and has 2-sided significance of 0.027. In this valid sample (N=69) 91.7% of cells have expected counts less than five, and the minimum expected count is 0.01. The sample size in this instance may be due to chance or not, using Pearson's chi-square may not accurately reflect probability.

With variables number of voices and social role of voices, Pearson's chi-square has a value of 78.639 and 2-sided significance of 0.000. Here probability is indicated; however, 87.5% of cells the have expected counts less than five, and the minimum expected count is 0.04.

The Pearson chi-square test of probability for the variables sex of voice and number of voices 2-sided significance is 0.000 and has a value of 82.471; however, there 80% of cells have expected counts less than five. The minimum expected count is 0.04.

Probability testing for all correlations can provide greater meaning with a larger sample size. The limitations of a small sample size (Total N=80) are recognized in this study.

CHAPTER 5

DISCUSSION

As noncommercial educational radio adopts new hybrid digital abilities, service to the public remains a guideline for use of the public airwaves. Do these multicasts serve the public interest? Characteristics of public interest in areas of diversity, discourse, and localism are present. As multiple voices appear in multicasts of Las Vegas noncommercial educational facilities, a mix of sexes vocalize music and speech content. Adults share news and information, with a mix of affiliations and physical location references. These traits indicate initial markers of public service in hybrid digital multicasts, and diversity characteristics in noncommercial educational multicasts are an area offering both success cases and opportunities for development.

Administrative law, national legislative texts, and judicial review provide guidance in understanding public service standards for the snapshot of current multicast content this analysis provides. Hybrid digital radio multicasts in the United States develop as broadcasting media; this analysis examines content from a transitional phase in radio's history, as the medium incorporates digital technology in the complex media environment of 2011.

Social roles participating in speech on hybrid digital channel reflect demographic diversity of the airwaves. Certain communities, like college students, may exist as challenges to classification. College students typically fall into an age category of adult, while continued presence in education systems may offer ties to younger social roles. Social roles may provide insight into the society and context in which radio content emerges. Dominance of adult social roles in hybrid digital multicasts may reflect

institutionalized media structures and growing professionalization of media in the United States. Social role of voices examined with other variables provide additional details about hybrid digital multicasts. Multiple affiliation statements are common in a 15 minute multicasts in Las Vegas, consisting of three or more different affiliations. Affiliation statements are voiced most often by adults on hybrid digital multicasts. In one instance in this study, a child is associated with a public and nonprofit affiliation. Children, adolescent, and elder roles are infrequently found in the hybrid digital multicasts. Participation of non-adult social roles and community organizations in noncommercial radio is not a diversity characteristic formally considered in FCC licensing; however, various research approaches can examine diversity through its understanding of social roles and participation in media.

Diversity of language in broadcasting communications is an area for continued research. Hybrid digital channels in Clark County's noncommercial educational facilities use English as the primary language. English occurs in over three fourths of sampled content. Spanish language on hybrid digital channels appears alone infrequently, while mixes of language appear more commonly. Other languages, like Japanese and Zulu, appear in multicasts and are generally mixed with English. Study of languages used in broadcasting, in concert with other public service variables like the number of voices in a segment, can aid our understanding of diversity and discourse. In multicasts three or more voices appear in more than half of the studied segments. The characteristic of discourse is served as more voices participate in the public sphere, and additional languages participating in discourse may reflect trends of assimilation or reinforced cultural identification in a nation. Diversity of language is not a characteristic present in a

majority of multicast channels in this sample from Las Vegas noncommercial educational facilities.

Multicasts primarily use English when music plays on hybrid digital channels. As music and speech mix, English continues as the primary language spoken, though mixes of language appear as well. Spanish appears as the primary language in five (N=76) cases sampled. The dominance of English on the public airwaves does not reflect prominent demographic patterns in Clark County and Las Vegas. The U.S. Census reports 26% of Clark County residents speak a language other than English at home (2010). Language, as a trait of diversity, is contemporary to research addressing public service, which also observed in past research of radio.

Diversity characteristics that examine content to determine the presence of males and females can be found in a variety of media studies. This research indicates voices are a mix of sexes in hybrid digital multicasts. The mix of male, female, and other voices found on hybrid digital channels are common for content in this study. This diversity characteristic is found in other studies of radio, which may imply increased diversity in the multicasts of HD Radio in Las Vegas.

<center>Implications</center>

Examining diversity on the hybrid digital noncommercial education channels, the mixed sexes vocally participating in the multicasts may indicate advances in female participation in broadcast media. Cantor (1977) discusses the 1975 Corporation for Public Broadcasting report that addresses women in broadcasting, where males participated in broadcasts in 77% of the sample and women participated in 23% of sampled radio materials (p. 16). Findings of the report indicate 5% of programs were jointly hosted by a

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male and female, 10% were hosted by a female, and males dominated radio broadcasting, hosting 80% of programs (Cantor, 1977, p. 16). This study of multicasts indicates a presence of different sexes in hybrid digital content, though voices here are not limited to the announcer or host of a program. Vocals included as lyrics in music are coded for diversity characteristics like sex of voice. Male voices speak on hybrid digital channels alone more often than female voices, which may indicate a continued diversity marker for producers of media to consider.

In matters of diversity, language presents not only a verbal form of communication but often ties with a speaker's ethnic or national identity. Types of speech are valuable characteristics of discourse, an area engaging multiple viewpoints. The English Language Unity Act of 2011 attempts to make English the official language for the United States, and similar attempts from 1981 to the present garnered the collective support of over 700 members of Congress (Montopoli, 2011). The Act is currently in committee, following its March 10, 2011 introduction to the Congress, and it has 63 cosponsors (English Language Unity Act, 2011). For broadcasters of an earlier era, English speakers (including Groucho Marx) expressed concerns about the presence of foreign languages on the airwaves; concurrently, foreign language educators embraced the presence of foreign languages in broadcasting (Krysko, 2007, p. 334-335). Krysko (2007) describes stations, like Chicago's WCFL, which focused on the area's union members and immigrants, faced license revocation for "excessive" foreign language programming; overall, foreign language broadcasts decreased during the 1930s and was not surveyed until 1940 by the FCC (p. 339). In this sample, English alone appears in 77.6% of cases and emerges in other mixes of music and speech, while Spanish has no presence in the

mix of music and speech. When music is the sound class, English dominates hybrid digital multicasts.

In the noncommercial educational radio facilities of Las Vegas, speech of multicasts incorporates affiliation statements. Individual, public and nonprofit, religious, and affiliation mixes take place during musical multicasts. Affiliations are less likely to occur when music is the only sound class during a segment. In other segments no affiliation statements are made within a 15 minute period. Affiliation scarcity does not necessarily indicate an absence of voices, though as more voices participate in multicasts, a mix of affiliation statements on these nine hybrid digital channels are more common.

The presence of news and information as a common type of speech for HD channels includes works of journalism. Weather, traffic reports, and long-form journalism segments appear frequently in speech. Individual journalists and their media institutions produce for public stations, as do community participants in radio. Review of material on the public airwaves reflects the communities that build them, and the works of James W. Carey and the Chicago School of scholars provide pertinent framework for this context and a broader understanding of how local may be defined.

Considering specific communities aids discussion of localism characteristics, including profanity and indecency. Students offer an example community where profanity in speech is documented. When regulation, policy, and other factors impact speech within a community, review of First Amendment speech freedoms should take place. Profanity and indecency are absent from 92.8% (N=69) of the valid sample, and the variable does not exhibit significance with other variables in the study. In this study 7.2% of cases have an occurrence of edited and less offensive profanity or indecency,

including secular profanity, innuendo, and one example when a song title included "bitch." This study finds no significant relationship of profanity with the variable time, which represents safe harbor regulation. When safe harbor hours do not contain expressions restricted during other hours, future research can consider broader impacts of regulated speech on public discourse and communication amongst student communities. Cameron (1969) found profanity in 8.1% of the college student conversations sampled (p.102-103). Kaye and Sapolsky (2004) find profanity or "offensive language" in 7.2% of their sample collected from seven television channels during 2001 (p. 440). This research appears to locate hybrid digital multicasts within a similar social context for the variable profanity and indecency, though edited profanity is most commonly found in this study.

Discourse, diversity, and localism offer a glimpse into the public sphere created by hybrid digital radio multicasting in the United States. This study provides a marker during radio's transition as a medium. The society, regulations, judicial review, and use by individuals shape radio's future as they have its past. Strong service characteristics for the number of voices and mix of sound class negotiate with underserved traits like language and social roles participating in hybrid digital multicasts.

Limitations of Study

Coders are native English speakers. This limits the information available in the local references, affiliations, and profanity or indecency – variables all related to localism. Multicasts in Spanish and other languages were coded in areas of discourse and diversity with less than four missing cases for each: sound class; number of voices; sex of voices; social role of voices; and language. More cases of missing data affect the variable speech (Missing=9) and all three variables in the area of localism: affiliation (Missing=9);

physical location references (Missing=10); and profanity and indecency (Missing=11) for the total sample N=80. Though not a coder, the researcher's working knowledge of German and basic skills in Spanish and French inform this study. Including multilingual analysis and coding with this tool can better address language bias in examination of localism.

Further consideration of how to classify localism characteristics may include additional attributes. In affiliations, for example, attributes for family, educational, and military statements can provide more detailed study of social structures and affiliations in communities. Discussion with participating coders can help identify challenges in coding, which can then assist in the training of future coders.

Language is measured here in 15 minutes segments. The FCC's 1940 language study calculated hours of foreign language content during a week. The segments in the sample encompass a limited period of time, and only 1.2% the week's hybrid digital multicasts represents each of the nine channels. The limited sample size offers a better snapshot of the available sample universe, than it does generalizations. Cameron's (1969) study of language provides a third example of sampling methods for audio materials. Kaye and Sapolsky's (2004) methods include information contextual for television broadcasts, like the rating and program genre, and could also include the visual implication of profanity, as when a word is silent but mouthed clearly by an actor. Studies of profanity and indecency include a variety of approaches, and the comparison across studies recognizes this as a challenge.

Further Research

Safe harbor hours and the use of profanity and indecency in broadcasting do not appear to have close ties. The U.S. Supreme Court notes circumstances when laws can chill speech. Study of profanity and indecency can examine speech freedoms used during safe harbor hours more narrowly, to determine if designated safe harbor hours offer content that is markedly different from content multicast during other times. The influence of the license holders on multicast content is an area for further study. Institutional and media organizations provide guidance and structure for employees and participants in media. Examination of operations manuals and professional standards that licensees adopt can aid the understanding of how and why profanity and indecency appears in multicast materials.

Further discussion and examination of diversity in hybrid digital multicasting can develop discussion about representation of social groups in content. Ross (2001) studies representations of disability in radio, for example. Veterans, individuals who have disabilities, religious activities of individuals, and individuals without homes may provide examples in addition to examination of social role (elder, adult, adolescent, or child), ethnicity and nationality (examined through language), and sex of voices in hybrid digital multicasts. Field research offers an opportunity to study hybrid digital multicast use by media users, as part of their daily lives in the larger digital and converged media environment. Carey's works provide a frame for scholarly endeavors to apply ritual and transmission usage of media in the public sphere. The framework Carey provides offers further research opportunities in the area of professionalism in public media. The

consideration of elitism and divisions of labor engage how listeners, citizens, producers, and journalists define and change their society.

Public interest service characteristics are a normative examination that reflects upon democratic participation by individual citizens and communities of people engaging with radio content. Community-based definitions of localism are areas for further consideration. Physical references to location offer one dimension through engaging the concept of localism. Examination of diversity in media, ritual use of media, and understanding of community remain viable research areas for scholars.

Hybrid digital multicasts exhibit characteristics of public interest service, like multiple voices spoken by mixed sexes of people. Content analysis of multicasts demonstrates areas not offering strong service of the public interest, like the social role of voices dominated by adults. Discourse, diversity, and localism characteristics document traits of hybrid digital content of the noncommercial educational facilities in the Las Vegas area. Research of this nature contributes to examination of radio as a specific medium of communication that reflects upon its past transitions, like AM to FM transition, and other challenges in media, like the developments of TV, satellite, and Internet technologies. Reflections continue as radio engages an increasingly digital and converged media environment. Public service characteristics can document a moment of transition for the medium and capture markers of hybrid digital radio service to its community and society.

APPENDIX 1

EXAMPLE CODE SHEET

	Segment					
DISCOURSE	**Sound Class**					
	Music					
	Speech					
	Environmental noise					
	White noise					
	Silence					
	Cannot determine					
	Speech Characteristics					
	No speech					
	Polemic speech					
	Debate					
	Public discourse					
	News/informative					
	Other speech					
	Cannot determine					
	Number of Voices					
	No voices					
	One					
	Two					
	Three or more					
	Cannot determine					
DIVERSITY	**Sex of Voice**					
	No voice					
	Male					
	Female					
	Androgynous					
	Cannot determine					
	Role of Voice					
	No role					
	Child					
	Adolescent					
	Adult					
	Elder					
	Cannot determine					
	Language					
	No language					
	English					
	Spanish					
	Other language					
	Cannot determine					
LOCALISM	**Location**					
	No location references					
	Local					
	County					
	State					
	Nation					
	International					
	Inter-planetary					
	Cannot determine					
	Affiliation					
	No affiliations					
	Individual					
	Public and nonprofit					
	Religious					
	Government					
	Business					
	Other affiliation					
	Cannot determine					
	Profanity or indecency					
	No profanity or indecency					
	Edited profanity					
	Seven dirty words					
	Sexual words					
	Excretory words					
	Other words					
	Cannot determine					

IRB EXEMPTION

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

Social/Behavioral IRB –Review
Notice of Excluded Activity

DATE: January 14, 2011

TO: **Dr. Anthony Ferri,** Journalism and Media Studies

FROM: Office of Research Integrity – Human Subjects

RE: Notification of review by /Cindy Lee-Tataseo/
              Cindy Lee-Tataseo, BS, CIP, CIM
              Protocol Title: **Serving Public Interest, Convenience, and Necessity:**
              Public Radio in HD
              Protocol# 1101-3684M

This memorandum is notification that the project referenced above has been reviewed as indicated in Federal regulatory statutes 45CFR46.

The protocol has been reviewed and deemed excluded from IRB review. It is not in need of further review or approval by the IRB.

Any changes to the excluded activity may cause this project to require a different level of IRB review. Should any changes need to be made, please submit a Modification Form.

If you have questions or require any assistance, please contact the Office of Research Integrity – Human Subjects at IRB@unlv.edu or call 895-2794.

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context=25&appn=101358457&formid=340&fac_num=68921 [Now located under

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