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# **E**ducationally/**I**nsufficient?

**An Analysis of the Availability & Educational Quality of Children's E/I Programming**

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## Introduction

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There are a number of ways in which children's educational programming can be obtained in the U.S. today. Children may watch short clips and some full-length programs on their computer via live video streaming delivered on the Internet. They may view programs on videotape or DVD with playback devices connected to the television set in the home. They may watch programming delivered by cable networks such as Nickelodeon or The Disney Channel. Or, like their parents and grandparents did long ago, they may simply turn on the television set and watch a children's program delivered on a local broadcast channel.

To facilitate the first of these options, the child's family must have a computer in the home and a high-capacity broadband network connection. For the second option, a DVD player or similar device is required, and then a purchase price must be paid for each program desired. And for the third option, a monthly cable television subscription fee is involved, with higher tiers of service often required to receive the most popular children's channels. In sum, across all of these alternatives, economics may play a significant role in shaping children's access to video programming that can, when properly produced, inform and educate them in important ways.

The fourth and oldest of the options mentioned above for receiving children's educational programming is via over-the-air broadcast television. In previous decades, this medium has delivered landmark programs of extraordinary value to the nation's youth, including such classics as *Kukla, Fran, & Ollie* (1947-57), *Captain Kangaroo* (1955-1984), and *Fat Albert and the Cosby Kids* (1972-1985). The first two of these programs each received Peabody awards, and the third was recognized with an Emmy.

Broadcast television offers equal access to all segments of society, regardless of one's economic standing. Other than the purchase price of the television receiver, there is no additional cost to obtain any of the programming viewed. Thus, broadcast television provides a basic service to society and particularly to children that somewhat parallels the provision of public schools. While affluent families may certainly choose to spend money to enroll their children in private schools that offer enhanced resources, all families have access to public schools regardless of their financial capabilities. The same is true for children's access to educational programming via broadcast television. While affluent families may be capable of providing their children with supplementary options, broadcast television is available to serve the needs of all in our society.

Indeed, television broadcasters have a unique obligation to serve the public interest in their community because of their use of the publicly-owned airwaves to transmit their program signal. Many modern technology companies that use the public airwaves, such as cellular telephone or wireless Internet providers, pay significant fees of millions of dollars to the government at spectrum auctions in order to gain access to the airwaves necessary to operate their business. In contrast, due to long-standing historical precedent, broadcast television stations (most of which were first licensed in the 1940s and 1950s) deliver public interest programming as their "payment" for using the airwaves, rather than having to pay any fees for spectrum use. Although there are many dimensions to each broadcaster's public interest obligations, serving the needs of children is recognized as a critical part of that mission.

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## Requirements of the CTA

The current law that governs children's programming on broadcast television is known as the Children's Television Act of 1990 (CTA). This statute specifies that each broadcast television station must provide programming "specifically designed" to serve the educational and informational needs of children. The task of enforcing this obligation falls to the Federal Communications Commission (FCC).

There are two chief reasons why the Congress adopted the Children's Television Act. First, legislators recognized that educational programming that is carefully crafted for a narrow target audience can generate significant learning outcomes, offering tremendous benefit for the nation's youth (Kunkel, 1991; Palmer, 1988). The Congress hoped that the Children's Television Act would prompt commercial stations to deliver high-quality educational fare equivalent to that provided by such public broadcast programs as *Sesame Street* and *Mister Rogers' Neighborhood*. And second, the record is quite clear that when the FCC deregulated its previous policies requiring children's educational programming in 1984, the broadcast industry quickly abandoned the genre almost entirely (Kerkman et al., 1990; Wartella et al., 1990). Two classic programs valued for their educational contributions, *Captain Kangaroo* and *Fat Albert*, were cancelled within a year following the FCC's decision to deregulate.

In the absence of regulatory requirements, broadcasters naturally seek to maximize their revenues by attracting the largest possible audience, a goal at odds with targeting children because of their modest numbers in the overall population as compared to adults. Judging that marketplace failure had occurred, and that serving the needs of children was central to the public interest, the Children's

Television Act sought to improve the role of television in children's lives. In the words of Senator Timothy Wirth, one of the bill's chief sponsors:

Television is a unique medium that offers incredible opportunities to enrich the lives of America's children. Virtually every developed country in the world devotes more resources than we do on educational television for children. In contrast, our broadcasters often ignore the child audience or offer cartoon programs that are principally designed to promote toys to children. We can do better than this. Indeed, we must do better... (Congressional Record, July 19, 1990, p. S10123).

In the early years following enactment of the CTA, evidence surfaced that many broadcasters had failed to take the new law seriously. Stations made frivolous claims in reports submitted to the FCC to document compliance, asserting for example that *The Flintstones* was educational because it taught lessons about history, and *The Jetsons* was educational because it taught about new technologies (Center for Media Education, 1992; Kunkel & Canepa, 1994). One station designated *Yogi Bear* as educational because it teaches "certain moral and ethical values such as not to do stupid things or you will have trouble; don't take what doesn't belong to you or be prepared to face the music" (Kunkel, 1998).

The FCC responded to this situation by adopting new rules designed to more clearly specify what programming could legitimately qualify as educational for purposes of complying with the CTA. These policies, adopted in 1996, specify that stations are expected to provide a minimum of three hours per week of "core educational programming" for children. To qualify as a core program, each show must:

- (a) have education as a significant purpose;

(b) have a specified learning goal and target audience; (c) be aired on a regular schedule between 7:00 a.m. and 10:00 p.m.; and (d) be labeled as E/I to identify the program to the public as educational/informational for children.

## Previous Research on E/I Program Performance

Shortly following the adoption of these new FCC rules, Dr. Amy Jordan and colleagues at the Annenberg Public Policy Center of the University of Pennsylvania conducted several annual studies evaluating the educational quality of the E/I programs aired by commercial broadcast stations in the Philadelphia area (Jordan, 1998, 2000; Schmitt, 1999). The findings indicated that program quality was strongest shortly after the new FCC rules were adopted, with roughly a third of all E/I programs rated as "highly educational" in 1997-98 (29%) and 1998-99 (33%). The industry's efforts then diminished in quality. In 1999-2000, only 20% of 41 series examined were judged to be "highly educational," while nearly a quarter (23%) were rated in the lowest category, "minimally educational." Some of the minimally educational programs, such as *NBA Inside Stuff* and *NFL Under the Helmet*, seemed intended for adults as much as for children, and others that were more distinctly child-oriented, such as *Sherlock Holmes in the 21st Century* and *Anatole*, were judged to be deficient in effectively conveying any educational message.

Since the completion of the last Annenberg Center study in 2000, no systematic research has been conducted to evaluate how well the broadcast industry is fulfilling its obligation to provide educational and informational television programming for the nation's children. The purpose of this study is to engage that

task. In the intervening years, several developments have surfaced to suggest that the quality of the E/I programming on commercial television may have suffered further. In 2004, two Washington, D.C. area broadcast stations had their license renewals challenged by public interest advocacy groups on the basis of serious inadequacies in their children's educational programming efforts (Office of Communication of the United Church of Christ and Center for Digital Democracy, 2004). These challenges are still pending before the FCC. In a separate case, the FCC applied a record fine of \$24 million to the Univision Network in 2007 for significant shortcomings in the children's educational programming on its 24 stations (Federal Communications Commission, 2007). In describing the FCC's action, *The New York Times* characterized it as an unusual rebuke to the industry "after years of permissive oversight in this area" (Labaton, 2007). In the context of these recent events, it clearly is both important and timely to scrutinize the nature and extent of educational and informational children's programming delivered by the overall broadcast industry.

## The Current Study

The study we have conducted to evaluate industry-wide performance at fulfilling the requirements of the Children's Television Act has two distinct goals: (1) to identify the nature and amount of children's E/I programming presented on commercial television, and; (2) to evaluate the educational quality of the most widely viewed shows. To accomplish the first goal, we examined the availability and scheduling of shows claimed as core educational/informational (E/I) programming, based upon reports filed with the FCC by each station. For this part of the research, we randomly selected 24 television markets stratified by market size (small, medium, large, major), and examined the amount and scheduling of the

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E/I shows aired on the major broadcast channels in each of these markets. We used the data from this first section of the study to identify the E/I programs that appear most frequently on commercial television nationwide.

These shows then became the focus of the second aspect of the research, evaluating the educational quality of the E/I programs presented on commercial television. A total of 30 commercial television series were assessed using scientific content analysis procedures. Three episodes from each series were randomly selected and videotaped for examination. Each episode was evaluated on a range of measures, including the age of the target audience, nature of the educational message, and most importantly, an index of educational quality based on six key criteria.

To enhance our perspective in assessing the educational quality of the E/I programs aired on commercial television, we also randomly selected 10 of the E/I shows presented on the nation's public broadcasting network (PBS) and examined them for comparison purposes. As with the commercial programs, we recorded and content analyzed three randomly selected episodes of each of these 10 public broadcast series. We present findings about the educational quality of the public broadcast shows solely as a complement to our evaluation of the quality of the programs aired on commercial stations. To be clear, we do not offer any assessment of the scheduling or availability of children's programming on public broadcast channels, nor do we assert that our examination of the E/I shows on PBS is comprehensive across their entire program schedule. We do, however, believe that our evaluation of the quality of the PBS shows is representative of the children's programming efforts for that network, and that these data provide a valuable counter-point to help judge the efficacy of the E/I programs provided by commercial television stations.

Prior to reporting our findings regarding both the availability and quality of children's educational programming on commercial television, we first explicate the methodological details that were employed in our investigation in the next section of this report.

## Method

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The first portion of this study examines the availability and scheduling of children's educational programs designated as E/I by commercial broadcasters.

### Sample

A stratified sample based upon the varying size of television markets was employed for this part of the research. Markets were divided into four groupings based upon the overall number of television households in each community, as reported by Nielsen Media Research (2007). Our four groupings are labeled: major markets (ranked 1-25); large markets (ranked 26-50); medium markets (ranked 51-100); and small markets (ranked 101-up). Within each group, six cities were randomly selected for examination. Thus, a total of 24 markets were analyzed for this research. These markets represent a collective total of 20.85% of the entire population of U.S. TV households. Table 1 presents a list of the television markets included in the study.

In each market, the study examined any commercial broadcast station (VHF or UHF) affiliated with a major network including ABC, CBS, NBC, Fox, CW, or MyTV, as well as any independent (i.e., non-network) commercial VHF station. Across the 24 markets examined, a total of 135 stations met these criteria and were included in the study.

**Table 1: List of Cities Included in Study by Market Size**

<b>Major Markets</b>	<b>Medium Markets</b>
Boston, MA	Des Moines, IA
Dallas, TX	Fresno, CA
Indianapolis, IN	Honolulu, HI
Los Angeles, CA	New Orleans, LA
Miami, FL	Tulsa, OK
St. Louis, MO	Tucson, AZ
<b>Large Markets</b>	<b>Small Markets</b>
Buffalo, NY	Billings, MT
Memphis, TN	Boise, ID
Milwaukee, WI	Columbus, GA
Raleigh-Durham, NC	Eugene, OR
Salt Lake City, UT	Reno, NV
San Antonio, TX	Tallahassee, FL

For each station, we reviewed their Children’s Television Programming Report (FCC Form 398) as filed with the FCC to ascertain the shows claimed as “core programming” to fulfill the educational/informational obligation established by the Children’s Television Act of 1990. Note that noncommercial and/or public broadcast stations are not required to file an FCC Form 398, and thus the shows provided by public broadcasting are not included in the data on program availability reported below.

The period targeted by the study was the fourth quarter of 2007, from October 1 to December 31. The study’s findings on the availability of E/I children’s programming are based entirely on the claims presented by the stations in their FCC filings, and this information was not independently verified. We expect that these claims are generally accurate, and note that stations would be subject to penalty for any false reports to the FCC.

To determine the shows to be included in the content analysis portion of the research, we reviewed our data on program availability in all 24 markets studied. Some shows that are distributed by broadcast networks air in literally every market in the country, while other programs are sold in the syndicated marketplace to individual stations, and air in many, though not all, television markets. We identified all shows that had a clearance rate that exceeded 33% of the markets included in our sample (i.e., that aired on stations in 9 or more of the 24 TV markets examined by the study), and then recorded and content analyzed three randomly selected episodes of each show. This strategy yielded a total of 30 children’s television series that were examined by the content analysis research. Programs were recorded off-air at the University of Arizona (Tucson, AZ) or at the University of Illinois (Urbana-Champaign, IL) during the period of November 2007 to May 2008.

## Content Measures

In this section we explicate the measures employed in the study, as well as the process used to generate our data. All content analysis coding was conducted at the episode level. Researchers watched each episode that they coded at least twice, and could replay segments as often as needed to inform their judgments. Each of the measures the coders judged in the programming is described in turn below.

### Target Audience

Programs were evaluated for their primary target audience based upon consideration of all elements of the program, including such features as the nature of the content, the pacing, and the primary characters. Programs were classified as targeted primarily toward



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“preschoolers” (up to 5 years of age), “elementary schoolers” (ages 6 to 11 years) or “preteen/teens” (ages 12 to 16 years). In some cases when the content of the episode was unclear, the researchers consulted websites for the series and/or examined the information contained in station filings submitted to the FCC.

### **Educational/Informational Lessons**

We defined a lesson as a sustained theme or topic within a program that conveys a message or curriculum of educational value to children. A lesson cannot be an isolated scene or statement, but instead must be emphasized in multiple ways within the program. Lessons might involve different scenes, statements, characters, or subplots. We classified three main types of lessons: cognitive-intellectual, social-emotional, and health. Coders recorded the presence or absence of each one of these three types of lessons within each episode they analyzed.

#### **1. Cognitive-Intellectual Lessons**

Cognitive-intellectual lessons were defined as those that aim to teach the viewer facts, ideas, and concepts related to existing knowledge or ways of thinking. These lessons include information about science, physics, geography, mathematics, and nature, among others, as well as development of problem-solving strategies and comprehension capabilities such as reading. Based upon pilot testing to help determine the categories typically present in children’s E/I programming, we used the following classification options for coding: (1) physical science—lessons about natural phenomena in the physical world, such as biology; (2) social science—lessons about the study of people and events in the world, including history, geography, law, and political science; (3) mathematics—lessons

about quantity or the relationship between quantities, such as numbers, shapes or measurements; (4) reading/vocabulary/language—lessons about the process of constructing meaning from oral, visual, or written text, including English and non-English vocabulary and grammar; (5) nature—lessons about the natural environment including the physical ecology and all forms of life that inhabit it; (6) music—lessons about melodies or harmonies produced by voice or musical instruments; (7) art—lessons about manifestations of creative expression such as sculpture, drawing or photography; (8) cognitive skills—lessons about the mental skills that make it possible for humans to learn, including how to solve a problem, pay attention, or classify objects; or (9) other—any cognitive-intellectual lesson that does not fit into the basic categories.

#### **2. Socio-Emotional Lessons**

Socio-emotional lessons were defined as those that aim to teach the viewer about being a member of the social world. These lessons typically focus on learning about the self in relation to others. Consistent with the term, there are two primary types of lessons that fit into this category. One focuses on emotions, and the other on the social world. Often these two are interrelated. For example, learning to control one’s anger also helps a person to have more productive relations with others. Similarly, learning how to empathize with others also encourages a person to have healthy friendships. We used the following classifications for coding social-emotional lessons: (1) altruism—lessons about voluntary helping behavior intended to benefit others; (2) emotional skills—lessons about comprehending one’s own emotions, or understanding and sharing others’ emotions such as

sympathy or perspective taking; (3) positive interaction—lessons about behavior that nourishes relationships with others, including friendliness, cooperation, loyalty, and honesty; (4) self-esteem/identity—lessons about a person's own self worth or about who one is as a social being, including pride in one's background, accomplishments, and physical appearance; (5) acceptance of others—lessons that counter racial, ethnic, or gender stereotypes about groups or that encourage open attitudes about people who are different from the self; (6) self-restraint—lessons about controlling antisocial urges such as cheating, stealing, or hitting; or (7) other—any social-emotional lesson that does not fit into the basic categories.

### 3. Health Lessons

Health lessons were defined as those that aim to teach viewers about the general state or condition of wellness and physical well-being of the body. For example, lessons about making a healthy pizza, playing outside to get exercise, or washing one's hands exemplify health lessons. We used the following classifications for coding: (1) nutrition—lessons about healthy foods and maintaining a healthy diet; (2) physical activity—lessons about maintaining an active lifestyle through exercise, sports, and/or playing outdoor games; (3) hygiene—lessons about maintaining a clean, healthy body by, for example, washing one's hands or brushing one's teeth; (4) personal safety—lessons about physical safety including stranger danger, drug and alcohol abuse, and other risk taking behaviors; or (5) other—any health lesson that does not fit into the basic categories.

### ***Primary Lesson***

Although it is possible for a single E/I episode to have multiple lessons, the primary lesson is defined as the main educational message most consistently emphasized throughout the episode. Coders classified the primary lesson of each episode into one of three categories: social-emotional, cognitive-intellectual, or health.

### ***Educational Quality***

We used six criteria to measure the overall educational quality of each episode: clarity, integration, involvement, applicability, importance, and positive reinforcement. Each criterion was judged independently on a 3-point scale from low (0) to medium (1) to high (2). Coders considered only the primary lesson of the program when assessing the quality measures.

The first four criteria were adapted from previous research evaluating E/I programming conducted by Dr. Amy Jordan (1998, 2000) and colleagues at the Annenberg Public Policy Center. We defined these measures in the following manner:

#### **1. Lesson Clarity**

Lesson clarity refers to how directly and explicitly the primary lesson is presented. A lesson that is high in clarity is easy to decipher, straightforward, and transparent. A lesson that is low in clarity is not articulated clearly and may be muddled by distractions, unclear dialogue, or competing sub-plots within an episode.

#### **2. Lesson Integration**

Lesson integration refers to the extent to which the primary lesson is repeated or incorporated throughout the program. A lesson that is high in integration will be emphasized or demonstrated multiple times

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throughout the episode. A lesson that is low in integration is isolated or separated from other program content and may appear to be tangential to the main plot or storyline.

### **3. Lesson Involvement**

Lesson involvement refers to the extent to which the primary lesson is engaging and absorbing. Various techniques can enhance involvement, including speaking directly to the viewer (often used in programs targeted to younger ages), tying the lesson to emotionally involving content, and/or using popular characters. An episode that is high in lesson involvement makes a strong and consistent effort to get the viewer's attention. An episode that is low in involvement does not engage the viewer in the primary lesson.

### **4. Lesson Applicability**

Lesson applicability refers to the extent to which the primary lesson is shown to be connected to the real world. An episode that is high in applicability conveys how the primary lesson relates to the everyday experiences and problems of a typical child. An episode that is low in lesson applicability neglects to demonstrate how the information is relevant to the child's everyday world.

In addition to these measures, we added two new criteria in the present study:

### **5. Lesson Importance**

Lesson importance refers to the overall value or usefulness of the primary lesson. The focus here is not on how well the primary lesson is presented, but rather on its overall significance or worth. A lesson that is high in importance is one that is crucial for a child to learn. A lesson that is low in importance is one that holds little utility for a child's development.

### **6. Lesson Reinforcement**

Positive reinforcement refers to the extent to which learning (including effort and mastery) of the lesson is rewarded within the episode. Programs can contain a variety of features that strengthen motivation for learning, including cheering a character on, rewarding a character for accomplishments, having a character show pride in what is learned, and/or verbally praising a character. Positive reinforcement also can be delivered directly to the viewer (e.g., "Good job!").

We included this last criterion because there is substantial evidence that children learn better when they are provided with motivation, which often comes in the form of external reinforcements. In a meta-analysis of 96 experiments, Cameron and Pierce (1994) found that both children and adults who were rewarded with verbal praise or positive feedback showed significantly greater motivation to work on cognitive tasks such as puzzles, word problems, and reading than did non-rewarded participants. Even in the social realm, reinforcements matter. According to Bandura's (1986) social cognitive theory, children are most likely to imitate models that are rewarded for their actions. In support of this idea, research shows that preschoolers' learning of pro-social behavior from television is enhanced when the behavior is reinforced through role playing and other activities (Mares, 2008). Thus, we developed our measure of reinforcements to assess how often E/I programs encourage characters in the show, or viewers themselves, to learn educational content.

## **Aggression**

We assessed the amount of aggression in E/I programming for two reasons. First, there are literally hundreds of empirical studies that show that extensive exposure to television violence can contribute to the learning of aggressive attitudes and behaviors in children (Anderson et al., 2003; Bushman & Huesmann, 2006; Paik & Comstock, 1994). It stands to reason that parents might prefer that E/I programs are devoid of violence because of the potential that such programs can actually teach anti-social behaviors while seeking to convey pro-social messages. Second, there is growing evidence that the inclusion of violent content can impair memory for adjacent messages in television content. In a review of 12 studies involving roughly 1,800 participants, Bushman and Phillips (2001) found that viewing violent programs significantly reduced memory for adjacent ads in both adults and children. Bushman and Bonacci (2002) propose that when a viewer watches a violent program, more attention is paid to the violent content and thus neutral or positive content is forgotten because it is not encoded into long-term memory. This evidence suggests that including violence in E/I content may interfere with children's learning of social-emotional or cognitive-intellectual lessons.

In this study, we examined for both physical and social aggression. The evidence linking physical violence on television with increased aggressiveness in children is well documented. In addition, several studies conducted in recent years document that children also can learn social or relational aggression from viewing televised depictions (Huesmann, Moise-Titus, Podolsk, & Eron, 2003; Kuntsche et al., 2006; Ostrov, Gentile, & Crick, 2006), particularly

portrayals that explicitly model social aggression (Coyne & Archer, 2005; Martins, 2008). Thus, we have included measures of both physical and social aggression in our examination of E/I programming.

For our assessment, we defined *physical aggression* as the overt depiction of a credible threat of physical force or the actual use of such force intended to physically harm an animate being (Wilson et al., 1997). Examples of physical aggression include "hand-to-hand" fighting such as kicking and punching, use of weapons such as guns and bombs, and intentionally harmful acts such as tying someone to railroad tracks. Physical aggression does not include accidents, natural disasters, or animals attacking other animals in their natural environment.

*Social aggression* was defined as any behavior designed to harm an animate being's self-esteem or social status (Galen & Underwood, 1997). Examples of social aggression include derisive name-calling, socially ostracizing someone, gossiping, and spreading hurtful rumors.

## **Coding Procedures & Reliability**

A group of 12 undergraduate students at the University of Illinois at Urbana-Champaign served as coders for the project. The coders were trained over a two-month period.

At the conclusion of training, a test of reliability verified that all coders were consistently applying the measures. The actual coding of data took approximately six weeks to complete. They viewed each episode at least twice before recording any judgments, and were able to re-view any section of any episode as many times as needed in order to gain clarification.

To assess reliability during the coding process, a total of 14 randomly selected episodes (12% of the total sample) were independently evaluated by all coders at regular intervals during the project. Inter-coder reliability was assessed using Cohen's Kappa for nominal judgments and Krippendorff's Alpha for scaled variables. Mean reliability coefficients for 13 of the 15 variables examined in the study achieved .87 or higher, reflecting strong agreement. Two additional variables achieved acceptable reliability coefficients of .80 (lesson applicability) and .76 (presence of social-emotional content). The complete results of our reliability testing are displayed in Appendix A.

## Results

### Availability and Scheduling of Children's E/I Programming

In 1996, the FCC advised commercial broadcasters to air a minimum of three hours per week of core programming that is specifically designed to serve the educational needs of children. Our data indicate that stations industry-wide generally meet that standard, averaging 3.32 hours (translates to 3 hours and

19 minutes) per week of E/I programming (see Table 2). Comparing the performance of stations by market size reveals a pattern that shows market size is negatively related with the amount of E/I programming delivered. That is, stations in the largest markets (labeled *Major* for this study) deliver the lowest average amount of children's programming, at 3.18 hours per week. In contrast, stations in the smallest markets (labeled *Small*) deliver the highest average amount of programming, at roughly 3½ ( $M = 3.49$ ) hours per week.

Another perspective on the amount of E/I children's programming that stations provide is offered by comparing the proportion of stations that simply meet the basic three-hour criterion to the proportion of stations that exceed the FCC's three-hour guideline. This analysis is presented in Table 3, which indicates that 59% of stations provide only the minimally required three hours per week of children's E/I programming. A little more than 1/3 of all stations (37%) slightly exceed the three-hour standard, averaging between 3.1 and 4.0 hours per week of E/I shows. In contrast, only 3% of the 135 stations examined exceed four hours per week in their delivery of children's E/I programming. Four hours per week translates to 35 minutes per day. Thus,

**Table 2: Amount and Scheduling of Children's E/I Programming**

	Market Size				Overall
	Small	Medium	Large	Major	
Average hours per week	3.49	3.41	3.23	3.18	3.32
Stations with any weekday shows	32%	26%	28%	22%	25%
	<i>n</i> = 28	<i>n</i> = 35	<i>n</i> = 35	<i>n</i> = 37	<i>N</i> = 135

Note. All data for this table are based upon broadcast licensee claims as submitted to the FCC in Form 398 reports for the 4th quarter of 2007.

**Table 3: Proportion of Stations that Exceed the Minimum 3-Hour per Week Guideline for Children’s E/I Programming**

Amount of E/I Programming	Market Size				Overall
	Small	Medium*	Large	Major	
< 3.0 hrs/week	—	3%	—	—	1%
3.0 hrs/week	57%	49%	60%	70%	59%
3.1-4.0 hrs/wk	32%	46%	40%	30%	37%
4.1 > hrs/wk	11%	3%	0%	0%	3%
	<i>n</i> = 28	<i>n</i> = 35	<i>n</i> = 35	<i>n</i> = 37	<i>N</i> = 135

Note. All data for this table are based upon broadcast licensee claims as submitted to the FCC in Form 398 reports for the 4th quarter of 2007.

\* The total in this column exceeds 100% due to rounding error.

our data make clear that 97% of commercial broadcast stations devote less than 35 minutes per day to their statutory obligation to provide educational programming specifically designed for children.

Most children watch television virtually every day of the week. However, our data confirm a now longstanding broadcast industry practice of presenting children’s programming on weekends only. This pattern originated in the 1960s (Turow, 1981), and led the FCC to chastise the practice and label it unacceptable in its 1974 *Children’s Television Report and Policy Statement*. In that policy document, the FCC stated:

...there is tendency on the part of many stations to confine all or most of their children’s programming to Saturday and Sunday mornings. We recognize the fact that these are appropriate periods for such shows, but are nevertheless concerned with the relative absence of children’s programming on weekdays.

...It is clear that children do not limit their viewing in this manner...

Accordingly, we do not believe that it is a reasonable scheduling practice to relegate all of the programming for this important audience to one or two days.

...we do expect to see considerable improvement in scheduling practices in the future.

(FCC, *Children’s Television Report and Policy Statement*, Nov. 6, 1974, at paragraphs 26-27)

Our analysis indicates that only one of every four commercial broadcasters (25%) delivers *any* children’s E/I programming during the weekdays (see Table 2). Conversely, three-fourths of stations industry-wide restrict all of their educational programming for children to Saturday or Sunday offerings. Consistent with the pattern identified above regarding the amount of E/I programming presented by each station, we see that market size is negatively related with better service to children. That is, the largest (i.e., Major) markets had the lowest percentage of stations that aired weekday programming (22%), whereas the smallest markets had the highest percentage (32%). In sum,

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although the FCC has stated that broadcasters should serve the needs of children throughout the week, and not just on weekends alone, the large majority of stations follow a dominant pattern that fails to provide educational children's programming Monday through Friday.

## Evaluating the Content of E/I Programs

Most of the analyses in this section pertain to individual episodes across program or series titles. For commercial E/I programming, a total of 90 episodes were examined, consisting of three episodes from each of 30 program series. At the end of this section, when we compare the educational quality of commercial programming to public broadcast programming, an additional 30 episodes were examined, consisting of three episodes from each of 10 PBS program series.

### Educational Lessons Featured in E/I Episodes

E/I programs can feature more than one type of lesson, as stipulated by the FCC guidelines. Our initial analysis sought to identify the full range of lessons included in E/I programming. Thus, we measured the presence or absence of any type of social-emotional lesson, any type of cognitive-intellectual lesson, and/or any type of health lesson in each episode. Our findings indicate that almost three-fourths of all episodes (74%) contained some type of social-emotional lesson. The most common type of social-emotional lesson in the shows involved teaching positive interaction with others (26% of episodes), followed by

## The Range of Station Commitments to Children

### KFVE (Honolulu)

This station averaged 5.5 hours per week of children's E/I content during the fourth quarter of 2007, placing it near the top industry-wide in overall amount of programming. It presented highly-ranked shows for different age groups, including *Where on Earth is Carmen Sandiego?* for younger children, and *Beakman's World* for older children and teens. The station provided E/I programming on every day of the week except Sunday.

### KSAT (San Antonio)

This station averaged exactly 3.0 hours per week of core E/I programming in the fourth quarter of 2007. Its offerings included five different half-hour programs, one of which (*That's So Raven*) aired twice each week in back-to-back time slots. All of the shows were provided by the parent network, so the station's schedule looks identical to that of most ABC affiliates. Its entire slate of E/I shows appears solely on Saturday mornings. Only one of its programs (*The Suite Life of Zack and Cody*) was rated as highly educational.

### WZMY (Boston)

This station aired just one children's educational program series during the entire fourth quarter of 2007, *Degrassi: The Next Generation*. Although the series is recognized as a legitimate offering, it primarily targets children, ages 13-16 (the program is rated TV-PG), the station provided no service to children, ages 12 and under. In its FCC filing, the station claimed to present the show 73 times during the period October 1 to December 31, averaging exactly three hours per week overall. Because this series was in its seventh year of production in 2007, and it delivered a total of only 24 new episodes that entire year, the station had to re-run shows from several previous seasons in order to fulfill its weekly three-hour minimum requirement. Programs were offered on weekends and weekdays, but the schedule varied during the time period studied.

messages promoting positive self-esteem and self-restraint (see Table 4). Less frequent were episodes teaching altruism, emotional skills, and acceptance of others.

**Table 4: Topics of Social-emotional Lessons in E/I Commercial Episodes**

Topic	n	Frequency
Positive interaction	23	26%
Self-esteem	16	18%
Self-restraint	11	12%
Altruism	7	8%
Emotional skills	6	7%
Acceptance of others	2	2%
Other	2	2%
Total episodes w/ any social-emotional lesson	67	74% <sup>1</sup>
Total episodes with no social-emotional lesson	23	26%

Note 1. Due to rounding error, the percentages in the top part of the table add to 75%, but the correct statistic is that 74% of episodes contained some type of social-emotional lesson.

In contrast to the abundance of social-emotional material, cognitive/intellectual lessons were much less common. Fewer than half of the episodes (44%) featured some type of lesson focused on cognitive-intellectual learning (see Table 5). In this area, lessons about nature were the most frequent (17% of episodes), followed by physical science (12%) and to a lesser extent social science (7%). Lessons about art or cognitive skills were infrequent at 3% each. Only 1% of the episodes in our sample contained a focus on teaching mathematics.

**Table 5: Topics of Cognitive-Intellectual Lessons in E/I Commercial Episodes**

Topic	n	Frequency
Nature	15	17%
Physical Science	11	12%
Social science	6	7%
Art	3	3%
Cognitive skills	3	3%
Maths	1	1%
Other	1	1%
Total episodes w/ any cognitive-intellectual lesson	40	44%
Total episodes with no cognitive-intellectual lesson	50	56%

**Table 6: Topics of Health Lessons in E/I Commercial Episodes**

Topic	n	Frequency
Nutrition	3	3%
Physical activity	3	3%
Personal safety	3	3%
Total episodes w/ any health lesson	9	10% <sup>1</sup>
Total episodes with no health lesson	81	90%

Note 1. Due to rounding error, the percentages in the top part of the table add to 9%, but the correct statistic is that 10% of episodes contained some type of health lesson.



Finally, we assessed whether each E/I episode contained any type of health lesson. Only one of every 10 of the programs (10%) featured a health-related lesson. Of these, the topics were equally split between nutrition, physical activity, and safety (see Table 6).

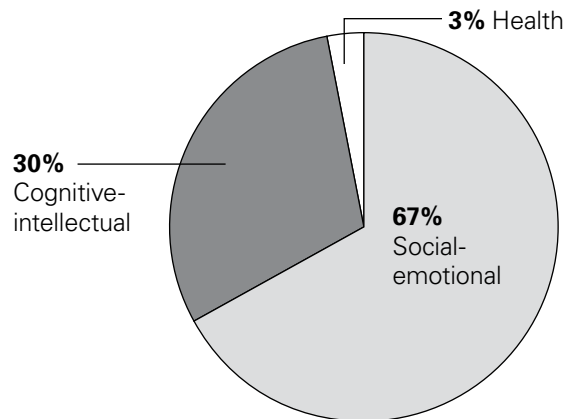
### **Primary Lesson in E/I Episodes**

Although E/I programs can include multiple lessons, there is typically a primary or focal lesson that dominates and receives most attention in the plot. When we examined the primary lesson in each episode, the same general pattern documented above for all types of lessons emerged. That is, social-emotional messages dominated the content in E/I programming on commercial channels. More specifically, two out of three episodes (67%) featured a social-emotional lesson as the primary focus. In contrast, less than one in three (30%) emphasized a cognitive-intellectual lesson as the primary message. The remaining 3% of the episodes focused on health as the primary lesson (see Figure 1). Each of these health episodes ( $n = 3$ ) came from a single TV series, *Adrenaline Project*.

Does the primary lesson differ with respect to the target audience for E/I programming? To address this question, we identified the target age of all programs in our sample. The largest share (53%) was targeted to elementary school children (see Figure 2). Roughly one-third were targeted to preteens and teens (33%), with the remaining 13% targeted to preschoolers.

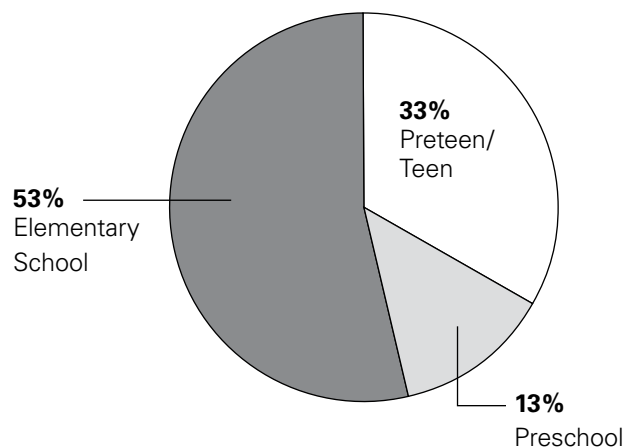
Differences exist in the type of primary lessons that are directed to the various target age groups in E/I shows. Social-emotional lessons are more common in episodes targeted to children (both preschool and elementary school groups) than in episodes targeted to preteen/teens (see Table 7). In contrast, cognitive-intellectual and health lessons are more likely to be

**Figure 1: Primary Lesson in E/I Commercial Episodes**



Note. For this analysis,  $N = 90$ .

**Figure 2: Target Audience Age of E/I Commercial Episodes**



Note. For this analysis,  $N = 90$ .

**Table 7: Primary Lesson Type by Target Age of Episode**

Primary Lesson Type	Target Age of Episode		
	Preschool	Elementary School	Preteen/Teen
Social-emotional	75%	73%	53%
Cognitive-intellectual	25%	27%	37%
Health	0%	0%	10%
N of episodes	12	48	30

found in programs targeted to preteen/teens, as compared to shows directed to younger audiences. Statistical analysis of the differences between the primary lessons directed to different target age groups approached significance,  $\chi^2(4, N = 90) = 7.89, p = .10$ .

## Educational Quality of E/I Episodes

We assessed quality by focusing on the message strategies employed to convey the primary lesson in each episode. In other words, our quality criteria for judging educational strength were applied strictly to the dominant focus of the program. This tactic insured that programs that included supplemental or minor lessons would not be penalized if those efforts received only modest attention in the show. Six criteria were used for assessing educational quality:

- lesson clarity
- lesson integration
- lesson involvement
- lesson applicability
- lesson importance
- lesson reinforcement

Each of these variables was judged on a 0-2 scale (0 = low, 1 = medium, 2 = high). Episodes generally were rated better on clarity and on integration (67% scored “high” on clarity; 60%

scored “high” on integration) than on the other four qualities (42% scored “high” on involvement; 40% scored “high” on importance; 31% scored “high” on applicability; and 24% scored high on positive reinforcement).

To assess overall quality for each episode, we summed the scores for all six criteria. The resulting quality index could range from 0 to 12. The overall mean score for E/I episodes on commercial channels was 7.9.

To help clarify our overall findings, we grouped episodes into three categories. Those with scores of 6 or less were classified as *minimally educational*; episodes in this group typically had a “low” rating (score of 0) for at least one of the criteria and never had more than one “high” rating across all six criteria. Episodes with scores of 7 to 10 were classified as *moderately educational*. Episodes with scores of 11 and 12, which means that they were rated as “high” on at least five of the six criteria, were classified as *highly educational*. As seen in Table 8, only about one of every eight episodes (13%) analyzed by the study was rated as highly educational. Programs in this category generally featured primary lessons that were clear, well integrated across the episode, highly involving, applicable to a range of situations, and valuable for the target audience. The largest share of episodes (63%) was judged to be moderately educational. The remaining 23% of the shows were judged to be minimally

educational. Examples in this category often featured lessons that were not applicable to the common experiences of a typical child and/or conveyed messages that were not positively reinforced in the plot.

Comparing our pattern of findings to those produced by Jordan and colleagues between 1997-2000 provides the clearest picture of how educational quality has changed over time in children’s programming. The previous Annenberg Center studies established that high-quality programming was relatively infrequent and diminished over time (see Table 9). According to the Annenberg Center reports, the percentage of E/I programs judged to be highly educational had dropped from 29% in 1997-98 to 20% in 1999-2000, the year of their final study. Our analysis indicates that

level has dropped further still, with only 13% of E/I episodes achieving a highly educational rating in the 2007-08 season. In sum, this means that the amount of E/I programs judged to be highly educational has dropped by more than half since the first Annenberg study was conducted. Meanwhile, the proportion of shows judged to have only minimal educational value has held relatively constant over the past decade at about one of every four programs. Although the majority of shows continue to fall into the “moderately educational” category, our data indicate that the amount of high-quality children’s educational programming is down dramatically over the past decade. It appears that the passage of time since the FCC’s last policy ruling on this topic in 1996 may be dampening the broadcast industry’s commitment to children’s educational programming.

**Table 8: Educational Quality of E/I Episodes on Commercial Channels**

Quality of Lesson	Range of Scores	n	Frequency
Highly educational	11-12	12	13%
Moderately educational	7-10	57	63%
Minimally educational	0-6	21	23%
		<i>N</i> = 90	

Note. Overall quality scores are based on judgments across six criteria (clarity, integration, involvement, applicability, importance, and reinforcements) that were each evaluated as low (0), medium (1), and high (2).

**Table 9: Quality of E/I Episodes on Commercial Television Over Time**

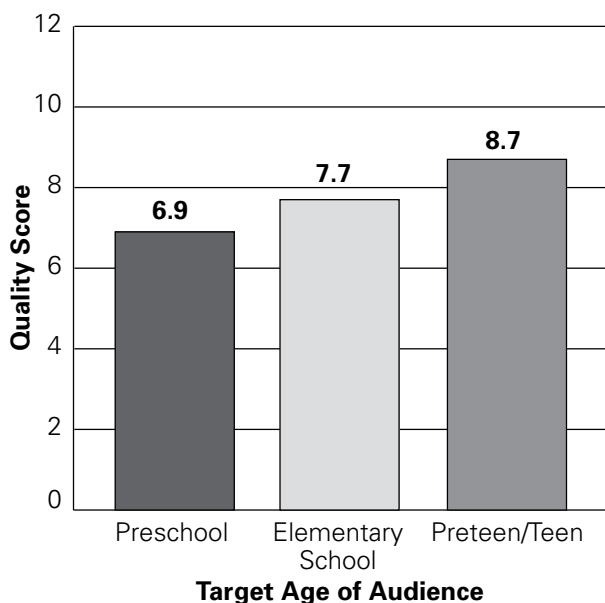
Year	Level of Educational Quality		
	Minimal	Moderate	High
1997-98	26%	46%	29%
1998-99	21%	46%	33%
1999-00	23%	57%	20%
2007-08	23%	63%	13%

Note. The data prior to 2007 come from the Annenberg Public Policy reports on E/I programming. In particular, the 1997-98 data are from Jordan (1998), the 1998-99 data are from Schmitt (1999), and the 1999-00 data are from Jordan (2000).

We further examined educational quality as a function of the type of lesson featured in the program, comparing social-emotional versus cognitive-intellectual themes. No significant difference was found in educational quality as a function of primary lesson type. In other words, episodes that concentrated on teaching social-emotional lessons were similar in overall quality ( $M = 7.8$ ) to episodes that concentrated on teaching cognitive-intellectual content ( $M = 8.1$ ).

We also examined whether educational quality varied as a function of the target age of the audience. Our analysis of overall quality scores revealed an effect for target age that approached significance,  $F(2, 87) = 2.75$ ,  $p = .07$ . In general, the educational quality was judged to be higher for programs targeted to the preteen/teen audience ( $M = 8.7$ ) than for programs targeted to preschoolers ( $M = 6.9$ ). As seen in Figure 3, the quality of programs targeted to the elementary school age group fell between the other two ( $M = 7.7$ ) on the 12-point quality scale.

**Figure 3: Educational Quality of E/I Commercial Episodes as a Function of Target Age of the Audience**



## Aggression in E/I Programming

We coded the amount of both physical and social aggression in E/I episodes. Episodes were judged as having no aggression (0), some aggression (1), or a lot of aggression (2). Our results indicate that physical aggression in E/I programming is relatively sparse (see Table 10). Most E/I episodes on commercial channels (60%) contained no physical aggression at all, whereas 32% contained “some” (i.e., limited to a few instances or scenes) and only 8% included “a lot,” meaning there were numerous instances throughout the program.

**Table 10: Aggression in E/I Episodes on Commercial Channels**

Amount of Aggression	Physical Aggression	Social Aggression
A lot	8%	21%
Some	32%	36%
None	60%	43%

Note. For this analysis,  $N = 90$

In contrast, social aggression was much more common in E/I programming. Our definition of social aggression focused on behavior designed to harm another person’s self-esteem or social status. These type of actions were observed “a lot” in 21% of all commercial broadcast E/I episodes, whereas more than a third (36%) featured “some.” Not quite half of the episodes (43%) contained no social aggression at all.

Comparing these relative frequencies, we can draw several conclusions. The majority of E/I episodes on commercial channels did not contain any physical aggression such as hitting, kicking, or threatening to physically harm another. On the other hand, the majority

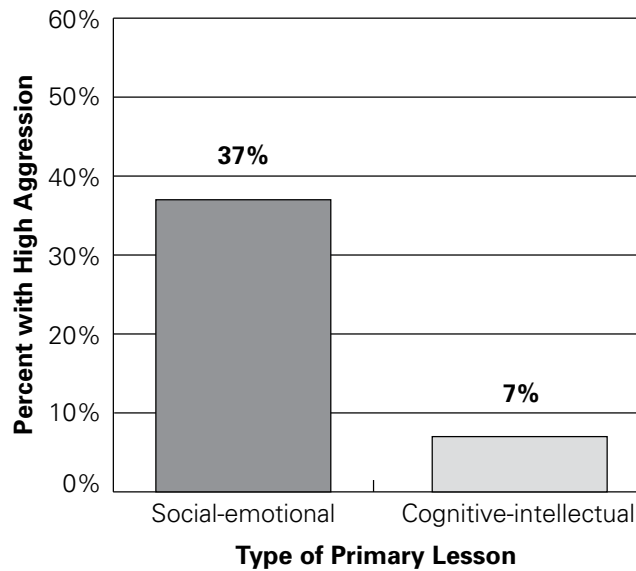
of E/I episode on commercial channels did contain social aggression such as gossiping, spreading rumors, and engaging in mean talk designed to hurt another’s feelings. Furthermore, one in five episodes featured this type of social aggression repeatedly throughout the program.

To examine aggression more closely, we identified those episodes that contained substantial amounts of such behavior. Any episode that scored “high” on either social or physical aggression was placed in this category. From this perspective, 28% of the episodes on commercial channels featured a substantial amount of aggression.

What types of E/I programs are most likely to feature such high aggression? First, we assessed whether the type of lesson featured in the program made a difference. Our analysis finds that it did. The frequency of programs with high aggression varied significantly by type of primary lesson,  $\chi^2(1, N = 87) = 7.98, p < .01$ . As seen in Figure 4, more than one-third (37%) of social-emotional E/I programs featured high amounts of aggression, compared to only 7% of cognitive-intellectual E/I programs. In other words, E/I programs that teach social-emotional lessons are more likely to contain substantial aggression, especially social aggression, as compared to programs that teach cognitive-intellectual content.

Second, we assessed whether target age of the program made a difference and it did not. There was no significant difference in the portrayal of high amounts of aggression as a function of the target age of the audience. That is, programs targeted to younger children were no different than programs targeted to older children or to teens in terms of substantial amounts of aggression.

**Figure 4: E/I Commercial Episodes Featuring a High Amount of Aggression as a Function of Primary Lesson Type**



Note. Only three episodes featured health as the primary lesson so they are excluded from this analysis. For social-emotional primary lesson,  $n = 60$ . For cognitive-intellectual primary lesson,  $n = 27$ .

## Comparing E/I Programming on Commercial versus Public Broadcasting

To gain added perspective on the educational quality of E/I programs aired on commercial television, we randomly selected 10 E/I shows on the PBS public broadcasting network for comparison. As with the commercial programs, we recorded and content analyzed three randomly selected episodes of each of these public broadcast shows. In a series of analyses below, we compare the primary lesson type, quality of lesson, and amount of aggression in commercial versus public broadcast E/I programs.

**Table 11: Primary Lesson Type by Channel Type**

Primary Lesson	Channel Type	
	Commercial	Public
Social-emotional	69%	45%
Cognitive-intellectual	31%	55%
# of episodes	<i>N</i> = 87	<i>N</i> = 29

Note. There were only four episodes that featured a primary lesson related to health, so these were omitted from the analysis.

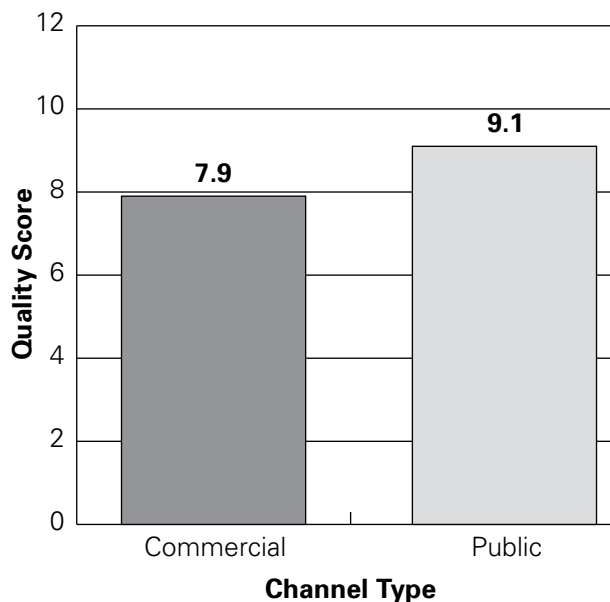
We found that the type of primary lesson featured in E/I programming differed significantly by channel type,  $\chi^2(1, N = 116) = 5.43, p = .02$ . In particular, episodes on commercial broadcast were more likely to feature a social-emotional lesson than were episodes airing on public broadcast (see Table 11). Conversely, episodes on commercial channels were less likely to feature cognitive-intellectual lessons, as

compared to public broadcasting. In fact, over half (55%) the episodes on PBS featured a cognitive-intellectual lesson, whereas only 31% of the episodes on commercial television did so.

Educational quality also differed significantly by channel type,  $t(118) = 2.09, p = .04$ . As seen in Figure 5, episodes airing on public broadcasting ( $M = 9.1$ ) were judged as having higher educational quality than were those airing on commercial channels ( $M = 7.9$ ). On a 12-point scale, public broadcast episodes scored, on average, more than a full point higher on quality.

Finally, we assessed whether the amount of aggression in E/I programming differed as a function of channel type. Neither physical nor social aggression differed significantly by channel type (see Table 12). While some

**Figure 5: Educational Quality of E/I Episodes as a Function of Channel Type**



**Table 12: Amount of Physical and Social Aggression by Channel Type**

	Commercial	Public
Amount of Aggression	Physical Aggression	
A lot	7%	8%
Some	20%	32%
None	73%	60%
Amount of Aggression	Social Aggression	
A lot	21%	7%
Some	36%	43%
None	43%	50%
	<i>N</i> = 90	<i>N</i> = 30

modest differences were identified, none of these were statistically significant.

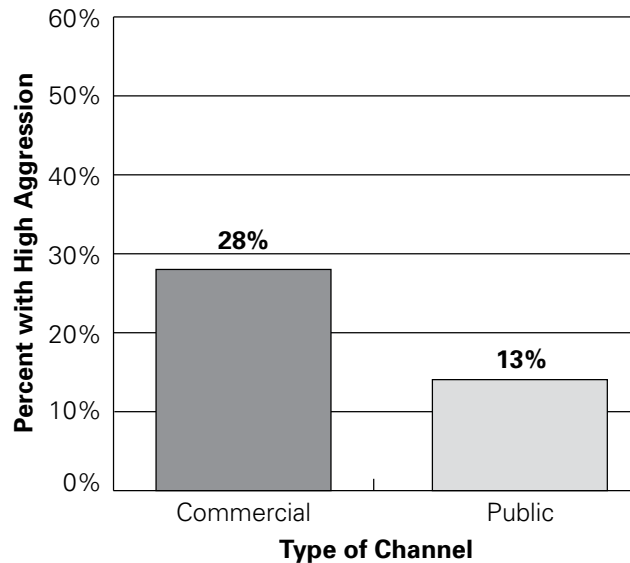
We also examined episodes that scored “high” on either social or physical aggression to determine whether these types of shows were concentrated on particular channels. As Figure 6 indicates, commercial channels were more than twice as likely to include high levels of aggression in their E/I programming, as compared to public television. More specifically, 28% of commercial E/I shows featured high amounts of aggression, whereas only 13% of shows on public broadcasting did. A chi-square analysis of the frequency of these high-aggression episodes by channel type was marginally significant,  $\chi^2(1, N = 120) = 2.56, p = .10$ .

In sum, our data confirm that the educational quality of children’s programs on commercial stations does not measure up to the higher standards set by public broadcasting. In addition to lower quality ratings, E/I programs on commercial broadcasting relied much more heavily on social-emotional lessons to qualify as educational, and presented shows with high levels of aggression at roughly twice the rate as that found on public broadcast programs.

### Best Performing E/I Series

In this final section, we shift our focus from an examination of individual episodes to a broader assessment of program series. Appendix B provides a list of all commercial and public broadcast series in our sample, arrayed in order of educational strength or quality. The quality score is based on averaging the scores for the three individual episodes that were evaluated by the study. Here, we consider shows that earned an average score of 10 or above across three episodes to be exemplary. Such scores demonstrate not only a high level of quality but

**Figure 6: E/I Episodes Including a High Amount of Aggression as a Function of Channel Type**



also a strong degree of consistency in conveying educational messages across multiple episodes of each series. There were eight such programs identified by the study, divided equally between commercial and public broadcasting:

- Sesame Street* (PBS)
- Beakman’s World* (commercial)
- Between the Lions* (PBS)
- 3-2-1 Penguins* (commercial)
- Cyberchase* (PBS)
- Suite Life of Zack and Cody* (commercial)
- Fetch! with Ruff Ruffman* (PBS)
- Teen Kids News* (commercial)

Interestingly, none of the top eight series contained a high amount of physical or social aggression, underscoring that effective educational programming can be accomplished without the use of violence.

## Conclusion

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Television broadcasters are required by law to serve the educational and informational needs of children in return for their use of the public airwaves. Each local station reports its programming efforts designed to fulfill this obligation on a quarterly basis to the FCC. The FCC is charged with evaluating a station's performance in this area when it applies for a license renewal, which under current law occurs only once every eight years. This policy framework underscores the importance of research that surveys the overall landscape of children's educational programming delivered by the broadcast television industry, as we do here. There are few other opportunities to hold the industry accountable for meeting its obligations to children.

Our data make clear that stations are fulfilling the FCC's minimum expectation of three hours per week of core E/I programming, but they also indicate that the majority of stations provide only that minimum specified level of service. In metaphorical terms, what was likely intended as a floor has functionally evolved to be a ceiling for the majority of local broadcasters. Moreover, the large majority of stations (75%) present all of their E/I efforts solely on weekends, despite the fact that children's viewing is distributed across all days of the week. In this context, where most commercial broadcasters provide only the absolute minimum amount of children's educational programming required to maintain their license, issues of the substance and quality of those program efforts take on added significance.

Programs that depend upon social-emotional lessons for children as the primary means of qualifying as "educational" account for 67% of all E/I shows on commercial channels. In contrast, only 30% of E/I episodes provide lessons on cognitive-intellectual topics, such as physical science, history, or cognitive skills.

The most frequent topic that is addressed across all shows with any cognitive-intellectual focus is teaching children about "nature," or more specifically animal wildlife. Indeed, there is an abundance of "wild animal" shows (e.g., *Animal Exploration with Jarod Miller*, *Jack Hanna's Animal Adventure*, *Safari Tracks*, *Wild America*) on the air, and these clearly hold some degree of value for children. With that said, if one sets aside these wildlife series, then only about one of every four E/I shows on commercial television (27%) addresses any other cognitive-intellectual area. The result is that many important topic areas are overlooked almost entirely. Across the entire commercial television landscape, we found only 3% of E/I episodes conveyed any lesson about art, only 3% addressed topics of nutrition or health, and only 1% devoted any attention to mathematics. These findings clearly suggest that the range and diversity of E/I programming is limited, with a host of important topic areas overlooked.

In terms of the quality of E/I programs, we found that the proportion of episodes rated as minimally educational (23%) exceeded the proportion that were deemed to be highly educational (13%) by a margin of nearly 2-to-1. Most shows (63%) fell into the moderately educational category. Comparing our findings to previous research indicates that the percentage of episodes rated as highly educational has dropped to its lowest level yet. Across 90 episodes of E/I programming from commercial stations, only one of every eight programs (13%) claimed as E/I were rated as highly educational. Previous research (Jordan, 1998, 2000; Schmitt, 1999) judged that between 20-33% of programs during the period 1997-2000 were highly educational, using largely the same criteria for evaluation as we have employed in the study reported here.



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Our study also found that E/I programs on public broadcasting are rated significantly higher on educational quality, as compared to those on commercial stations. In addition, E/I programs on public stations were much less likely to include high amounts of aggression (13% of episodes) as compared to those on commercial channels (28% of episodes). Increasing evidence documents the adverse effects of social as well as physical aggression on child viewers, and aggression in a show may also act as a distractor from the educational material the program seeks to convey.

Amidst these industry-wide patterns, there are nonetheless some exemplary E/I programs on both commercial as well as public broadcast channels. Although these success stories are worth celebrating, there is clearly significant room for improvement in the commercial broadcast industry's efforts to serve the needs of the nation's children. It is our hope that the evidence provided by this report helps to inform the discussion and debate about how best to achieve improvements in this realm.

The late Edward Palmer, founding research director of Children's Television Workshop (now Sesame Workshop), advocated for the adoption of the Children's Television Act in his 1988 book, *Television and America's Children: A Crisis of Neglect*. He argued that the U.S. needs "to take sensible advantage of the most cost-efficient—but still the most neglected—form of... educational technology ever invented" (Palmer, 1988, p. xviii). This study makes clear that, despite the fact that the Children's Television Act was adopted 18 years ago, that challenge still remains to be fully met.

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# Appendix A

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## Reliabilities for Content Measures

Variable	Reliability Coefficient
Cognitive-intellectual lesson	0.96
Cognitive-intellectual content	0.94
Social-emotional lesson	0.97
Social-emotional content	0.76
Health lesson	0.99
Health content	1.00
Primary lesson	0.99
Clarity of lesson	0.91
Integration of lesson	0.90
Involvement of lesson	0.88
Applicability of lesson	0.80
Importance of lesson	0.88
Reinforcement	0.87
Physical Aggression	0.98
Social Aggression	0.97

## Appendix B

### Analysis of Program Series by Educational Quality and Aggression

Series Title*	Quality Score	Rank	High in physical aggression**	High in social aggression**
Sesame Street	11.3	1	no	no
Beakman's World	10.7	2	no	no
Between the Lions	10.7	2	no	no
3-2-1 Penguins	10.3	4	no	no
Cyberchase	10.3	4	no	no
Suite Life of Zack and Cody	10.3	4	no	no
Fetch! with Ruff Ruffman	10.0	7	no	no
Teen Kids News	10.0	7	no	no
Strawberry Shortcake	9.7	9	no	no
Adrenaline Project	9.7	9	no	no
Arthur	9.3	11	no	no
Degrassi: The Next Generation	9.3	11	no	no
Hannah Montana	9.3	11	no	yes
Maya and Miguel	9.3	11	no	no
Veggie Tales	9.3	11	no	no
Word Girl	9.3	11	yes	no
Animal Atlas	9.0	17	no	no
Clifford the Big Red Dog	9.0	17	no	no
Emperors New School	9.0	17	no	yes
Sushi Pack	9.0	17	no	no
Care Bears Adventures	8.7	21	no	no
Dino Squad	8.7	21	no	no
Jack Hannah's Animal Adventure	8.7	23	no	no
Animal Exploration with Jarod Miller	8.3	24	no	no
Horseland	8.0	25	no	no
Jacob Two-Two	8.0	25	no	yes
Will & Dewitt	8.0	25	no	no

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<b>Series Title*</b>	<b>Quality Score</b>	<b>Rank</b>	<b>High in physical aggression**</b>	<b>High in social aggression**</b>
Saved by the Bell	7.7	28	no	no
Cake	7.3	29	no	no
Dragon Tales	7.3	29	no	no
Safari Tracks	7.3	29	no	no
Wild America	7.3	29	no	no
Awesome Adventures	7.0	33	no	no
My Friend Rabbit	6.7	34	no	no
That's So Raven	5.7	35	no	no
Magi-Nation	5.0	36	yes	no
Curious George	4.0	37	no	no
Replacements	4.0	37	no	no
Jane and the Dragon	3.3	39	no	no
Dragon	3.0	40	no	no

\* Shaded series titles aired on public broadcasting; unshaded titles aired on commercial channels.

\*\* A "high" level of aggression indicates that "a lot" of physical or social aggression appeared in at least two of the three episodes representing that series in our sample.

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Children Now is a nonpartisan research and advocacy organization working to raise children's well-being to the top of the national policy agenda. The organization focuses on ensuring quality health care, a solid education and a positive media environment for all children. Children Now's strategic approach creates awareness of children's needs, develops effective policy solutions and engages those who can make change happen.

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