

Impact of Educational Television

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Abstract

Existing research suggests that educational television viewed in childhood may be impactful in the long-term, but this research is limited and has focused on areas related primarily to cognitive or academic development. Using data collected from 194 undergraduate students taking introductory psychology courses at a Mid-South university, I examined the potential long-term impact of four popular educational programs (*Dora the Explorer*, *Sesame Street*, *Blue's Clues*, *The Magic School Bus*) based on participants' perceptions of the program they viewed most often in childhood. I explored the extent to which participants believe that their most-watched program impacted them on cognitive, social, and emotional dimensions, how that compared to their perceptions of the parenting they received on those same three dimensions, the element of educational programming they believed to be most impactful, and whether the amount of time they viewed their most-watched educational program was related to perceptions of impact.

Results indicate that overall, participants believe their most-watched program impacted them positively on cognitive, social, and emotional dimensions. However, they believe their parents/guardians impacted them more on all three dimensions, which was to be expected. Participants indicated that all four programs taught more social skills than they did cognitive or emotional skills. Audience participation and humor/fun were the most selected impactful elements, and time spent viewing was somewhat correlated with perceptions of impact.

Impact of Educational Television

Television content is everywhere you look. You carry this content in your pocket, you have it in your home, you can find it in restaurants, waiting rooms, and sometimes even in your own car. For children, it may even be present in daycare and school settings. The majority of children will be exposed to some form of television during their childhood. Sixty-six percent of children under the age of 2 have been exposed to television (Common Sense Media, 2011). Since the advent of television, screen media has evolved to include far more than just television, and now children can be exposed to television, DVDs/videos, computers, video games, and mobile devices. A 2017 report by Common Sense Media found that despite these additional forms of media available to children, 72% of screen activity among children under the age of nine is still video viewing (Common Sense Media, 2017). Time spent watching TV, DVDs, or videos has not changed significantly from 2011 to 2017, with daily time spent with these media being approximately 1 hour and 40 minutes in both reports. However, the device used for TV and video viewing has changed between 2011 and 2017. For example, time spent watching TV on a TV set has dropped from 1 hour and 9 minutes in 2011 to 58 minutes in 2017, but time spent watching TV/videos on a mobile device has increased from 1 minute in 2011 to 21 minutes in 2017 (Common Sense Media, 2011; Common Sense Media, 2017). The point is, television and video have long been popular choices of entertainment for young children regardless of the device used to view such content. Thus, there is a plethora of television and video content that children could be exposed to on a daily basis and plenty of opportunities for exposure to television and video content to occur, and this is often a primary concern of parents.

Parents have long been concerned with their children's media use, with how much they consume, what content is present in what they consume, and what that content may be teaching or doing to their children (Hess & Goldman, 1962; Ortutay, 2018; Strauss, 2018). When watching certain programs designed for adults and even some designed with child viewers in mind, children are often exposed to violence, and research has lent evidence to the idea that certain types of television can lead to more violent behaviors in children. For example, one longitudinal study of 4th and 5th graders involved exposing children to violent media and later asking them to self-report the number of physical fights they had been in, as well as asking their teachers to rate their aggressive and prosocial behavior. Researchers found that higher media violence exposure was correlated with more physically, verbally, and relationally aggressive behavior (Gentile et al., 2010). Violence in media has been a popular topic for decades. A review from 1973 cited over 15 articles on the topic of media and its effects on violent behavior, concluding that violent media leads to aggressive behavior (Murray, 1973). Another review from 2005 cited over 50 articles on the same topic and found that violence in video and video gaming formats had negative short-term effects on young children (Browne & Hamilton-Giachritsis, 2005).

Another primary concern of parents is that too much time spent watching television takes away from other more productive activities, such as reading, exercise, sleep, and studying (Marsh, 2021; Pahr, 2018; Shin, 2004). For example, a study that examined the time children spent watching television, studying or completing homework, and reading for leisure found that time spent watching television was negatively correlated with time spent studying or completing homework and reading for leisure. One

conclusion of this study is that more television viewing in childhood is linked to poor academic achievement (Shin, 2004). For decades, much research-related attention has been given to the negative effects of viewing television in childhood; however, there are a wide variety of programs that were created specifically for children and have been designed to promote cognitive, social, and emotional growth that could help counteract some of these concerns.

Television producers have long thought that television has the power to be impactful in a positive way in the lives of children. Joan Ganz Cooney, the creator of *Sesame Street*, decided to pursue the creation of the program in the late 1960s because, based on observations of children's fascination with adult-oriented programs and commercials and them even being able to recite jingles and tag lines, she believed that television could be used as a tool to prepare lower and middle-class children for school and bring them up to the level of their upper-class peers (Cooney, 1967). Since *Sesame Street* and *Mister Rogers' Neighborhood* both hit the airwaves in the 1960s, new programs have consistently been developed and produced with a purpose of functioning as an educational resource for children, with *The Electric Company* and *Schoolhouse Rock!* premiering in the 1970s, *3-2-1 Contact* premiering in the 1980s, *Blue's Clues* and *The Magic School Bus* premiering in the 1990s, *Super Why!* and *Martha Speaks* premiering in the 2000s, and *Daniel Tiger's Neighborhood* and *Blue's Clues & You* premiering in the 2010s. These programs, of course, are just the tip of the iceberg. Many of these programs became and are still becoming staples in the lives of their child viewers that they will remember for a lifetime. For example, LeVar Burton, the host of the popular educational program, *Reading Rainbow*, which aired on television from the early

1980's through the mid-2000's, started a Kickstarter campaign in 2014 to revive the program as an online-series. Within 24 hours, the Kickstarter had raised over 1.7 million dollars (Fisher, 2014). When the campaign ended, the final total was just under \$6.5 million ("Bring Back *Reading Rainbow*...", n.d.). Clearly these programs from decades past are still highly adored by their now grown-up viewers. Today's children who view today's programs and films behave with similar enthusiasm, although they typically cannot put their own money into a Kickstarter. The song "Let it Go," from the movie *Frozen* is a great example of their enthusiasm, as is the obsession many children have with the Nickelodeon program, *Paw Patrol*. So long as there is lasting enthusiasm for educational programs and there is money to be made, new programs will likely continue to be developed long into the future.

Each of the programs listed above certainly has the capacity to be highly impactful, but not all educational programs are created equal; that is, each program teaches different skills and lessons. Topics covered by these programs can range from how to count to ten to how to cope with difficult emotions, with classic programs like *Sesame Street* teaching the former and newer programs like *Daniel Tiger's Neighborhood* teaching the latter. Programs like *3-2-1 Contact* cover topics related to science, whereas programs like *Martha Speaks* and *Super Why!* cover topics related to literacy. Ultimately, each program seeks to educate children and prepare them for schooling, and there still can be quite a bit of overlap between the more popular programs, particularly with those that teach basic concepts that you would expect all preschoolers to be learning in a classroom setting (e.g., counting, letters, sharing), but each program has its own specific curriculum and/or methods to teaching that curriculum to its viewers. These differences

among programs lead to the following question, can educational programs actually teach the things they claim to teach?

Short-Term Effects of Educational Television

A study on the word-and-reading-based program *Super Why!* examined early literacy skills through picture naming, knowledge of the alphabet, rhyme awareness, and print knowledge. Children who watched the program could identify more letters and could identify them faster than their counterparts who viewed other programs.

Additionally, children who watched *Super Why!* could also identify more rhymes and letter sounds and also had greater print knowledge than their other-program viewing counterparts (Linebarger, 2015). Researchers using measures of word recognition, word building, word meaning, speech to print matching, and letter naming, among other measures, to measure literacy found that children who watched episodes of *Between the Lions*, a program designed to promote reading, performed better on these literacy tasks than the control group. This performance even extended to “at-risk” children, children who were likely to struggle with reading later in life (Linebarger et al., 2004). Rice et al. (1990) studied how *Sesame Street* might impact children’s vocabulary and found that viewing was positively related to vocabulary scores on the Peabody Picture Vocabulary Test-Revised, which tests vocabulary using a combination of images and words.

A study by Cingel and Krcmar (2019) found that children who viewed episodes of the program *Arthur* that featured moral messages differed significantly on judgments of provoked and unprovoked violence from those who viewed an episode of *Arthur* without moral messages, which is explained by differences in perspective-taking. Children who watched episodes of *Arthur* with moral messages engaged in more perspective-taking

than those who did not. Another study found that children who were exposed to episodes of *Mister Rogers' Neighborhood* actually learned the prosocial and emotional content of the episodes and had the capacity to generalize their new knowledge to other similar real-life situations (Friedrich & Stein, 1975). In a more recent study, when shown episodes of the social-emotional program, *Daniel Tiger's Neighborhood*, which is an animated spin-off of *Mister Rogers' Neighborhood*, children with parents who frequently engage in active mediation, which involves discussing the television programs the child views with the child, were more likely to be empathetic, have higher self-efficacy, and be more successful at emotion recognition than those children whose parents did not (Rasmussen et al., 2016). In another more recent study, researchers discovered that children who played with the *Daniel Tiger's Neighborhood* mobile application or children who played with the application and watched the television program were more effective at engaging in emotional regulation than children who played with other applications or watched other television shows that did not focus on emotional intelligence (Rasmussen et al., 2018).

A study that examined *Rechov Sumsum - Shara'a Simsim*, a joint Israeli/Palestinian version of Sesame Street studied the stereotypes Palestinian and Jewish children hold for one another, their understanding of how Palestinian and Jewish people live day-to-day in this region, their ability to resolve conflicts and solve problems, and their awareness of cultural symbols related to the Palestinians and Jews living in the region. Researchers discovered that overall, the programs helped to counteract the negative stereotypes children of each culture hold against the other cultures of the region (Cole et al., 2003). A study on the United States version of *Sesame Street* in which

researchers looked back at Census data and found that preschoolers in 1969 who lived in areas where *Sesame Street* had increased coverage were more likely to be in a grade fitting for their age (Kearney & Levine, 2019).

The implications of all of this are that educational television has proven itself effective in teaching many types of skills, including but not limited to literacy skills, prosocial skills, emotion recognition and regulation skills, and information about other cultures, all of which are related to cognitive, social, and emotional development in the short-term. What about effectiveness in the long-term, as these child viewers grow into adults?

Long-Term Effects of Educational Television

In terms of long-term effects, far fewer studies have been conducted. At the lower-end of long-term, a 3-year longitudinal study found a correlation between the type of television watched and future media behavior. Children in both cohorts, age 2 and age 4 at the start of the study, who viewed educational television more frequently were more likely to engage with books and other kinds of educational activities than those children who viewed entertainment television more frequently (these children were more likely to spend more time with video games). Additionally, children who viewed more educational television had a slight advantage in school readiness than their entertainment-television-viewing peers, and this advantage was more pronounced for the younger cohort (Wright & Huston, 1995).

Kearney & Levine (2019) examined some long-term effects when they reviewed Census data. They found that children who lived in areas where the signal for *Sesame Street* was especially strong were 14% more likely to be in a grade fitting for their age in

middle and high school, and this trend was especially strong among disadvantaged children. Additionally, this study found that children who were more exposed to *Sesame Street* are more likely to have a job and earn higher wages later in life.

Although the research on long-term effects is limited, the idea that educational television is impactful in the long-term is already emerging. The existing research has not considered how educational media viewed in childhood has had a long-term impact on college undergraduates. Additionally, the existing research has not considered in much depth how the educational television viewed in childhood has had a long-term impact on viewers on dimensions related to social or emotional development. If educational television is impactful in the short-term and has also been found to prepare young children for school, correlate with the likelihood that older children will be in an appropriate grade for their age, and even correlate with higher wages later in life, then a logical assumption is that exposure to educational media would have some kind of lasting effect on college students, but to what extent?

Background on Programs Studied

I conducted a pilot study with Dr. David Saarnio to find out what educational programs college undergraduates watched in childhood. I used this information to make decisions on which programs to include in the current study. The four most frequently mentioned programs by participants were *Sesame Street*, *Blue's Clues*, *Dora the Explorer*, and *The Magic School Bus*, and these are the programs examined by the current study.

Having celebrated its 50th year in production in 2019, *Sesame Street* continues to be a force in media-based education. In 2018, the show was estimated to be reaching 156

million children in over 150 countries (Why *Sesame Street* creator..., 2018). During that same year, eight international spinoffs were in production which featured characters and storylines tailored to the areas the shows were airing in (Chiwaya, 2019). *Sesame Street* has focused on tough issues outside of the typical ABCs and 123s for decades, such as death and racism. Currently, the US version of the program features a puppet with autism, Julia, and videos created for *Sesame Street in Communities* feature a homeless puppet, Lily, for their initiative on homeless, and a puppet living with a foster family, Karli, for their initiative on foster care.

Blue's Clues was the product of an assignment by Nickelodeon to a group of producers to create a show based on research related to early childhood development. Although the goals of the programs were essentially the same, to educate young children and prepare them for schooling, *Blue's Clues* took a different approach than did *Sesame Street*. *Blue's Clues* focused on a narrative format, telling a complete story in an episode and using a host to elicit help from the at-home child viewers (Wells, 2016). While *Sesame Street* is often considered the “blueprint” for the programs that followed it, the program changed its format in 2002 to one that mirrored *Blue's Clues*, and like *Sesame Street*, *Blue's Clues* has also been spun off in multiple countries (Schmelzer, 2006). Something the original *Blue's Clues* did differently from its counterparts was the presentation of the same episode five days in a row, using repetition to aid in learning (Carter, 2000). A spin-off of the original program titled *Blue's Clues & You!* premiered in 2019 and follows a similar structure to the original, with a few modernized changes (e.g., the “Handy Dandy Notebook” is now a smart phone, “mail-time” now consists of the main human character, Josh, checking his email as opposed to checking the mailbox).

Dora the Explorer was created by a pair of producers at Nickelodeon. Their original idea was based around a young girl with several animal friends named Tess. When executives from Nickelodeon returned from a conference where they learned that Latinx were the most underrepresented minority in television, they kept the original idea intact with one change – “Tess” would become “Dora,” a Latina girl whose specific country of origin remains unknown (Flores, 2009). Spin-offs of the show in non-English speaking countries feature Dora teaching English, as opposed to Spanish (Wilt, 2020). A spin-off series titled *Go Diego Go* premiered in 2005, and a live-action film based on the original *Dora the Explorer* series was released in 2019. Like the host of *Blue’s Clues*, Dora would seek help from the at-home child viewers in the form of questions with pauses while looking into the camera as she awaited the viewer’s response.

The Magic School Bus began as a book series by Scholastic, incorporating science education and fictional narratives about field trips in response to requests from teachers wanting more science-related picture books (Lodge, 2006). The television series of the same name premiered in 1994, eight years after the first book was published. *The Magic School Bus* and similar programs, such as *Bill Nye the Science Guy*, were and still often are shown in schools as supplemental science lessons (Kid reviews for *Bill Nye the Science Guy*, n.d.; Kid reviews for *The Magic School Bus*, n.d.). A spin-off, *The Magic School Bus Rides Again*, premiered on Netflix in 2017.

These four programs (*Sesame Street*, *Blue’s Clues*, *Dora the Explorer*, and *The Magic School Bus*) all have international reach, and all of them except *The Magic School Bus* are based on extensive formative research (*The Magic School Bus* television program is based on the picture book series, which was created through extensive research on the

topics of each book). Naturally, not every child watches the same programs, so what they do or do not learn from television is based, at least partially, in which programs each child views. By that same token, not every child has the same universal parent or guardian who teaches every single child the same things, so what they learn from their guardian(s) is based, again, at least primarily, in what their guardian(s) teach(es) them in childhood.

The Current Study

Because these programs do differ in their structure and content, and because educational programs do appear to be impactful in the long-term, I wanted to examine the perceived potential differences in what these programs teach in the long-term and whether any of these programs might supplement what participants might not have learned from their guardian(s). I believe gaining more insight into how college students believe they have been impacted by the programs they watched in childhood will aid television producers, developers, and writers in creating effective media with long-lasting impact. By examining more than just cognitive/academic skills and discovering what skills college students believe they learned from the programs and what they believe made these programs successful, creators can build on the success of past programs and create future content that is even more impactful. Additionally, a comparison of program impact with parent/guardian impact may also ease the minds of parents who are concerned about television exposure in childhood.

I anticipated participants to believe that each program did teach them cognitive, social, and emotional skills. I also anticipated differences in ratings of each skill among programs, with some programs scoring higher/lower on teaching each skill than others.

Additionally, I expected participants to indicate that they learned all skills (cognitive, social, and emotional) more from their parents/guardians than from their most-watched program.

Methods

Participants

Originally, 218 college students participated in this study. Twenty-four total participants were dropped from analyses. Five participants were dropped from analyses for not providing the program they viewed most often in childhood. One of the major points of this study was to evaluate whether any one program was more impactful along any of the 3 dimensions than the other programs. A participant's data who did not provide a most-watched program will not be able to be used to answer this question. For that reason, those 5 participants were dropped. Nineteen participants were dropped from analyses for answering "Other" when asked which program they viewed most often in childhood. I chose to drop these participants because there was not a large enough sample to study for any of the programs listed by participants. For example, 2 participants indicated that *The Wiggles* was the educational program they viewed most often in childhood. A sample size of 2 is not enough to adequately analyze the potential long-term effects of that program. For that reason, those 19 participants were dropped.

All 194 participants were students taking introductory Psychology courses at a university in the Mid-South. The sample studied was 76.5% White (N = 150), 15.8% Black/African American (N = 31), 3.1 % Hispanic (N = 6), 2% Asian (N = 4), and 1.5% multiracial (N = 3). Those identifying as female comprised 74.7% of total participants (N = 145), those identifying as male comprised 24.7% of total participants (n= 48) and those

identifying as non-binary comprised 0.5% of total participants ($N = 1$). Participants' ages ranged from 18 to 58. The average age of the sample was 19.3.

Procedure

This study had an exploratory, within-subjects design. Participants responded to survey items through Qualtrics XM, an online survey tool, and the survey was distributed through the Sona system, software for managing participant pools. Participants completed the survey in exchange for Research Experience Credits (REC) for introductory Psychology courses. Before entering the survey, participants were presented with an informed consent (see Appendix A) detailing what they should expect from the survey, as well as assurance that participation was voluntary and they could exit the survey at any time. Upon agreement that they were at least 18 years of age and that they had read and understood the informed consent, participants gained entrance to the survey. See Appendix B for the full survey.

Measures

Participants were asked to choose which educational television program they viewed most often in childhood. The programs they had to choose from were based on results from a pilot study. Participants could choose among *Dora the Explorer*, *Sesame Street*, *Blue's Clues*, *The Magic School Bus*, and if the program they watched most often in childhood was not one of those four, they could choose "Other" and fill in the program they did watch most often.

Participants were then asked to indicate the extent to which they agreed or disagreed that the program they viewed most often in childhood taught them certain skills related to cognitive, social, and emotional dimensions. Participants responded on a 1 to 5

scale, with 1 being strongly agree. Participants were given ten items for each dimension, forming three dimensions of ten items, one measuring cognitive impact, one measuring social impact, and one measuring emotional impact. Items for all three dimensions were based on constructs measured in intelligence scales (e.g., WISC-V, Stanford-Binet SB5, George Washington Test of Social Intelligence, Tromsø Social Intelligence scale).

Concepts taken from the WISC-V and the Stanford-Binet SB5 include reading, numbers, and reasoning skills. Concepts taken from the George Washington Test of Social Intelligence & the Tromsø Social Intelligence scale include solving problems without the use of violence and interacting with others. Additionally, other items were based on definitions of cognitive, social, and emotional intelligence (e.g., Sternberg, 1996; Vernon, 1933; Mayer & Salovey, 1997), and a study by Schutte et al. (1998) on emotional intelligence. These items are intended to be representative of varying types of cognitive, social, and emotional skills. The complete cognitive, social, and emotional dimensions (with accompanying skills) can be found in Appendix C.

Participants were then asked to indicate which element of educational programming they believed made the program they viewed most often the most impactful. Participants could choose from modeling of behavior, repetition, humor/fun, and audience participation, all of which should be present in each of the programs included in our study. This question was included solely for exploratory purposes.

Participants were then asked to indicate the extent to which they agreed that the program they viewed most often had a positive impact on their lives in terms of cognitive, social, and emotional skills, generally. Participants responded on a 1 to 5 scale, with 1 being strongly agree. The ten items for each dimension provide details on the

impact educational television may have on each dimension, but responses to this question of general impact will provide insight as to how college students are perceiving any positive impact from the programs holistically.

Participants were asked to indicate how often they viewed their most-watched program in childhood. They were asked how many days per week they viewed the program, and they were also asked how many hours per day they viewed the program. Responses were used to determine if there is a correlation between time spent viewing and perceived program impact.

Participants were then asked to list their primary caregiver (e.g., mother, father, grandparent, etc.) and indicate the extent to which they agreed or disagreed that their primary caregiver taught them certain skills related to cognitive, social, and emotional development. The dimensions used are the same as cognitive, social, and emotional impact dimensions used earlier to measure perceived program impact (see Appendix C).

Finally, participants were given an open-response opportunity to share any other ways outside of what they were asked in the survey that the program they viewed most often was beneficial or meaningful to them. This question was also included solely for exploratory purposes. Responses provided to this question could influence future studies on long-term impact of children's educational programming.

Results

Of the 194 participant responses I was able to use, *Dora the Explorer* was the program chosen most frequently as participants' most-watched program (N = 67), followed by *Blue's Clues* (N = 58), then *The Magic School Bus* (N = 44), and finally *Sesame Street* (N = 25). Overall, participants believed that both the program they viewed

most often in childhood and their parent/guardian(s) taught them cognitive, social, and emotional skills.

Perceived Program Impact by Program

I wanted to see if different programs taught different types of skills better or worse than others based on participants’ perceptions. I compared the composite means for the skills within each dimension as a function of program. I ran an Analysis of Variance (ANOVA) of dimension (3: cognitive, social, emotional; within-subjects) x program (4: *Sesame Street*, *Dora the Explorer*, *Blue’s Clues*, *The Magic School Bus*; between-subjects). There was a main effect of dimension, $F(1.8, 341) = 94.7, p < .000$, but most importantly, there was a significant interaction between dimension (cognitive, social, emotional) and program, with Greenhouse-Geisser correction for degrees of freedom $F(5.394, 341.605) = 4.79, p = .000, \eta^2 = .070$ (see Table 1).

Table 1

Tests of within-subjects effects on skill and program selected.

Tests of Within-Subjects Effects									
Measure: MEASURE_1									
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
skill	Sphericity Assumed	38.023	2	19.012	94.704	.000	.333	189.409	1.000
	Greenhouse-Geisser	38.023	1.798	21.148	94.704	.000	.333	170.271	1.000
	Huynh-Feldt	38.023	1.843	20.635	94.704	.000	.333	174.510	1.000
	Lower-bound	38.023	1.000	38.023	94.704	.000	.333	94.704	1.000
skill * Q2	Sphericity Assumed	5.771	6	.962	4.791	.000	.070	28.747	.991
	Greenhouse-Geisser	5.771	5.394	1.070	4.791	.000	.070	25.842	.984
	Huynh-Feldt	5.771	5.528	1.044	4.791	.000	.070	26.485	.986
	Lower-bound	5.771	3.000	1.924	4.791	.003	.070	14.373	.898
Error(skill)	Sphericity Assumed	76.284	380	.201					
	Greenhouse-Geisser	76.284	341.605	.223					
	Huynh-Feldt	76.284	350.110	.218					
	Lower-bound	76.284	190.000	.401					

a. Computed using alpha = .05

Because of the vast differences in the number of participants choosing each program, and because this is an exploratory study, follow-up statistical analyses were not conducted. However, for cognitive skills, *Sesame Street* was rated highest (M = 3.85),

followed by *Dora the Explorer* ($M = 3.77$), then *Blue's Clues* ($M = 3.65$), with *The Magic School Bus* ($M = 3.52$) rated the lowest. As the numbers indicate, the program means did not vary tremendously from each other. For social skills, *The Magic School Bus* rated highest ($M = 4.20$), followed closely by *Sesame Street* ($M = 4.19$), then *Dora the Explorer* ($M = 4.08$), with *Blue's Clues* ($M = 3.86$) rated the lowest. Most of the programs were approximately equal in means. For emotional skills, *Sesame Street* rated highest ($M = 3.75$), followed by *The Magic School Bus* ($M = 3.48$), then *Dora the Explorer* ($M = 3.24$), with *Blue's Clues* ($M = 3.19$) rated the lowest (see Table 2 & Figure 1). These programs appear to change their relative position in a relatively minor way for each dimension.

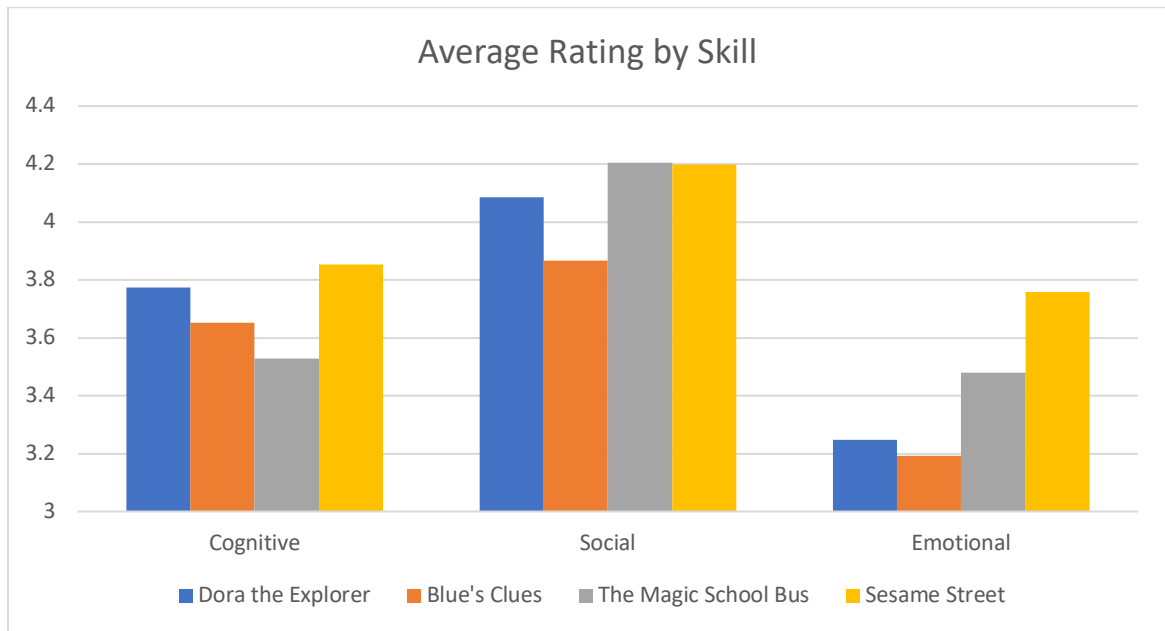
Table 2

Overall ratings of cognitive, social, and emotional impact by program.

	Cognitive Rating (mean)	Social Rating (mean)	Emotional Rating (mean)
<i>Sesame Street</i>	3.852	4.198	3.758
<i>Blue's Clues</i>	3.653	3.866	3.193
<i>Dora the Explorer</i>	3.773	4.086	3.247
<i>The Magic School Bus</i>	3.528	4.205	3.480

Figure 1

Average rating for each program by skill.



The main effect of program was not significant, $F(3, 190) = 2.2, p = .09$ (see Table 3).

Table 3

Tests of between-subjects effects on program selected.

Tests of Between-Subjects Effects

Measure: MEASURE_1
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Intercept	7062.414	1	7062.414	6445.729	.000	.971	6445.729	1.000
Q2	7.272	3	2.424	2.212	.088	.034	6.637	.555
Error	208.178	190	1.096					

a. Computed using alpha = .05

Different programs had different strengths and weaknesses on different skills. I elected not to run individual *t*-test comparisons because I was looking for the pattern of responding, which is consistent across all programs. It appears that all programs were rated highest on social skills and lowest on emotional skills.

Top Three Skills Taught by Each Program

To examine what each program was particularly perceived to promote, the top three skills for each program were examined. For the most part, these top skills come from the social dimension. The top three items for *Sesame Street* were “how to count” (M = 4.56), “how to share with others” (M = 4.52), and “how to work cooperatively with others” (M = 4.40). For *Blue’s Clues*, the top items were “how to understand the importance of helping others” (M = 4.31), “how to recognize shapes” (M = 4.28), and “how to use basic reasoning skills” (M = 4.16). The top three items for *The Magic School Bus* were “how to understand the importance of helping others” (M = 4.50), “how to communicate with peers” (M = 4.45), and “how to engage in creative play with others” (M = 4.41). Finally, for *Dora the Explorer*, the top three items were “how to understand the importance of helping others” (M = 4.49), “how to solve problems without violence” (M = 4.41), and “how to work cooperatively with others” (M = 4.40). I elected not to run statistical analyses to determine if any of these items were rated significantly higher than others because I was only looking for the top three rated items for each skill.

Additionally, *Sesame Street* was the only program to not have any items rated below 3.00, which means that it was the only program to have all items rated as having been taught by the program.

Most Impactful Element

I wanted to see what participants believed made their most-watched program impactful for them. The majority of participants selected humor/fun (N = 76) and audience participation (N = 71) as the elements of educational programming they believe were most impactful. Modeling of behavior (N = 33) and repetition (N = 14) received much less support (see Table 4).

Table 4

Frequencies of each educational television element.

Element	Frequency	Valid Percent	Cumulative Percent
Modeling of behavior	33	17.0	17.0
Repetition	14	7.2	24.2
Humor/fun	76	39.2	63.4
Audience participation	71	36.2	100.0

Parenting

I wanted to see if there were differences in perceptions of what participants learned from their most-watched program as compared to what they learned from their parent(s)/guardian(s). As anticipated, participants indicated that they believed they learned more from their parent(s)/guardian(s) than they did from their most-watched program in regard to cognitive, social, and emotional skills. For their parent(s)/guardian(s), social skills ranked the highest ($M = 4.48$), followed by cognitive ($M = 4.43$), and then emotional ($M = 3.99$) skills. As indicated above, the programs followed the same pattern, with social skills ranked highest ($M = 4.06$), followed by cognitive ($M = 3.69$) and emotional ($M = 3.35$) skills (see Table 5 & Figure 2).

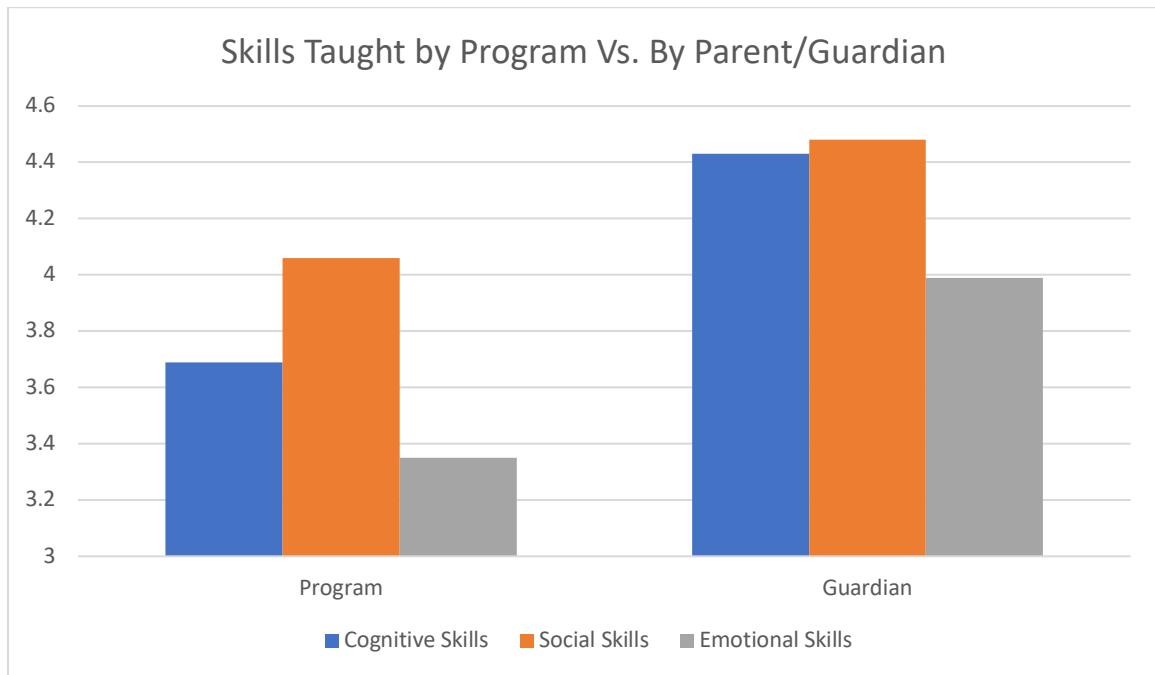
Table 5

Comparison of overall program and guardian means for each dimension.

	Program (mean)	Parent(s)/Guardian(s) (mean)
Cognitive skills	3.69	4.43
Social skills	4.06	4.48
Emotional skills	3.35	3.99

Figure 2

Average ratings for skills taught by program or guardian.



I conducted an ANOVA to examine the relative importance of parent(s)/guardian(s) and programs. There was a significant interaction between dimension (cognitive, social, emotional) and parent versus program, with Greenhouse-Geisser correction for degrees of freedom $F(1.9, 367) = 15.31, p = .000, \eta^2 = .422$ (see Table 6). For each skill, participants believed that their parents/guardians taught them more than their most-watched program did. This effect appeared to be greater for cognitive skills than social or emotional skills. I elected not to run individual t-test comparisons because I was looking for the pattern of responding, which is consistent across dimensions (parents > programs). It appears that participants believed their parents/guardians taught them more than their most-watched program, but the relative difference varied by skill.

Table 6

Tests of within-subjects effects on parents vs. show and skills.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
parentvsshow	Sphericity Assumed	103.378	1	103.378	137.427	.000	.416	137.427	1.000
	Greenhouse-Geisser	103.378	1.000	103.378	137.427	.000	.416	137.427	1.000
	Huynh-Feldt	103.378	1.000	103.378	137.427	.000	.416	137.427	1.000
	Lower-bound	103.378	1.000	103.378	137.427	.000	.416	137.427	1.000
Error(parentvsshow)	Sphericity Assumed	145.182	193	.752					
	Greenhouse-Geisser	145.182	193.000	.752					
	Huynh-Feldt	145.182	193.000	.752					
	Lower-bound	145.182	193.000	.752					
skill	Sphericity Assumed	72.643	2	36.321	141.110	.000	.422	282.219	1.000
	Greenhouse-Geisser	72.643	1.483	48.982	141.110	.000	.422	209.273	1.000
	Huynh-Feldt	72.643	1.492	48.693	141.110	.000	.422	210.513	1.000
	Lower-bound	72.643	1.000	72.643	141.110	.000	.422	141.110	1.000
Error(skill)	Sphericity Assumed	99.356	386	.257					
	Greenhouse-Geisser	99.356	286.229	.347					
	Huynh-Feldt	99.356	287.925	.345					
	Lower-bound	99.356	193.000	.515					
parentvsshow * skill	Sphericity Assumed	5.056	2	2.528	15.310	.000	.073	30.621	.999
	Greenhouse-Geisser	5.056	1.903	2.657	15.310	.000	.073	29.129	.999
	Huynh-Feldt	5.056	1.921	2.632	15.310	.000	.073	29.411	.999
	Lower-bound	5.056	1.000	5.056	15.310	.000	.073	15.310	.973
Error (parentvsshow*skill)	Sphericity Assumed	63.736	386	.165					
	Greenhouse-Geisser	63.736	367.194	.174					
	Huynh-Feldt	63.736	370.751	.172					
	Lower-bound	63.736	193.000	.330					

a. Computed using alpha = .05

Effects of Time Spent Watching

There was a significant correlation between days per week spent watching programs and perceived benefit on cognitive skills, $r(192) = .267, p < .001$, social skills, $r(192) = .188, p = .009$, and emotional skills, $r(192) = .162, p = .024$. There was also a significant correlation between hours per day spent watching programs and perceived benefit on cognitive skills, $r(192) = .183, p = .011$. However, there was no significant relation between hours per day spent watching and social skills, $r(192) = .109, p = .129$, or emotional skills, $r(192) = .077, p = .284$.

Open Response

Participants were asked to discuss any other ways in which the program they watched most often was impactful that they had not already been asked about in the survey. Some participants did not respond, one participant stated that they did not believe the program was all that impactful (though such a response appears to be contradicted by the survey results), and others discussed their most-watched program's impact in ways that were not predicted. For example, many participants who chose *Dora the Explorer* as their most-watched program mentioned the program teaching them introductory Spanish and about other cultures. Multiple participants who chose *Blue's Clues* as their most-watched program mentioned the program teaching them the value of friendship. Several participants who chose *The Magic School Bus* as their most-watched program mentioned the program teaching them about science and helping them to begin to love learning. Finally, several participants who chose *Sesame Street* as their most-watched program mentioned learning about other cultures, learning how to interact with others, and the program helping them connect educational content learned at home or in school to real-world issues.

A few participants mentioned memories of watching their most-watched program with their families, friends, or their siblings. One participant went so far as to say that they believe their most-watched program aided in their bonding with their siblings. Some participants discussed how the presentation of information within the program allowed them to learn from it. For example, one participant mentioned that they watched *Blue's Clues* most often because it contained more discussion with the audience. Other participants mentioned their most-watched program making them feel happy, making their childhood more fun, keeping them entertained, and making them laugh.

Discussion

Overall, participants believed each of the four programs studied were impactful in their lives in regard to cognitive, social, and emotional development. Participants believe they learned more social skills from the four programs than anything else. *Sesame Street* was rated highest on cognitive and emotional skills, and *The Magic School Bus* was rated highest on social skills. Audience participation and humor/fun are what participants believe make each program so impactful. Time spent viewing was somewhat related to perceptions of impact, particularly in regard to days per week. Overall, participants did believe they learned more cognitive, social, and emotional skills from their parents/guardians than from their most-watched programs, which was to be expected.

Implications

According to participants, the educational programs studied all successfully teach some form of social skills, but all seemed to lag behind in regard to cognitive and emotional skills, especially as compared to what participants were taught from their guardians. This has two implications. The first is that what these programs have done in the past to teach social skills is, according to the perceptions of participants, effective in the long-term. The second is that currently existing and future programs may need to put in more effort toward teaching cognitive and social skills. Newer programs like *Super Why!*, which focuses on literacy (cognitive skill), *Sid the Science Kid*, which focuses on science (cognitive skill), and *Daniel Tiger's Neighborhood*, which focuses on emotional skills, appear to be attempting to bridge this gap. These programs would be good candidates for future study among adolescents and teenagers who watched those programs in childhood to evaluate their long-term effectiveness on cognitive and

emotional skills. These results can inform producers, developers, and writers of educational television that past work has been effective in regard to social skills, but future programs and other educational materials may need some work to be more impactful in regard to cognitive and emotional skills.

Sesame Street rating highest on cognitive and emotional skills implies that *Sesame Street* continues to be a leader in impactful educational television. It cannot be overlooked that *Sesame Street* is the most studied educational program; however, perhaps this is for good reason. *Sesame Street* has been a pioneer since it debuted in the late 1960s. Even today, it appears that *Sesame Street* may be a quality template for successful and impactful educational television.

Audience participation and humor/fun were both rated highly by participants as the most impactful element of their most-watched program. Several participants brought up these elements in the open response question as well, which implies that these things were particularly important to many participants. Future research should be done on the most impactful elements of educational television, but if audience participation and humor/fun are in fact the most impactful, that information would be beneficial to producers, developers, and writers of educational media to create more impactful and engaging programs and episodes in the future.

Time spent watching participants' most-watched program being somewhat correlated with increased perceptions of impact could imply more than one thing. This could imply that more days per week spent viewing really is correlated with more impact and that children should thus view educational television a certain number of days per week. However, this could also imply that more days per week spent viewing actually

resulted in participants' most-watched program simply being better remembered, and thus participants who watched the program more days per week than others did not actually believe the program to be more impactful than others who watched less often, they just remembered seeing the program more often. The effect of time spent viewing should be studied in further detail.

Of particular interest to me were the responses participants gave to the open response item. Their responses indicate that they remember a great deal from what they watched as children. Participants talked about learning specific things from their most-watched program, such as learning about other cultures, basic Spanish, the value of friendship, and science lessons. Additionally, these responses give insight to the impact educational television can have on children outside of what it is designed to teach. Several participants talked about watching the program with their siblings or with their family, and some talked about how they believe they were able to bond with their sibling as a result of spending that time together. Regardless of what they may or may not have learned, participants have indicated that they have happy memories associated with viewing their most-watched program. This is a different kind of impact that I did not set out to study, but it may be worth studying in more depth in the future.

Concerns, Issues, and Limitations

A potential concern with this research is that it may not be reasonable to compare the perceptions of what today's college students believe they learned in childhood with today's and future children. As compared with a 2011 report (Common Sense Media, 2011), television viewing has gone down in children ages 8 and under, being replaced by mobile device use. However, participants studied ranged in age from 18 to 58. During

their childhoods, mobile devices were not as readily available as they appear to be now, so it would not have been logical to focus this study on what they believe they learned from mobile devices. Additionally, children's educational media appear to have noticed this trend, and many programs like *Sesame Street* and *Blue's Clues* are now available to children in ways that surpass the standard 15-minute television episode, such as educational smart phone applications, online games, and online videos. Developers of these entities could use what was successful about these programs in the past to develop more effective applications, games, and videos in addition to television programs.

Another potential concern is with the relevance of the programs studied to today's media. Luckily, participants in our pilot study indicated that the programs they viewed most often in childhood are in fact programs that still have some relevance to today's media. The team behind *Dora the Explorer* only recently stopped producing new episodes, in 2019, and a live-action film based on the show was released that same year. New episodes of *Blue's Clues & You*, a modernized reboot of *Blue's Clues*, are currently being produced and aired. Two seasons of a *Magic School Bus* reboot called *The Magic School Bus Rides Again* were released on Netflix in 2017 and 2018, with three special episodes being released in 2020. *Sesame Street* has been in production since the late 1960s and is still producing new episodes and other digital content today. Using these programs that are still relevant to modern educational media consumed by today's children allows for any knowledge gained about the long-term effects of these programs having the potential to be beneficial to those creating these programs or spin-offs of these programs and could influence decisions made about these and any future programs.

An issue for this and future studies is that our data relied solely on the memory of our participants. I asked them to remember programs they viewed a decade or more ago. Naturally, participants may have made errors in their recollection of what they watched. This will make it difficult for future research to adequately study the *true* long-term impact of educational television from the perspective of the viewer. However, I was looking to study participants' *perceptions* of the long-term impact of educational television. These perceptions may not perfectly match reality, but the fact that participants remember anything from the programs they watched a decade or more ago tells us that they do in fact have some kind of long-term impact.

Directions for Future Research

Future studies should examine the impact programs other than the four I analyzed had on children. Programs that were listed when participants chose "Other" when asked what program they watched most often in childhood included *The Wiggles*, *Clifford the Big Red Dog*, *Dragon Tales*, and *Mickey Mouse Clubhouse*, among others. Although, based on our results, programs like *Sesame Street* and *Dora the Explorer* seem to have been viewed more often by more children, it could be valuable to examine these potentially less popular programs to see what elements might make them differ from their more popular counterparts, and whether these elements are successful in the long-term.

By that same token, future studies should also examine different age groups. Studying different age groups would allow us to study perceptions of different programs, such as *Mister Rogers' Neighborhood* and *The Electric Company* for older adults, and *Daniel Tiger's Neighborhood* and *Super Why!* for younger children/adolescents who, while not yet adults themselves, no longer view those programs. Studying the long-term

impact of more programs will provide further insight as to what elements of educational television are most impactful in the long-term, and this information can be used to better develop future programs and other media that will be more effective in both the short and long-term.

In addition to different age groups, future studies should look at gender effects. Due to the nature of the population from which the sample was drawn, students taking introductory psychology courses, our sample included 145 females, 48 males, and 1 individual identifying as non-binary/other. Analyzing gender effects in this study would not have been helpful in determining any actual potential differences in gender among the programs viewed. With only 48 males and 1 individual representing the entirety of genders outside the binary, the results of analyses related to gender would not have been valid. Future studies should examine a much larger and more gender-diverse sample to test for those effects.

Finally, future studies should examine how educational television and other media may impact elements related to those brought up by participants in the open response question. Studying how educational media can impact learning of Spanish among English-speaking children or bonding between siblings, for example, could yield valuable information that could influence educational media creation for years to come.

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Appendix A: Informed Consent

Informed Consent

The following information is provided to inform you of the research project that will be conducted by **Sara Brown** (supervised by Dr. **David Saarnio**). You were selected to participate in this study as part of your research experience component (REC) in psychology.

Purpose of the study: This study is being conducted to investigate the perceived effects of childhood educational programming on the cognitive, social, and emotional outcomes of college students.

Confidentiality and limits to these assurances: Your responses to survey questions are confidential and only available to the researchers and faculty supervisor. Your name will be used to give you SONA credit and then will be separated from the data to make your responses confidential (at that point they will actually be anonymous). Additionally, even with the confidentiality, your data will not be used in research studies for other purposes.

Procedures to be followed and approximate duration: This survey will ask you about the children's educational programming you viewed as a child (e.g., what show you watched most often, viewing habits, etc.) and to rate the extent to which you believe that programming taught you certain skills. It will also ask you to rate the extent to which you believe that your parents/guardians taught you certain skills. You will also be asked some demographics questions, such as your age, race, and sex. This survey should take no more than 30 minutes to complete.

Risks: This research involves no more than minimal risk, and confidentiality will be assured.

Anticipated benefits: The anticipated benefits of this study are that we will gain a better understanding of the perceived effects of children's educational programming and what perhaps should be changed to improve its effectiveness.

Alternative procedures: If you do not wish to participate in this survey, you may select another study from the SONA system to participate in or you may participate in an alternative assignment provided to you by your Intro to Psychology professor.

Contact information: If you have any questions about this study, you can contact the person(s) below:

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This study has been reviewed and approved by Arkansas State University's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have questions or concerns regarding this study, please contact the Investigators or Advisor. If you have any questions regarding your rights as a research subject, please contact the **Director of Research Compliance** at 870-972-2694.

Your rights as a volunteer: By agreeing to participate in the study, you do not waive any rights that you have regarding access to and disclosure of your records. Your participation in this study is completely voluntary. You are free to withdraw from this study at any time without penalty. If the results of this study were to be written for publication, no identifying information will be used.

BY CONTINUING, YOU CERTIFY THAT YOU ARE 18 YEARS OLD OR OLDER, HAVE READ THE CONSENT FORM, AND AGREE TO PARTICIPATE IN THIS STUDY.

Appendix B: Full Survey

Q2: In this study, we are wanting to know more about the educational television programs you watched as a child.

Of the following, select the children's program you watched most often as a child (age 8 or younger):

- Sesame Street
- Blue's Clues
- The Magic School Bus
- Dora the Explorer
- Other:

Q3: Tell us the extent to which you agree or disagree that the program you selected taught you each of the following:

Q4: How to read

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q5: How to spell

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q6: How to write

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q7: How to count

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q8: How to do basic math

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q9: How to recognize shapes

- Strongly disagree
- Somewhat disagree

- Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q10: How to problem solve
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q11: How to use basic reasoning skills
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q12: How to observe the world
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q13: How to make predictions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q14: How to share with others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q15: How to use manners
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q16: How to understand other people's perspectives
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q17: How to solve problems without violence

- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q18: How to interact with new people
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q19: How to work cooperatively with others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q20: How to communicate with peers
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q21: How to communicate with adults
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q22: How to understand the importance of helping others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q23: How to engage in creative play with others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q24: How to recognize your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree

- Strongly agree
- Q25: How to label your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q26: How to control your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q27: How to recognize other people's emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q28: How to label other people's emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q29: How to recognize how your emotions affect others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q30: How to express your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q31: How to work through your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q32: How to respond to other people's emotions
- Strongly disagree
 - Somewhat disagree

- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q33: How to help others work through their emotions

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q34: Of the following, choose the one element of educational programming that made the program you selected the most impactful:

- Modeling of behavior
- Repetition
- Humor/fun
- Audience participation

Q35: Tell us the extent to which you agree or disagree that the program you selected had a positive impact on your life in terms of your:

Q36: Cognitive skills

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q37: Social skills

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q38: Emotional skills

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q39: About how many days per week did you watch the program you watched most often as a child?

- 0-1
- 2-3
- 4-5
- 6-7

Q40: About how many hours per day did you watch the program?

- 0-1
- 2-4
- 5-7
- 8-10

- 10+

Q41: In most households, the primary caregiver (e.g., mother, father, grandparent, other) also may have provided educational skills. Now we want to know the extent to which this person may have provided you with these skills.

Who is your primary caregiver (e.g., mother, father, grandparent, other)? List only one.

Q42: Tell us the extent to which you agree or disagree that your primary caregiver taught you each of the following:

Q43: How to read

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q44: How to spell

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q45: How to write

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q46: How to count

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q47: How to do basic math

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q48: How to recognize shapes

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q49: How to problem solve

- Strongly disagree
- Somewhat disagree

- Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q50: How to use basic reasoning skills
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q51: How to observe the world
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q52: How to make predictions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q53: How to share with others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q54: How to use manners
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q55: How to understand other people's perspectives
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q56: How to solve problems without violence
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q57: How to interact with new people

- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q58: How to work cooperatively with others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q59: How to communicate with peers
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q60: How to communicate with adults
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q61: How to understand the importance of helping others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q62: How to engage in creative play with others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q63: How to recognize your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q64: How to label your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree

- Strongly agree
- Q65: How to control your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q66: How to recognize other people's emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q67: How to label other people's emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q68: How to recognize how your emotions affect others
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q69: How to express your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q70: How to work through your emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q71: How to respond to other people's emotions
- Strongly disagree
 - Somewhat disagree
 - Neither agree nor disagree
 - Somewhat agree
 - Strongly agree
- Q72: How to help others work through their emotions
- Strongly disagree
 - Somewhat disagree

- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Q73: Please indicate your sex.

- Male
- Female
- Non-binary

Q74: Please indicate your age (e.g., 18, 20, 25, 29)

Q75: Please indicate your race/ethnicity.

- Asian
- Black/African American
- Hispanic/Latino
- Native American
- White/Caucasian
- Multiracial
- Other

Q76: Please indicate your student classification.

- Freshman
- Sophomore
- Junior
- Senior

Q77: Use the space below to tell us any other ways that the program you watched most often as a child was beneficial or meaningful to you.

Appendix C: Cognitive, Social, & Emotional Dimensions

Cognitive Dimension	Social Dimension	Emotional Dimension
How to read	How to share with others	How to recognize your emotions
How to spell	How to use manners	How to label your emotions
How to write	How to understand other people's perspectives	How to control your emotions
How to count	How to solve problems without violence	How to recognize other people's emotions
How to do basic math	How to interact with new people	How to label other people's emotions
How to recognize shapes	How to work cooperatively with others	How to recognize how your emotions affect others
How to problem solve	How to communicate with peers	How to express your emotions
How to use basic reasoning skills	How to communicate with adults	How to work through your emotions
How to observe the world	How to understand the importance of helping others	How to respond to other people's emotions
How to make predictions	How to engage in creative play with others	How to help others work through their emotions