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How to Get to Sesame Street: The Origins, Elements, and Impact of Children's Educational Television

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Abstract:

Three years ago during our family vacation, my younger sister and I sat on a serene beach in Maine and discussed the children's television show *Arthur* for the greater part of an afternoon. We had grown up watching PBS Kids programs, such as *Arthur*, *Clifford the Big Red Dog*, and *Sesame Street* just about every day after school, and now in our late teens we found we could nostalgically revisit the topic. By drawing upon knowledge gained from my newly declared psychology major and discussing the character's backstories, it became clear which character felt overshadowed by her older sibling, which character was struggling to define himself, how all the characters had developed their values and personalities. We finally understood that the world of this show was intricate and complex to a degree we hadn't realized as children. In my final semester at Yale University, I decided to further explore the world of children's educational television for my Education Studies senior capstone.

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Muppet Cast of *Sesame Street*. Digital Image. *Outside the Beltway*. 2016. Web. 9 May 2016.
<outsidethebeltway.com>

How to Get to Sesame Street:

The Origins, Elements, and Impact of Children's Educational Television

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Sunny Day

Sweepin' the clouds away

On my way to where the air is sweet

Can you tell me how to get,

How to get to Sesame Street

-Joe Raposo, "Sesame Street Theme"

Foreword



Cofrancesco, Erin. Author and her sister pictured on vacation, shortly after having a several-hour-long discussion about the children's show *Arthur*. 2013. Jpeg.

Three years ago during our family vacation, my younger sister and I sat on a serene beach in Maine and discussed the children's television show *Arthur* for the greater part of an afternoon. We had grown up watching PBS Kids programs, such as *Arthur*, *Clifford the Big Red Dog*, and *Sesame Street* just about every day after school, and now in our late teens we found we could nostalgically revisit the topic. As we enjoyed a sunny

day much like the one referenced in the ubiquitous *Sesame Street* theme song, our happy remembrances of *Arthur* gave way to psychoanalyses of the characters. By drawing upon knowledge gained from my newly declared psychology major and discussing the character's backstories, it became clear which character felt overshadowed by her older sibling, which character was struggling to define himself, how all the characters had developed their values and personalities. We constructed a theory that *Arthur* used animal characters to avoid commenting on race. We wondered about the purpose of *Arthur's* many parodies, such as *South Park* and *The Twilight Zone*, which would clearly go over young children's heads. In short, we finally understood that the world of this show was intricate and complex to a degree we hadn't realized as children. In my final semester at Yale University, I decided to further explore the world of children's educational television for my Education Studies senior capstone. I chose to do this with only a vague understanding of the industry, and I hoped it was in fact a rich enough area to comprise an interesting project. I was not disappointed.

History of Children's Educational Television

Following its invention in 1927, the television swiftly established itself as a central form of media in American society, with 97% of the country's households owning a television set by the mid-20th century (Fisch & Truglio, 2014). However, educational children's programs of the '50's and '60's were unpopular, largely because they failed to capitalize on the advantages that audio-visual technology made possible. Some programs used "talking head" teachers, in which an actual schoolteacher (not an actor) stood before a blackboard and awkwardly delivered a lesson directly to the camera (Lemish, 2007). Some shows featured static storybook telling, in which the narrator would read a story

while stills of the pictures show onscreen. Still more shows centered around a host who stood in front of a child studio audience, inquiring, “Aren’t we having so much fun?” in a patronizing manner (Fisch & Truglio, 2014). Unsurprisingly, most children were not impressed by these bland educational shows and preferred to watch commercial television (Lemish, 2007). The 1955 program *Captain Kangaroo* contained some educational elements, aiming to pique children’s natural curiosity with poetry readings, animal visits, and two discovery-oriented segments entitled “Look What’s Happening Now,” and “Kids Like You” (Davis, 1995). Because the show incorporated entertaining elements like puppets and humor, it was abundantly more popular than the talking head teachers. However, though *Captain Kangaroo* claimed to be loosely educational, no childhood or education experts were involved in its production (Fisch & Truglio, 2014). The beloved *Mister Rogers’ Neighborhood* entered the children’s TV scene in 1963 and was in production until 2001. Creator and host Fred Rogers showed off his quaint neighborhood in a down-to-earth manner. Many adults found the show excessively slow moving, but preschoolers were quite receptive to the format (Christakis, 2011). Through make-believe, Rogers worked to help children better understand emotions such as jealousy, fear, and disappointment, as well as see their own value and uniqueness (Davis, 1995). Though *Captain Kangaroo* and *Mister Rogers’ Neighborhood* occupy notable spots in the history of educational children’s television, these early endeavors pale in comparison to the groundbreaking *Sesame Street*, which premiered November of 1969.

Sesame Street’s creators attribute their show’s success to careful planning and research, skilled professionals who collaborated seamlessly, and access to an impressive amount of both government funding and private donations (Polsky, 1974). Organizations

were willing to fund such a revolutionary project largely because of the context of the time. The 1950's marked an educational crisis, during which the public feared American public schools were lagging behind those of other post-WWII industrialized nations (Lemish, 2007). The next decade, President Johnson's Great Society initiative developed major spending programs that addressed education (Fisch & Truglio, 2014). Meanwhile, experts were finally starting to view early childhood as an important stage of intellectual development (Polsky, 1974). However, there was a major shortage of preschools at this time, and millions of children, particularly those from low-income families, were not receiving formal education until kindergarten (Polsky, 1974). This gap between lower and middle class children was augmented by the fact that the 1960's were a time of civil unrest with an emphasis on reducing poverty (Lesser, 1974). All of this was in the minds of several early childhood experts who convened for a dinner party in New York in 1966, where the idea of an educational television program aimed at disadvantaged preschoolers was born (Gikow, 2009).

Apart from the news, television had never been used to deliver a public service before this point, and there was no research to indicate that children could learn from watching TV (Lesser, 1974). In America, television was a technology primarily reserved for entertainment, and the sector of the industry aimed at children had very low prestige (Lemish, 2007). Nonetheless, this team of early childhood experts was determined to use television for a more serious purpose. The group included Joan Ganz Cooney, a producer of educational documentaries, Lloyd Morrisett, the vice-president of the Carnegie Corporation who had contacts in the federal government, and Lewis Freedman, the director of programming in WNDT (Polsky, 1974). Joan Ganz Cooney conducted a 14-

week feasibility study for the project, traveling the country to speak with developmental psychologists, educators, and pediatricians about whether preschool-aged children could actually learn from a television show. Most of the specialists thought they indeed would be able to, as long as the show were carefully crafted (Gikow, 2009). Subsequent to the feasibility study, Cooney and the team established an experimental project called the Children's Television Workshop (CTW). Between their primary funders, the Carnegie Corporation, the Ford Foundation, the Corporation for Public Broadcasting, and the US Department of Health, Education and Welfare, the CTW had 8 million dollars at their disposal to conduct their educational experiment (Fisch & Truglio, 2014).



Joan Ganz Cooney, one of Sesame Street's founders, who conducted a 14-week feasibility study on the project in the days of its inception. Digital Image. *Sesame Street*. 2016. Web. 9 May 2016.

<sesamestreet.org>

The feasibility study gave the CTW some indication of what their show should focus on. The experts Cooney spoke to implored her to teach cognitive skills rather than the social and emotional adjustment often emphasized in preschool (Polsky, 1974). In the

summer of 1968, the CTW had five “summer seminars” in which the creators spoke to all the education and childhood experts they possibly could. With the help of these experts, the creators decided the show would address four categories of learning: symbolic representation, cognitive processes, physical environment, and social environment (Fisch & Truglio, 2014). Despite being overtly instructional, the program was to teach concepts over skills (Polsky, 1974). The CTW was also careful to make *Sesame Street* as entertaining and fast-paced as commercial television, sharply differentiating it from the dull educational children’s television that preceded it (Lesser, 1974). The CTW worried that the program would not appeal to both middle and lower class children since middle class children were getting a head start on school, and they considered creating two separate programs (Lesser, 1974). They also toyed with the idea of creating a parents’ program to air alongside *Sesame Street* to inform parents of ways to help support the show’s mission. Both of these ideas were eventually deemed infeasible, and the CTW narrowed their focus and went forward with just one program, hoping it would appeal to and educate children of all backgrounds. They were successful. A year after *Sesame Street* premiered, the Children’s Television Workshop hired an independent party, the Educational Testing Service, to research its impact. The show’s first “report card” revealed that it reached 7 million children a day, 5 days a week, and had a high and significant impact on the cognitive skills of disadvantaged preschoolers in areas including body parts, letters, forms, numbers, sorting, relational terms, classification skills and puzzles (Polsky, 1974).



A shot from *Blue's Clues*, one of the groundbreaking children's educational television programs that has followed in *Sesame Street's* footsteps. Digital Image. *Snopes*. 1 November 2015. Web. 9 May 2016 <snopes.com>

Sesame Street was only ever meant to be an experiment in children's learning, so its creators were shocked by the remarkable success that followed. Now in its 46th season, the show has won 76 Emmys to date (Fisch and Truglio, 2014). Every presidential administration since the 1970's has been involved in *Sesame Street*, most recently in the form of First Lady Michelle Obama, who has appeared on the show a number of times to promote healthy eating (Gikow, 2009). However, the Muppets on 123 Sesame Street aren't the only game in town anymore—many educational shows have followed in their furry footsteps. The show now shares its home on the Public Broadcasting Service with acclaimed titles like *Arthur*, *Clifford the Big Red Dog*, and *Teletubbies*. Several *Sesame Street* employees went on to produce *Blue's Clues* (Cohen, 2016), a show about a curious

blue dog and her lively human friend Steve who solve mysteries together. *Blue's Clues* was the first show to prove that preschool-aged children are able to sit and follow a lengthy narrative on television (Mifflin, 1999). *Blue's Clues* airs on Nick Jr., a network that is also home to *Dora the Explorer*, a program that teaches English-speaking preschoolers to speak Spanish, as well as the first news program aimed at children, Nick News (Mifflin, 1999). In short, *Sesame Street* has made the label “educational,” previously a death sentence, something that children’s show creators now strive for. These creators have gradually come to see being educational as something that is attractive to consumers and can work in the context of a business model (Cohen, 2016).

Of course, some creators want the label but are less willing to ensure that their show actually teaches something, and many entertainment-focused shows have gotten away with merely claiming to be educational over the years. With the Children’s Television Act of 1990, the Federal Communications Commission (FCC) mandated that broadcasting stations increase educational content (Mifflin, 1996). However, worded cautiously so as not to tread on the stations’ right to free speech, the mandate was so vague that it was largely ineffective—it failed to define exactly what was meant by “educational content.” Many entertainment shows, such as *Saved by the Bell*, got around the mandate by incorporating pro-social themes. *The Flintstones* went so far as claiming it taught history, and *The Jetsons* claimed to teach science and technology (Andrews, 1993). With no federally imposed definition, broadcasters were well within their rights to make far-fetched interpretations of what constituted an educational show. In 1996, the FCC tried harder to enforce their initiative, this time mandating that broadcasting stations air 3 hours of educational content a day in order to get their licenses renewed (Kunkel, 1998).

They also attempted to define educational television, albeit very loosely, as programming that has clear educational objectives and is produced in cooperation with educators (Mifflin, 1996). The FCC commissioner hoped this change would inspire broadcasting stations to “compete [over]...who is the most family-friendly, education-oriented station” (Mifflin, 1996), but today, experts in the field are not satisfied with the results of the act, lamenting that it did little to change anything (Cohen, 2016).

The failure of the FCC act to inspire change clearly stems from the ambiguity about what counts as educational children’s television. David Cohen, the director of research at the Sesame Workshop, a non-profit that researches *Sesame Street’s* impact, believes any show that claims to be educational should have to conduct empirical research to prove that children learn what they are attempting to teach (2016). He concedes that this is very unlikely to happen. Most programs are not willing to put money towards research, and they certainly aren’t being forced to. Conclusively, while some exemplary educational shows have developed over the history of children’s television, other “educational” shows continue to take advantage of vague definitions and the reluctance of the FCC to enforce their mandates.

Research on the Impact of Children’s Educational Television

The Children’s Television Workshop was the first production company to integrate empirical research into its programs, and their studies on *Sesame Street* provided groundbreaking evidence that children are able to learn from television (Lesser, 1974). Since then, over one thousand studies have been conducted on *Sesame Street* (Fisch & Truglio, 2014). Researchers have found that low-income children who watch the show as preschoolers perform better on verbal and mathematics tests up until they are 7 years old (Mifflin, 1995)

The research also demonstrated that lower *and* middle class children could indeed learn from the same program, which had been a concern of the show's creators (Polsky, 1974). These studies and many others have shaped *Sesame Street* in significant ways: a study revealing that children were most attentive when the Muppets were on the screen lead to the creation of Big Bird and Oscar the Grouch, Muppets designed to be in scenes with the human actors so children would attend more to those segments. Research showing that younger audiences were watching the show resulted in the creation of Elmo's World, a segment specifically aimed at 3-year-olds (Fisch & Truglio, 2014).



Cofrancesco, Erin. Author's visit to the Sesame Workshop, the research organization behind *Sesame Street*, where she interviewed the director of research about the show's formative research model. 2016. Jpeg.

In addition to these post-production studies, the nonprofit behind *Sesame Street*, Sesame Workshop, prides itself on a formative research model. The research model behind *Sesame Street* has paved the way for other children's shows to integrate research into their production processes. The show relies on the collaboration of curriculum developers, outside experts and talented actors and writers. The curriculum developers define the topic they want to cover in an episode and gather an advisory board of outside experts for guidance on how best to portray it. For example, following 9/11, *Sesame Street* aired a show about helping children process traumatic events, for which the curriculum developers consulted mental health professionals and pediatricians (Cohen, 2016). With the experts' insights under their belts, the curriculum developers draft a set of objectives and suggestions to relay to the production crowd, which consists of the writers and actors (Cohen, 2016). The production team has continuous guidance from the curriculum developers, so much so that *Sesame Street* is the first show to have a researcher present in the studio during production (Fisch & Truglio, 2014). Early versions of the show are screened in front of schoolchildren in the tri-state area, and their feedback is integrated into the final version of the show (Cohen, 2016). The researchers also invite children into the Sesame Workshop headquarters and have a child psychologist present to screen shows involving more sensitive topics (Cohen, 2016), and they write scripts into storybooks that they read to children to test for understanding (Steel, 2016). This model is highly effective, successfully bringing together three groups of people that rarely work so closely and have much to learn from one another (Cohen, 2016). Using this method, *Sesame Street* can be relatively sure that the episodes will be educational and impactful before they even air.

Sesame Street is not at all secretive about its model, as it views itself as “a repository for other folks who want to make educational children’s shows” (Cohen, 2016). When the creators launched the *Sesame Street* as an experiment in children’s learning, they hoped to inspire other people to create similar programs. Once the new programs were created, *Sesame Street’s* mission would be completed, and the show/experiment would end (Cohen, 2016). However, *Sesame Street* did not have much competition; it aired in 1969, but stations like PBS and Nick Jr. have only released new educational shows in the last twenty or thirty years (Salamon, 2002). One theory regarding this dearth in competition is that because other shows believed *Sesame Street* had the educational television angle covered, they did not feel the need to supplement it (Cohen, 2016). Nonetheless, when the new shows were finally created they were groundbreaking in their own right, even influencing *Sesame Street* to change some of its ways. From its premiere, *Sesame Street* was typically divided into twenty to forty segments, as the creators believed that preschool-age children were unable to sit and focus on a narrative for long stretches of time. As aforementioned, Nick Jr.’s *Blue’s Clues* disproved this theory, and having learned from *Blue’s*, the current season of *Sesame Street* will be divided into fewer segments (Steel, 2016). Created by former *Sesame Street* employees, *Blue’s Clues* fully utilizes *Sesame Street’s* renowned research model (Cohen, 2016). Nick Jr.’s *Dora the Explorer* as well as its spinoff, *Go, Diego, Go!* were also created by former *Sesame Street* employees and consequently use the model.

However, not every educational show conducts such intensive research, as it is very expensive to do so. According to the *Sesame Street* director of research, the next best thing to the formative model is having an outside evaluator, that is, an independent

professional with an early childhood background, take a look at the show before it airs (Cohen, 2016). Some PBS Kids shows such as *Arthur* and *Berenstain Bears* take the outside evaluator approach (Cohen, 2016). Some form of research is critical for an educational children's show, as it ensures that child viewers actually gain the concepts that the show's creators are setting forth. The very first data collected on *Sesame Street* showed that children were looking at a dancing character in the center of the screen rather than a static alphabet letter at the top (Fisch & Truglio, 2014). If the production team hadn't had the opportunity to correct that, making the letter dance instead, the show may have failed to impact children's literacy at all.

Children's Educational Television as a Business

Because it is a service striving to provide a public good, educational television is rarely thought of as an industry concerned with making money. However, because of the way our society is structured, these show creators have to somehow generate revenue. Government funding for educational television has dried up over the years; similarly, organizations like the Carnegie Corporation are interested in supporting innovative projects, so once a show gets on its feet, it loses that money as well (Polsky, 1974). Consequently, when *Sesame Street* and similar programs started to be successful, they had to start making money on their own. With its initial funding sources reducing contributions only a decade after its conception, the Children's Television Workshop established a product line to generate revenue through the sale of *Sesame Street* toys and games (Polsky, 1974). This business is still very much alive today—the PBS Kids website now features a “shopping” page, on which users can directly purchase books, clothing, toys, and school supplies, manufactured by major companies such as GUND,

K'Nex, and Learning Curve (PBS KIDS Shop, 2016). *Sesame Street* has even built an amusement park in Pennsylvania, and the show *Arthur* has been modified into a popular exhibit at the Boston Children's Museum.



Sesame Street Moves to HBO. Digital Image. *E News*. 13 August 2015. Web. 9 May 2016.

<online.come>

Products and attractions help, but now these shows have more competition than ever. Ratings are down across the board, possibly due to new technologies like iPads and video games becoming popular even with young children. *Sesame Street* in particular has not been able to keep up—due to its formative research model, half of the people it employs produce only research, not revenue (Cohen, 2016). Despite the show's longstanding partnership with PBS, it was struggling so much that it had to seek refuge at HBO this year. The Sesame Workshop lost \$7.4 million in fiscal 2015, and new

management struck up a deal with HBO entitling it to the rights of new episodes for the next nine months (Steel, 2016). Fortunately, HBO has not interfered creatively and *Sesame Street* will still be able to air on PBS as well. However, this situation has concerning implications for the future of educational children's television. Ratings are continuing to drop for these shows, which, unlike commercial programs, concern themselves with far more than making money. In times of financial distress, shows must either sell out to bigger commercial networks or face cancellation. From the beginning, *Sesame Street* has dedicated itself to helping disadvantaged children (Polsky, 1974). If the show is unable to stay on public access television, this is precisely the population that it will no longer reach.

Challenges and Failures of Educational Children's Television

Children's educational television is in the difficult position of having to entertain and inform simultaneously. Joan Ganz Cooney recognized the need to be entertaining from the inception of *Sesame Street*, reasoning that if children were bored by an educational program, they would simply switch to a fast-paced, engaging commercial program (Polsky, 1974). *Sesame Street* and educational programs like it face the challenge of having to include all of the entertaining elements children have come to expect from watching commercial television. The reason behind this is that children watch television with the primary goal of being entertained, rather than with the intention of learning (Bryant, & Anderson, 1983). Therefore all learning that *does* occur is incidental, an unintended but beneficial consequence of watching.

A second and less obvious challenge is that shows have to integrate educational content in a developmentally informed manner. Simply including educational content in

an episode in no way guarantees that children will pay attention to it or learn from it in the way that the show creators expect. One striking example of this is the relationship between children watching pro-social educational programs and exhibiting an increase in relational aggression, the act of ignoring, excluding, and withholding friendship from peers (Bronson & Merryman, 2009). Children who watch educational programs like PBS Kids' *Arthur* and *Clifford the Big Red Dog* have been shown to be more relationally aggressive, an effect that is more significant than the modest relationship between watching violent media and becoming more physically aggressive (Ostrov & Gentile, 2006). This is a surprising finding considering that these shows set out to enhance children's socio-emotional development. "*Arthur*'s goal is to help foster an interest in reading and writing, and to encourage positive social skills," states the show's official description ("About Arthur," 2016).



"The Tough Customers," a gang of bullies on *Arthur*, intimidate another character in the cafeteria. Digital Image. *WGBY Education*. 6 May 2013. Web. 9 May 2016. <wgbyeducation.wordpress.com>

Upon closer examination, researchers have developed a theory for why relational aggression may be increasing in response to watching pro-social television. Shows such

as *Arthur* spend the greater part of a half hour depicting a character bullying, teasing, or otherwise hurting another's feelings. In fact, 84% of the time, the insults and put-downs on these shows cause children to laugh or exhibit no response at all (Bronson & Merryman, 2009). Only a few minutes at the end of each episode were devoted to conflict-resolution, when the target of the bullying would express how they had been hurt and the bully would repent. Children therefore had a greater probability of attending to and learning from the anti-social agenda of the bully than the overall pro-social message of the episode. The lesson here is simple: show creators cannot expect children to attend to and understand their program as an adult would. If show creators lack a sound understanding of how children process audio-visual media, their so-called pro-social programs may actually have an anti-social effect on their child viewers.

Children's Developmental Understanding and Cognitive Processing of Television

There are markedly different patterns of television processing between adults and children, and for that matter, between older and younger children, meaning that people of different ages will vary in how they interpret the same content. One reason for this is that the older a person is, the more world exposure they have acquired. Adults have larger stores of background information to apply toward interpreting and understanding a television program, while younger viewers have much less (Dorr, 1986). This means that young children may assign greater importance than adults to what they see on television, as they have little background knowledge with which to contextualize or weigh against program content. For example, when *Sesame Street* curriculum developers set out to produce an episode about visiting the doctor, they were advised by their team of outside

experts to steer clear of needles and shots (Strasburger, Wilson & Jordan, 2009). Most young children have limited experience visiting the doctor, and many of the memories they do have involve getting a shot, something they likely find painful and frightening. Therefore, had *Sesame Street* produced a doctor-themed episode about getting shots, it may have reinforced its child viewers' already-negative perceptions of visiting the doctor (Strasburger, Wilson & Jordan, 2009). Much like pro-social shows increasing relational aggression in children, the outcome of increasing children's fear of doctors would have run opposite to *Sesame Street's* intentions. However, by consulting outside experts, show creators can make it a priority to learn about how children will interpret their program, thereby avoiding practices that negatively affect their young viewers.

Besides a lack of real-world experience, children can run into difficulties understanding television because of their lack of *television* experience. Children may have a hard time differentiating between television and reality. Young children wave and talk to the characters on screen (Noble, 1975) and up to age four believe that everything that looks real—in other words, is live-action rather than animated—is real (Brown, Skeen, & Osborn, 1979). Due to limited encounters with audiovisual media, children may not understand production techniques such as flashbacks (Lowe & Durkin, 1999), recognize that a series of events are part of a character's dream (Wilson, 1991), or realize that a significant amount of time has passed between two separate scenes (Smith, Anderson & Fischer, 1985). Shows can account for children's limitations in understanding television by presenting scenes in a linear narrative form and avoiding flashbacks and dream sequences. They can also employ recurrent formats, a technique

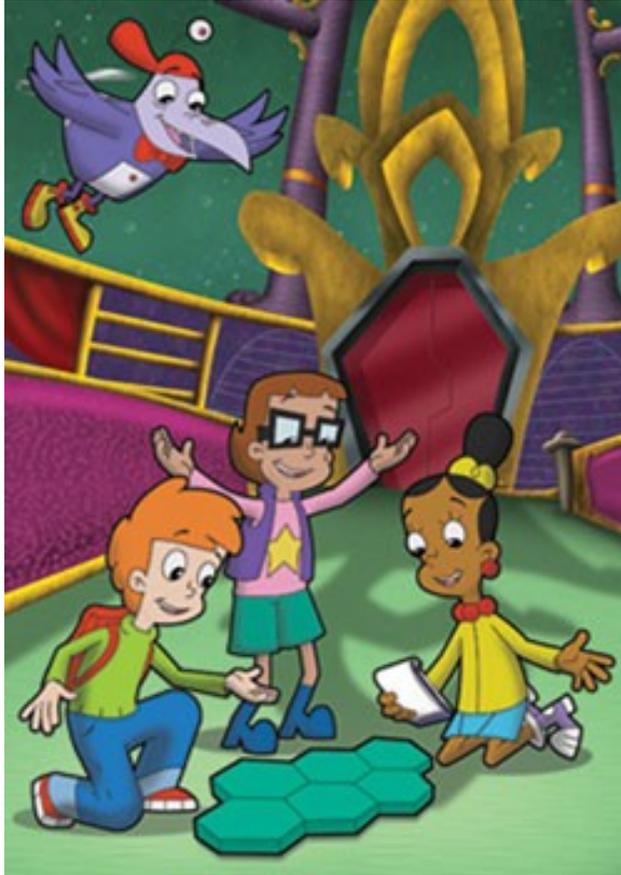
Sesame Street very often utilizes—it uses predictable formats, so that children will be prepared to learn about number literacy when they see the Count Muppet or be ready for a discussion of self-control when Cookie Monster appears on screen. It is crucial for educational shows to account for children's limitations and minimize production features children may misunderstand due to their lack of experience watching television.

Obviously children are equipped with less experience than adults, both in interacting with the real world and in watching television, but they are also limited in their understanding of television due to their cognitive development. Throughout development, humans experience an increase in processing capacity, meaning that they are able to hold more and more information in their working memories as they age (Kail, 1990). A young child's working memory is able to contain four or five digits or discrete items of information, while the average adult's can handle seven (Dempster 1981), the reason people have such an aptitude for memorizing seven-digit telephone numbers. Since children have a more limited working memory capacity, they struggle to keep plot elements straight and are not able to attend to multiple cues within the same scene (Strasburger, Wilson & Jordan, 2009). Young children's comprehension of an episode lessens if the episode contains a subplot, which they find distracting; while older children and adults are able keep track of multiple subplots at a time (Weiss & Wilson, 1998). Therefore complex and lengthy programs are hard for young children to understand. Episodes that build on each other throughout a season and series are also difficult for children, one of the reasons that the plots of most episodes of children's television programs can function as self-contained stories.

From early to older childhood, children experience developmental shifts from both concrete to inferential thinking and from exploration to searching in their television-watching techniques. Two or three-year-olds exhibit concrete thinking when watching television, focusing on what can be seen and heard (Strasburger, Wilson & Jordan, 2009). Children of this age attend to salient perceptual cues such as movement, color, animation, sound effects, and instrumental music (Bryant & Anderson, 1983). Essentially, younger children focus on what is right in front of them. They explore the content insofar that it can grab their attention, being drawn in by a character's big purple dinosaur costume or a lively animation sequence. Young children are not internally motivated search for interesting aspects of the program; rather, the program has to employ every colorful, dynamic, and attractive tool in its arsenal for the child to cast a glance in its direction. This method of watching is discontinuous and impulsive, as children will only pay attention when something bright and loud and interesting compels them to do so (Bryant & Anderson, 1983). Older children, on the other hand, adopt an internally motivated mentality in watching television, watching carefully as to seek out information that will help them understand the plot. Around age eight or nine, they are more capable of making inferences and linking causally related scenes together (Collins, Wellman, Keniston & Westby, 1978). These children may actually ignore more salient stimuli in their efforts to understand the plot (Bryant & Anderson, 1983). This may especially apply to mysteries and dramas, in which older children and adults actively attempt to ignore red herrings and pick up on subtle hints in order to predict the ending. For these reasons, shows aimed at an older population strive to be complex and unpredictable, while shows aimed at children strive to be as explicit as possible.

Successful Elements of Children's Educational Television

An in-depth understanding of how children cognitively process television goes a long way in creating a show that successfully appeals to and educates young populations. For example, shows can easily apply the fact that young children attend to perceptual cues to their advantage by pairing the most salient cues with educational content. Preschoolers pay more attention to and better recall information that is introduced alongside perceptual cues (Calvert, Huston, Watson, & Wright, 1982), so it naturally follows that the numbers, letters, concepts, and content knowledge in educational programs should be presented through movement, animation, and bright colors. There are many examples of capitalizing on salient cues across the landscape of educational children's television. I have discussed how *Sesame Street's* initial data report showed that children were attending to dancing character onscreen instead of a static alphabet letter at the top (Fisch & Truglio, 2014). The logical resolution to this problem was to make the alphabet letter dance instead, a strategy the program now uses. Using every strategy possible to make the educational content stand out is in retrospect a somewhat obvious concept, but as we see in cases like this early *Sesame Street* example, show creators do not always think to do it.



The *Cyberchase* crew works to save their cyber-world through the use of geometry. Digital Image. *Teachers' College Newsroom*. 26 June 2013. Web. 9 May 2016. <tc.columbia.edu>

A related technique educational shows can use is to closely align the educational content with the plot points. I have discussed how young children have more limited processing capacity, or room in their working memory, than adults. When the educational content of a show is not related to the narrative of the plot, the two compete for the child's attention, and the entertaining plotline usually wins out at the expense of the educational material (Fisch, 2000). If there is not much distance between narrative and educational content, that is, if following the narrative requires understanding the educational concept, they complement rather than compete with each other (Fisch, 2000). For example, the distance between narrative and educational content is very small

in *Cyberchase*, a PBS Kids show that teaches mathematics. The characters talk about and employ mathematics to accomplish things in the story, so only by understanding the math can viewers understand how the characters perform certain actions and save the “cyber world.” In cases like these, because viewers ultimately want to understand the entertaining part of the program, they have to pay attention to the educational portion as well.

The style in which children actually pay attention to the television also influences what they learn from it. Young children are unlikely to spend all of their time in front of the television actually looking at the set, and often talk and sing while the show plays in front of them (Lemish, 2007). Infants infrequently attend to the screen and rarely sit oriented towards the television, while by age two and a half children begin to conceptualize watching television as an activity (Bryant & Anderson, 1983). Even by then, viewing style varies greatly among young children, and some watch intermittently while also playing with toys (Bryant, & Anderson, 1983). If children are not looking at the screen, salient visual cues on the television program are rendered useless.

There are several methods educational television programs can use to combat visual inattentiveness from their child viewers. Salient auditory attributes, such as sound effects, laughter, and children’s voices, can serve to reorient a child’s visual attention back to the screen (Alwitt, 1980). Therefore, programs can insert auditory cues just before they are about to introduce educational content, to better ensure that children will be watching the educationally relevant portion of the show. Not just any auditory cue will work, however; men’s voices, slow music, and individual singing actually inhibit children’s attention, while lively music and rhyming captures attention, provided they last under three seconds (Bryant & Anderson, 1983). These phenomena mean that the ability to capture and retain a child’s visual attention while watching television is

incredibly precise and nuanced, but also very possible so long as show creators take advantage of the research on how children watch. Shows can also speak directly to child viewers, as though the characters can see them through the screen, thereby creating the expectation for the child to respond. This is effective because young children have trouble distinguishing between television and reality and may be already predisposed to wave and speak to the characters on-screen (Lemish, 2007). *Dora the Explorer* and *Blue's Clues* both heavily rely on this strategy, having the characters look directly at the camera, ask questions and pause for a response, and engage in object-naming with the viewer (Lemish, 2007). Speaking directly to the child engages them and promotes an active viewing style.

Parental Co-Viewing and Parodies of Adult Media in Children's Educational Television

In addition to incorporating attributes in the show that are inherently kid-friendly, show creators can maximize child viewer's attention by encouraging parents to tune in alongside their children. Called "co-viewing," this is an extremely effective way for children to learn from television. When parents sit down and watch a show with their children, children generally pay better attention, learn more, and even have more fun watching (Lemish, 2007). Even if parents are silent-co-viewers, their presence in the TV room shows children that they respect the program. Better still, parents are usually active co-viewers, facilitating conversation about the show while they watch with their child. Parental co-viewers can help their children with designating, the act of naming objects

and characters, which helps with language acquisition; questioning, asking children rhetorical questions about the show, like, “Wasn’t that funny?”; and responding by mirroring, correcting and elaborating on verbal utterances the child makes while watching the show (Lemish, 2007). All of these practices, which parents do naturally while watching television with their children, result in the child learning better from the program. In fact, parents can make any program into an educational experience for their child by pointing out the right things and asking the right questions (Cohen, 2016).

Although co-viewing is largely proven to be educationally beneficial, it does not happen nearly as often as educational show creators would like. It is convenient for parents to use the television as a babysitter, placing their children in front of it so they will be occupied while the parents go work or relax. Educational children’s shows can fight this practice and encourage co-viewing by including content that parents will find interesting and entertaining as well. *Sesame Street* and *Arthur* both go to great lengths to incorporate parent-friendly content. One way that shows can appeal to parents is through the inclusion of prominent guest stars. Due to its far-reaching popularity and recognition, *Sesame Street* has the opportunity to feature a great deal of celebrities. Oscar-winning actors such as Robert De Niro and Morgan Freeman, singers such as Katy Perry and One Direction, and television personalities such as Tim Gunn and Ellen DeGeneres have all made appearances on the show (“Celebs on the Street,” 2016).



First Lady Michelle Obama joins *Sesame Street* cast to promote healthy eating. Digital Image. *Gum Bumper*. 31 October 2013. Web. 9 May 2016. <gumbumper.com>

Young children likely have not heard of these big names, but adults almost certainly have. While many of the guest stars have a body of work largely inaccessible or inappropriate for children to watch, *Sesame Street* also features some celebrities that children should definitely become familiar with. Namely, nearly every presidential administration since the show's first year has been involved in *Sesame Street*; most recently First Lady Michelle Obama appeared on the show to discuss healthy eating for her "Let's Move!" campaign with Elmo (Gikow, 2009). The impact of celebrities like the Obamas on *Sesame Street* is twofold: it both captures parents' interest, thereby promoting co-viewing, and it introduces children to our nation's leaders, figures they should be familiar with to become civically aware young people.

Another method of attracting parents to watch children's television is by including parodies of shows, book series, and products aimed at older audiences. This makes the show fun for parents and older siblings to watch with preschool-age viewers. *Sesame Street* has released a host of successful parodies over the years including *When Cookie Met Sally (When Harry Met Sally)*, *Game of Chairs (Game of Thrones)* and *Orange is the New Snack (Orange is the New Black)*, ("Parodies and Spoofs," 2016). Young children are unlikely to be familiar with any of the shows and movies that these parodies are based on; all contain adult themes such as sex and violence. However, these parodies can stand on their own and appeal to children, while simultaneously speaking to adults who are familiar with the references at a higher level.

Arthur is an educational program that contains enough references and parodies to serve as a microcosm of the real world. It spoofs dozens of adult shows and movies, and goes so far as to parody real-world products and businesses, such as Apple iPhone products ("mySmartPhoney"), *The Huffington Post* ("Muffington Post"), and Kentucky Fried Chicken ("Chickin Lickin"), ("List of Parodies," 2016). *Arthur* uses these references to include commentaries that parents will pick up on, such as weaving a subtle critique of fast food chains into the "Chickin Lickin" episode, in which activist character Sue Ellen protests the chain putting a new restaurant in (Egan & Hirsch, 2003). Parents can simply be entertained by these parodies, or even choose to use them as jumping-off points to discuss economic and social justice concepts with children in a way they can understand. The relatable introduction that children's educational television provides to these concepts may be particularly important in middle class America, a culture in which parents shy away from discussing topics like disturbing current events

(Lemish, 2007) and racial discrimination (Bronson & Merryman, 2009) with their children.



Mister Rogers guest stars on *Arthur*. Digital Image. *Arthur Wikia*. 2016. Web. 9 May 2016.

<Arthur.wikia.com>

Arthur also parodies other children’s television shows, many of which share its home on PBS Kids. *Arthur* features parodies of *Cyberchase*, *Teletubbies*, *Barney and Friends*, and of course *Mister Roger’s Neighborhood*, which Fred Rogers frequently guest starred on. These parodies can be interpreted as a promotion for children’s educational television. In one *Arthur* episode, Mister Rogers comes and stays with Arthur’s family—much to Arthur’s embarrassment, as he believes that the show *Mister Roger’s Neighborhood* is “for babies” and goes to great lengths to conceal the television star/house guest from his friends (Scarborough, 1997). At the end of the episode, Mister

Rogers sits down with Arthur and validates his concerns, empathizing, “You don’t want [your friends] to think you’re a little kid anymore...sometimes you feel like you’re too old for certain things.” He also gives Arthur a valuable piece of emotional intelligence, saying, “You know, if I’m feeling mad or sad or glad about something, I try to tell somebody about it.” Depicting Mister Rogers as a supportive and understanding character on *Arthur* serves as an endorsement for *Mister Roger’s Neighborhood*.

Arthur paints all of the PBS Kids shows it parodies in a positive light: Arthur’s younger sister is a diehard fan of *Mary Moo Cow*, which plays off of *Barney and Friends*, and his baby sister is entranced by *Love Ducks*, the *Teletubbies* parody—one episode shot from Baby Kate’s perspective reveals that she can understand the ducks’ quacking as philosophical poetry. It is not immediately clear why *Arthur* chooses to parody other children’s educational television shows—they can use references to adult shows to promote co-viewing, but references to other children’s shows seem unlikely to do the trick. Perhaps the parodies are for the child viewers themselves to improve their inference-making skills between programs, or maybe they serve as subliminal messaging for children to keep watching the real *Teletubbies* and *Barney* on PBS Kids once the *Arthur* episode ends.

Controversies in Children’s Television

It is nearly impossible to discuss children’s television without running into critics. Television is an extremely polarizing phenomenon; some experts believe children should have no screen time at all, while others believe that limited television is permissible and, especially in regard to educational television, can even be used as a teaching tool. During the course of my own research, I talked to many peers whose parents did not allow them

to watch television growing up. Of course, watching television has been implicated with a myriad of undesirable outcomes; excessive television viewing in children has been linked with physical, academic, and behavioral problems (Jordan, Hersey, McDivitt, & Heitzler, 2006). Even within the realm of educational television, the research findings are more nuanced than simply stating that educational television is good—while viewing less than two hours of educational programming a day is associated with higher test scores than not viewing any at all, viewing more than two or three hours is associated with lowered test scores (Lemish, 2007). These findings indicate that like a medicine, the right dose of educational television can make one better, yet too much can have negative effects. The question then, is: are children are overdosing on educational television, believing one cannot have too much of a good thing? It is clear that they are overdosing on television in general; one out of six children in the United States watches over five hours of television a day, and about half of children report a lack of household rules about how much and what they can watch on television (Strasburger, Wilson & Jordan, 2009). Perhaps the parents who implement rules about the amount of television their children can watch are also the parents that monitor the content. If parents are involved in their children's television watching habits, it seems likely that they would promote educational programs over commercial ones. However, it is clear that this does not happen enough, and that children left to their own devices can watch enough of *any* kind of television to yield harmful effects.

Another criticism is that children spend too much time watching television in general, regardless of content, and should use the time they spend parked in front of the television to instead play outside or engage in other more active types of learning. This

seems like a valid idea—however, it is also obvious why rarely happens. Society has changed quite a bit since *Sesame Street* was introduced 1969. More parents are working; in nearly half of all two-parent households, both parents have full-time jobs, a striking increase from previous decades (Miller, 2015). Busier parents have less time to devote to their families, and consider television a light, entertaining, and emotionally superficial babysitter for their children (Polsky, 1974). Furthermore, modern-day parents may not have the option to let their children to run around the neighborhood and play by themselves, a common occurrence in previous generations: just last year, Child Protective Services picked up a 10-year-old and 6-year-old who were walking home from the local park alone and charged their parents with neglect (McCarren, 2015). Because today's parents are limited in they time they have to spend with their children and the independence they can legally allow their children, it seems inevitable that this generation will spend some time being “babysat” by the TV.



Elmo interacts with a baby on his *Sesame Street* segment, “Elmo’s World.” Digital Image. *Muppet Wikia*. 2016. Web. 9 May 2016. <muppet.wikia.com>

In response to the debate about how much television children should watch, the age of the viewer factors in as well. The American Association of Pediatrics discourages parents from letting their children watch television prior to age two (Lemish, 2007). Indeed, television exposure at ages 1 through 3 results in attentional problems at age 7 (Christakis, Zimmerman, DiGiuseppe, & McCarty, 2004). Some programs, including those of the educational variety, have been accused of appealing directly to babies. The “Elmo’s World” segment of *Sesame Street*, officially aimed at 3-year-olds, has stirred up controversy. On the segment, the Elmo character frequently interacts with real babies. *Sesame Street* introduced the segment when they realized that older children were only attending to the first 45 minutes of the program, so they decided to allocate the last 15 minutes to the younger children that they knew were also tuning in (Fisch, Shalom, &

Truglio, 2014). Officially, however, *Sesame Street* has been very clear that they are targeting 3-year-olds rather than infants with “Elmo’s World” (Cohen, 2016). *Teletubbies* has also come under heavy criticism since its introduction on PBS Kids. While *Sesame Street* denies deliberately appealing to children under 2, *Teletubbies* embraces it: an executive of the show boasted that it is the first to serve 1-and-2-year olds on a large scale (“*Tubbies Bring New Charges*,” 1998). The controversy goes even deeper—as the characters on the show communicate primarily through baby talk, the show has actually been associated with language learning *deficits* in the children that watch (Lemish, 2007). It appears that the label “educational,” should be taken with a grain of salt; research has shown us that even some of the most well-intentioned shows can negatively impact our nation’s children.

Conclusion

It seems inevitable that this generation of children will spend a significant portion of their lives watching television. Educational television can be interpreted as a wonderful phenomenon, a revolutionary way to do social good with a technology that reaches billions of children; it can also be seen as the mere lesser of two evils, superior to commercial television but still not an ideal way for children to spend their time. However one views it, educational television seems to be here to stay and it is important to be aware of the best ways to implement it. We have seen that educational television has the ability to positively impact children’s learning, but also that it has the ability to negatively affect it—the difference seems to be in whether the show incorporates research into its production. *Sesame Street* and its descendants have demonstrated that an educational show can only affect positive change insofar as its creators strive to research

the development and habits of their viewers, and integrate everything they learn to make the show better suited to children. As with any form of education, the best learning occurs when the people imparting knowledge really understand the people receiving the knowledge. As long as shows like *Sesame Street* continue to dedicate resources towards learning about and caring about their child viewers, children will benefit from these programs.

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