



MULTIMEDIA RESEARCH

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Formative Evaluation
of Characters and Stories for
CYBERCHASE

Report for
WNET

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INTRODUCTION

With support from the National Science Foundation, WNET is developing a television pilot for an animated adventure series for 7-10 year olds. Entitled *Cyberchase*, the series involves a team of kids on a dangerous and fun mission in cyberspace who use problem solving and logic to save the day. This formative evaluation gathered feedback from fourth graders in response to characters and stories proposed for further development. The general goals for the formative evaluation were

- To determine appeal of the proposed animated characters, given drawings and verbal descriptions;
- To assess reactions to the cast and storylines, given two short audiotapes with black and white illustrations;
- To evaluate comprehension of the storylines;
- To estimate viewers' interest in participating in the problem solving activity;
- To compare appeal of the two stories;
- To explore viewers' impressions of what TV channel might carry the series;
- To establish appeal of problem solving at the proposed website.

METHOD

Sample

In urban and suburban settings in Portland, OR, Houston, TX, St. Paul, MN, and Miami, FL, fourth graders participated in small groups of four. Of the 49 respondents, 51% were female and 65% were white in ethnic background.

Procedure

Researchers introduced the series concept and procedure as follows:

I am working with a group of television producers who are making a television show for kids your age. The show is an animated adventure series about a team of kids in cyberspace. In each half-hour show, the wacky but nice ruler of Cyberspace, named Motherboard, finds herself with a serious problem. A group of wicked villains, who want control of cyberspace, have planted a computer virus inside of Motherboard, weakening her power. So she calls upon the help of humans. The humans that Motherboard sucks into Cyberspace to help her include girls named Julie and Inez and a boy named Kyle, all of whom are about your age. In their adventures, the kids will be traveling to cool cybersites like ancient Egypt, under the sea, to a circus, to an alien site, and to many other exciting places in cyberspace.

The villains trying to gain control of Motherboard's power include the evil Hacker and his vil-

lainous but stupid and goofy henchmen, Buggs and Delete. To restore Motherboard's power, Julie, Inez and Kyle must stop the villains in their mad mission to overcome Motherboard and win ultimate control of Cyberspace. The kids don't have Super Powers, instead they use brain power, their thinking skills and logic, to save the day and to undo the evil caused by the Hacker. In the show, the team discovers problem-solving and math are powerful tools that can outfox the villains.

The producers are just beginning to design this show - beginning to draw the animated characters and to produce story ideas for the series. They want your reactions to the ideas they have come up with so far. Today, we are going to take a look at some pictures of the animated characters and talk about them. And then we will listen to audiotapes of two stories that might be expanded into television shows, and we will talk about your reactions.

Researchers presented drawings and read descriptions for six characters: Inez, Julie, Kyle, Delete, Buggs and Hacker. Characters were rotated in order of presentation to different groups. Respondents discussed what they liked and did not like about each character. The drawings and character descriptions are given in the results section of this report.

Researchers then played in alternating order for different groups audiotapes of two stories: Poddleville and Bridge. The following introduction was used:

You are going to hear a 10 minute audiotape of a story that will eventually be expanded into a 30 minute television show, using the animated characters that we just talked about. As I play the audiotape, I am going to show you some drawings that represent some of what you would see in the animated show. The final show will be a fully animated color cartoon show, not black and white, and not still, like the drawings that you will see today.

After listening to each story, respondents discussed the appeal of the stories and the characters, their recall of the storyline and their interest in the problem solving activity. After both shows were presented, their comparative appeal was discussed.

If there was time remaining in a session, the respondents discussed what television channel might carry the series and considered whether they would like to go to the computer website to solve problems and puzzles.

Data Analysis

All data were examined with respect to gender and majority-minority group differences.

RESULTS: APPEAL OF CHARACTERS

Color and black and white drawings were shown for each of six characters while a brief description was read aloud. Respondents described what they liked and did not like about each character in turn.

Julie: These are drawings of Julie, an African-American girl who is 10 years old and lives in the city. She loves city noises and city life. She clowns around a lot. Julie likes to be dramatic and the center of attention, but she is also warm and friendly and has a big heart. Julie is a planner. She can see a path through a problem and see how Inez and Kyle's ideas can help solve a problem.



About 20% of the sample liked "everything" about Julie, but 10% did not like her at all (1 female, 4 males). More specifically, 16% liked her shoes and the way she dresses. Julie's hair and personality appealed to 14% of the kids. The table below presents categories of what kids liked. In parentheses is the number of students mentioning each item or characteristic.

What appealed about Julie:

(10) Everything	(4) Socks rolled down	(2) Hair band	(1) Open to new things
(8) Shoes - color, shape	(4) Necklace	(2) Friendly	(1) Really dramatic
(8) Way she dresses	(4) Her name	(2) Bracelet	(1) Looks like a valley girl
(7) Personality	(3) Good heart	(2) Kind	(1) Expressions
(7) Hair	(3) Pretty	(2) City girl	(1) African (not minority)
(5) Teeth - clean, huge, has all of them		(2) Definitely a cartoon face	(1) I like how she's putting her hands on her hips and she sort of looks like a gypsy.
(5) Earrings			(1) Likes red
			(1) I would like her for a friend. She can teach me lots of things. (minority)

When asked what they did not like, 20% of the sample said they liked "everything." However, 33% disliked the "spikes" or "sticks" in Julie's hairstyle; 20% disliked her shoes, suggesting flat heels; and 20% disliked her eyes, particularly the different sizes. Another 14% mentioned the "lump" on her back, and 12% thought her legs were too skinny and the "crosses" on her ears did not look right. The table below presents what did not appeal about Julie.

What did not appeal about Julie:

(16) Hair - don't like spikes/sticks / things sticking up; looks like big cactus; bad hair day; tacky	(4) Name - too normal; should have Afr-Am name; too unusual	(2) Clowns around too much-you can get in trouble that way.	(1) Not straight posture
(10) Shoes - heeled shoes, not 90's style; how can she chase villains in heels? stick up in front; make flat heels; too thick	(4) Jewelry - too much, too bulgy, too big, not Afr-Am.	(3) When gets mad, screams really loud/ looks bad mad.	(1) Draws attention to self
(10) Eyes - different sizes; too yellow; bulge out	(4) Socks rolled down	(2) Bracelet - too big	(1) She is fancy schmancy
(10) Like everything	(3) Should dress current style	(2) Arms - too skinny	(1) Earrings
(7) Lump on back of neck/back	(3) Face shape	(2) Dislike all	(1) Four fingers
(6) Legs - too skinny			
(6) Ears - crosses on ears			

Gender and ethnic background did not meaningfully affect students' opinions of Julie.

Inez:

These are drawings of Inez, an Hispanic girl who is 11 years old and lives in a suburb. She has a clever and quirky sense of humor. She's school-smart but not so street-smart; she doesn't have as much common sense as Kyle and Julie, who sometimes have to protect her from situations she gets into. Inez likes to work on and analyze problems but gets frustrated when things don't go her way.



About 16% of the sample liked "everything" about Inez, but 10% did not like her at all (2 females, 3 males). More specifically, 24% liked the way Inez dresses, 22% liked her glasses, and 18% liked that she was "school-smart." Her name and hair appealed to about 15% of the kids.

What appealed about Inez:

(12) Way she dresses	(6) Shoes/Boots	(1) Arms - long	(1) Looks like a detective
(11) Glasses - one lens larger than other; wears them; different; square; color	(5) Like nothing	(1) Ears	(1) Looks like a science girl
(9) School-smart	(4) Personality	(1) Eyes	(1) Looks like me
(8) Name - wacky not everyday; good; cool; different; fits her	(4) Smile - cool	(1) Mouth - Halloween	(1) Posture
(8) Everything	(3) Cartoony; wacky	(1) Expressions	(1) Skinny body, not fat
(7) Hair - fits her; pointy; straight	(3) Fun; funny; humorous	(1) 4 fingers	(1) Sleeves open
	(2) Pretty	(1) Face - good	

When asked what they did not like, 12% of the sample said they liked "everything." About 29% took exception to Inez's costume; 24% wanted a full five-fingered hand; 18% were irritated by her hair, particularly the small black lines and the style; 16% felt that the shoes were a bad color and style; and 14% disliked Inez's glasses and the crosses on her ears.

What did not appeal about Inez:

(14) Way she dresses - colors don't go together; shorts - too baggy, too long, not 90's; need pockets; button for vest; vest looks inflated; out of style	(6) Like everything	(2) Posture	(1) Needs socks
(12) Fingers - don't look real; not 5 fingers; want even cartoons to look real	(5) Bosses people; do everything her way	(2) Nerdy; geeky science nerd	(1) Drawn unevenly
(9) Hair - Lines look like bugs; black hair if Hispanic; stupid looking; pointy; longer and curly;	(5) Frustrated easily; sort of a dope; needs to take a timeout	(1) Looks dirty like just played outside (non-minority)	(1) Complains alot
(8) Shoes - Bad color; lumpy; stupid looking; should be tennis;	(4) Eyes - different sizes; look dead	(1) Doesn't look like she would get frustrated	(1) Dislike all
(7) Glasses - square shape; lens different sizes; look weird; needs contacts	(4) Arms and legs too skinny	(1) Nose - Rudolph shape	(1) Not street smart
(7) Ears - have crosses	(3) Needs to be nicer	(1) Teeth - has none	

Reactions to Inez were not obviously affected by gender or ethnic group, although two students, one Hispanic and one white, recommended that Inez should have black hair, which they felt was more in line with an Hispanic background.



Kyle: These are drawings of Kyle, a white boy who is 10 years old and lives in the country, not in the city or suburbs. Kyle is an explorer. He's curious and enthusiastic. He's eager and seeks new experiences, often jumping into doing something without thinking about consequences. He likes to collect things to use for solving problems. Kyle is constantly trying to show the team that his way is the best way.

About 29% of the sample liked "everything" about Kyle, but he was especially a hit with the boys. Five of 6 kids applying the word "cool" to Kyle were boys. More specifically, 29% of the sample liked the way Kyle dresses; 18% liked his name; and 14% liked his backpack. About 12% did not like Kyle (4 females, 2 male).



What kids liked about Kyle

- | | |
|------------------------------------------------------------------------------------------|-------------------------------------------|
| (14) Like everything | (2) Shoes |
| (14) Way he dresses- modern; jeans look real; wide pants cool; like my jeans; like Elvis | (2) Eyes - go really big; different sizes |
| (9) Name | (2) Facial expression |
| (7) Backpack - can put a lot of exploring stuff in there; cute | (2) Eager to do new things |
| (6) Cool | (1) Ear pierced |
| (6) Explorer; likes adventures | (1) Cartoon face |
| (6) Like nothing | (1) Lives in country |
| (4) Picks up useful things along the way; collector | (1) Only 4 fingers |
| (4) Hair | (1) Shirt - green |
| (3) Gets into trouble | (1) Sounds like me |
| | (1) Teeth |

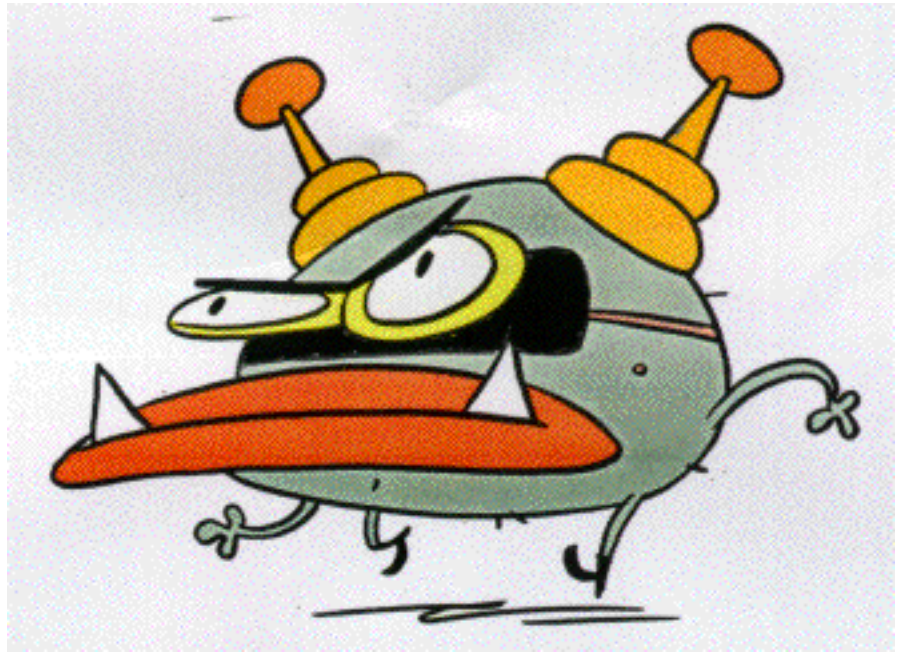
When asked what they did not like about Kyle, 12% of the sample said they liked "everything." Almost one-third (31%) of the sample would add a fifth finger; 27% were uncomfortable with the eye size differential; 22% wanted more boy-like Nike shoes in black or white; and 14% would change the "crosses" on the ears. A small group of girls (8%) felt that Kyle's mode of dress did not represent what they understood a "country" boy to wear, but note that the boys liked Kyle's dress because it mimicked their own.

What did not appeal about Kyle:

(15) Needs 5 fingers	(6) Hair - should be smooth; too long; orange color; sticks out; not current style	(5) Way he dresses - baggy jeans; pant cuffs bad	(4) Doesn't look like a country boy - needs straw hat; collared shirt; NOT baggy jeans
(13) Eyes - different sizes; too big	(6) Liked everything	(5) Mouth - teeth-lips strange	(2) Posture
(11) Shoes - use Nikes; too small; weird; color; shape	(6) Backpack or vest?	(5) Doesn't think of consequences	(2) Name - not country name
(7) Ears - crosses		(5) Know it all; thinks he's smarter	

The boys were slightly more positive toward Kyle than the girls and definitely more interested in Kyle than in Julie and Inez. There were no obvious ethnic group differences in reactions to Kyle.

Buggs: This a drawing of Buggs, who works for the evil Hacker. Buggs is messy and always argues with Delete. Buggs doesn't like to work and is always looking for shortcuts. One way the kids trip Buggs up is by putting temptation in the way - Buggs can't resist candy, a TV, a videogame, you name it. Buggs and Delete are nasty and mean, but they're also goofy because they are a bit stupid and lazy. They usually make mistakes and make the Hacker really mad.



About 29% of the sample like everything about Buggs, but 24% liked nothing. Buggs' most appealing characteristics are his teeth, noted by 16% of the sample, and his antennae, noted by 14%. Four of 5 kids applying the word "cool" to various features of Buggs were boys, but generally boys did not like Buggs more than the girls.

What appealed about Buggs:

(14) Like everything	(4) Feet - small; cool tiny little shoes; stupid so funny;	(2) Eyes -look mean; aren't attached to his head	(1) Way he is walking - looks like he is jumping or something
(12) Like nothing	(4) Can't resist candy	(2) Looks cool	(1) Eyes - green, different
(8) Teeth sticking out; sharp teeth; big; match his meanness	(4) Name - villains sometimes called Buggs in movies	(2) Mouth - big for candy that he can't resist; lips huge	(1) Looks like description - bad, mean, looking for shortcuts, spy-looking
(7) Antennas - cool shape; like they are in Dexter's lab on Cartoon Network	(3) Can't resist video games	(2) Short - like me	(1) Funny
	(3) Personality	(2) Likes TV	(1) Big neck
	(3) Hands - 3 fingers		(1) Sunglasses
			(1) Arms - small

When asked what they did not like about Buggs, 22% said they liked everything. The main complaints were about Buggs' oversized mouth/lips (24%) and the imbalance between his large body and small limbs (16%).

What did not appeal about Buggs:

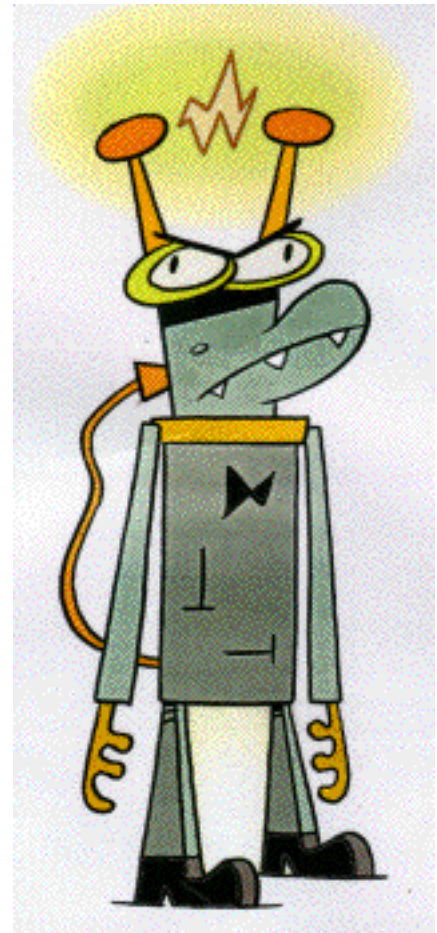
(11) Like everything	(4) Eyes - should be same	(2) Spikes on body - remove; hair in armpits	(1) Should have bad breath
(12) Mouth/Lips - too big; hangs out; doesn't fit face	(4) Pimple - remove; make bigger; make bigger or take off;	(2) Antennas - look like a beehive	(1) Wear a mask
(8) Limbs - don't fit his big body; looks like a fly	(4) Likes personality but not looks	(2) Looks like dog	(1) No neck
(5) Feet - too little; make a claw; make wheels for a robot	(4) Too short; too plump; too round		(1) Teeth - dorky
(5) Name - doesn't sound mean; make it Bug			(1) Needs 5 fingers

There were no clear differences in opinion within the subgroups of gender or ethnicity with respect to Buggs.

Delete: This is a drawing of Delete, who works for the evil Hacker. Delete is fussy and a neat freak - always concerned about personal appearance. Delete has a terrible short-term memory because of electrical discharges that bounce between Delete's ears. Buggs gets mad at Delete for just about everything. Buggs and Delete are nasty and mean, but they're also goofy because they are a bit stupid and lazy. They usually make mistakes and make the Hacker really mad.

Almost one-quarter (24%) of the sample liked everything about Delete, whereas 18% liked nothing. The features that were liked the most were the shoes (29%); the name (20%) which the kids understood to mean that he could 'delete' his enemies; the electrical charges (20%) and the wire and plug (16%), whose real function was unknown.

What kids liked about Delete



- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------|
| (14) Shoes | (3) Antennas |
| (12) Like everything | (2) Eyes - same size |
| (10) Name - good for a bad guy cuz destroy bad guys; cool; or maybe 'Devilman;' or maybe 'Shift' or 'Chip' | (2) Looks like an alligator |
| (10) Electricity - lightning bolt | (2) Eyebrows - go up |
| (9) Like nothing | (1) Lazy |
| (8) Wire - funny; tail; hearing aid | (1) Funny |
| (5) Looks like real metal | (1) Glasses |
| (5) Teeth - cool; sharp | (1) Mechanical |
| (4) Hands - really really cool - looks like arthritis; like combs; like an E; | (1) Posture |
| (3) Bow tie | (1) Creative |

When asked what they did not like about Delete, 27% said they liked everything, but 35% would change the hands, 18% would remove the wire, and 10% would change the arms.

What did not appeal about Delete:

(17) Hands - too small; weird; too stiff looking; look like axes; look like deer antlers; look like rakes; should have white gloves if so neat	(4) Teeth - more of them; robots don't have teeth	(3) Electricity - looks stupid like a W	(1) Is he supposed to be a boy or girl? Delete sounds like a boy. (says female)
(13) Like everything	(4) Shoes - don't look like robot; John Travolta shoes	(3) Looks like alligator	(1) Green stuff around antennas
(9) Wire, Tail - remove; don't understand function; retarded	(4) Bow tie - change or remove	(3) Legs - too short	(1) Can get killed too easily
(5) Arms - too long; too straight		(2) Nose - too big	(1) Looks like a cricket

Hacker: These are two versions of Hacker, who is the main villain of the show. He's wicked; he's smart, and he wants to rule all of cyberspace and take the power away from Motherboard. He makes fun of everyone and likes to play scary and wicked jokes just for fun. He has a huge ego. He thinks he's the greatest and wants more and more power. Hacker doesn't do the dirty work though. He sends his henchmen, Buggs and Delete, to do the jobs he won't do.

Which version of Hacker do you like the best? Why?

In quantitative terms, there was no preference for one Hacker version over the other. Hacker 1 elicited 51% of the votes and Hacker 2 elicited 49% of the votes.

There were no gender differences:

Hacker 1 - 12 males, 14 females

Hacker 2 - 12 males, 11 females

There was no ethnic effect:

Hacker 1 - 9 minority; 17 majority

Hacker 2 - 8 minority; 15 majority

Hacker 1



Hacker 2



Six of the 24 males (25%) described the Hacker as a "scientist" even though that term was not mentioned in the verbal description. Since children typically draw a scientist with a lab coat and pocket pens, it's easy to see how respondents might conclude from Hacker's cape and chest pocket implements that he is a scientist. Three of these 6 boys preferred Hacker 1, describing him, in part, as "a mad scientist;" "a very good scientist;" and "like the scientist on Toonsylvania." The other three boys preferred Hacker 2, describing Hacker 1 as "more like a scientist;" "an old scientist man;" and "an old grandpa but Hacker 2 looks more like a scientist." Any final design for Hacker should consider the potential for a negative model of scientists.

The table below summarizes terms used to describe what respondents liked about the Hacker versions they chose. In some cases students also described what they did not like

about the version they chose or the version they did not choose, but this was not directly asked of anyone.

Hacker 1



Hacker 2



Hacker 1		Hacker 2	
Like	Dislike	Like	Dislike
(8) Cape	(4) Pimple, mole - looks like witch	(5) Bright, Looks like he's thinking, Brainy	(3) Looks like fish
(7) Looks mean/evil	(3) Jaw drops, long chin	(4) Looks evil	(3) Legs too short
(4) Has big brain	Big head	(4) Nose - long, flingy	No brain
(4) Head -big, bald	Big nose	(4) Cape	Nose
(3) Shoes/Boots/Feet	Fingernails look like cat	(3) Looks like fish/shark	
(3) 3 Pens/Things	No personality	(2) Belt	
(2) 4 Fingers, Hand	Too few hairs	(2) Eyes - wide open	
(2) Bracelet on arm	Too many pens	(2) Teeth - sharp	
(2) Eyebrows, in V	Too skinny - should look more powerful	Cute	
(2) Eyes slant in	Too straight neck	Looks like he could fly	
(2) More like a man	Too wacky	Pants	
(2) Nose - Big/Long		Pens - 2	
Belt		Sneakier	
Legs			
Lips - like Buggs			
Mole- ugly			
Mouth			
Neck			
Pants			
Skinnier than #2			

RESULTS: PODDLEVILLE

Appeal

What did you like about this story?

More than one-quarter of the sample (27%) found most appealing the actual problem solving activity in the story; students liked the fact that the kids were smart and could solve the problem with a little help from the podling. Another 14% of the sample liked everything and could not differentiate something most appealing. Small groups of 12% each liked the whole story concept and the Poddles in particular. Small groups of 8% each liked the use of patterns and the ending blast of Buggs and Delete into Cyberspace. Although there were some gender differences, the only one that seems exceptional is the stronger spontaneous appeal of the poddles to girls than to boys. No ethnic differences were apparent.

27% Liked problem solving activity (5 males, 8 females)

I like the way they all used brain strategy.

I liked how the kids were very smart and used odd numbers to open up the back gate.

I liked that they were smart enough to figure it out.

Like that it encourages kids to think about patterns.

The way there was patterns and numbers, and you had to figure it out.

I liked that when they needed the number one triangle, they figured out what to do.

And how they fit the triangle poddle in, even though he was a little bit bigger, they squeezed him in.

I liked when Julie, she figured out the eggs - how to get into the thing. And I liked how the little podling - behind the box -helped them.

(3) I like when Julie was using her brain.

(2) I like patterns, and that they just didn't stop when one idea worked, they kept going.

14% Liked everything (3 males, 4 females)

(2) I liked everything except for Hacker.

(5) I liked everything.

12% Liked the whole story concept (3 males, 3 females)

(2) I liked the story.

It also had a good use of imagination in it. They are like savers. Some people like to watch stories where people save people and stuff like that.

I like the way the team is creative, and how they got accused for something they didn't do, but then someone is going to help them, but then they get out of it.

I liked about it that they had the poddle eggs and how they like drew the pictures and how they did the dimension thing, that they got switched.

I liked the poddle eggs and I liked how they said that the villain was mean before he was! How he roared and stuff. And another part I liked was how she pretended to be an egg.

12% Liked the Poddles, in particular (1 male, 5 females)

(3) I liked the Poddles.

(2) I liked that there was a poddling that helped them out.

I like the voice of the poddle.

8% Liked the use of patterns/math (2 males, 2 females)

(3) I liked that it was about patterns.

I liked the fact that they did it with math because math is my favorite subject.

8% Liked having Buggs and Delete blasted into Cyberspace (1 male, 3 females)

4% Liked the fact that the kids solved the puzzle (2 males)

Liked miscellaneous story sections

(2) I liked when the microwave broke and when they got sucked into something, into Poddleville.

I liked when that one guy took the chicken egg, and just the way he said it.

I liked how they didn't lose time.

I thought the shapes were cool-- how everything was the same shape, the houses, the people, etc.

Liked miscellaneous characters

I liked how motherboard was the teacher.

That the one guy, Hacker, he was trying to get the eggs but the other guys got them.

I like when Hacker talks, spit comes out flying all over.

What did you not like about this story?

Almost two-thirds (63%) of the respondents "liked everything" and were unable, despite probing, to identify anything they disliked. Small groups of 10% each disliked that the "bad guys stole the egg" (1 male, 4 females) and disliked that the kids were locked up when they really didn't steal the egg (2 males, 3 females). The remaining respondents gave a variety of other answers, as indicated below:

(2 females) Math too babyish.

(2 males) Didn't like Hacker; he was always yelling and spitting.

I think Buggs and Delete should have been sneakier.

Didn't like the name Poddleville.

Didn't like how the people in the story reacted to the energy stuff.

Didn't like anything.

Poddleville Cast

What did you think about the kids: Inez, Julie and Kyle?

Respondents' main ideas about the kids in the story of Poddleville fell into the following categories:

- 27% of the sample responded briefly that they thought the kids were "fine," "good," "okay," or were "liked."
- 20% liked that the kids "worked together as a team."
- 8% liked "the way they solved the patterns."
- 6% admired the fact that the kids "didn't argue" with each other.
- 6% liked "how Julie was willing to act as an egg."
- 6% noted that "they did good."
- 6% complained that they "don't do anything," referring to action-adventure type activities.
- 4% noted that the kids were "open to new ideas."

Other singleton responses included:

I like how they have different traits.

I think they can do any challenge.

They were smart.
I liked that they only had brain power, not other powers.
I like that they didn't give up, that they got stumped but still tried.
I like the way Inez kind of corrected the others.
It seemed like Inez was sort of a computer geeky person.

What did you think about Hacker, Delete and Buggs?

Of those kids who could verbalize their thoughts about the "bad guys", the main ideas fell into the following categories:

- 16% of the sample liked "the way that Hacker got really mad and yelled at Delete and Buggs and they ran all over trying to do it right."
- 12% thought "they did a good job acting bad."
- 12% described the 'bad guys' as "good," "pretty good," "okay."
- 6% disliked Hacker's yelling and spitting.
- 4% admired "how stupid they were."
- 4% noted that the bad guys were smarter in this show as compared to Bridge.
- 4% enjoyed the fact that Delete was forgetful.

Other singleton responses included:

I liked the way they talked, like in real life, it was believable.
I liked how Delete guessed 'a chicken egg.'
Delete is more of a slugger person. I think that Delete is a lot better than Buggs. Buggs reminds me of some stupid person who is fat and always wants to sit around and eat.
I think they was nice because Delete gave them an award for helping them, so Delete, he might not be evil, he might be the nice one out of all of them.
I didn't want them to be bad. I just wanted them to be nice.
They needed some more badness.
Liked when Buggs hit Hacker on the head.
They were kind of cool, but they said [in description] that Buggs didn't want to run or something, but from what they said on the tape, it didn't really sound like that.
Reminds me of Space Jam, the way the little creatures looked, and with one big leader.
Buggs and Delete said 'bosh' and it sounded funny and lazy.
I think they are funny.
I think they are lazy.
I think they are a bunch of chickens, and I think why they always mess up is because they are scared of Hacker, like they are really scared. [good or bad thing?] That's a good thing for the story.

Comprehension and Interest

**Describe how the kids and the podling tried to save Poodleville from the bad guys.
How did the kids and the podling open the cyberpower vault?**

All groups understood the basic story: that the bad guys wanted Poodleville's power, that the kids and the podling were trying to complete a pattern in order to keep the bad guys from getting that power, and that the pattern involved shapes and odd numbers. The groups varied significantly in their ability to recall and verbalize the details of the story, but with a little bit of directional coaching from the researchers, most could put together a coherent story that involved pattern solving of geometric shapes and odd numbers. Some group discussions are presented below:

They worked together. They worked together.

Researcher: They worked together and did what?
They saved Poddleville.
Researcher: How did they try to save it?
They tried to dress up as an egg and tried to
They dressed up Julie as an egg, a triangle egg, a number one triangle egg, instead of a real poddle egg, and then they stuck it in the place and it wouldn't fit, so they threw it to the side.
No, the idea was then they got the egg number 7 and they put it in and it went ding, ding, ding, ding.
Researcher: And what was the point of doing that?
They were trying to take over Poddleville?
Researcher: Who was trying to take over Poddleville?
The evil guy was trying to take over Poddleville. And why they dressed her up as an egg was to follow them to see where they were going to do it and to help Poddleville find the eggs and so that they could save them.
Researcher: So when you said that they went ding ding ding what happened there?
The number seven egg and then they walked over to the back because the triangle told them about it and they got some eggs and stuck them in the holes and then they threw the two bad guys into Hyperspace.
Researcher: But what happened then? When it fit?
The door blasted open and there was a blinding white light.
Researcher: So how did the kids and the podling open the cyberpower vault?
They looked at the pattern and all the eggs and they tried to keep on making the pattern go and the numbers were going down and the shapes were going what? Square, triangle, circle, square, triangle, circle. And once they got the pattern done, it flew open.

They tried to get the bad guys from stealing the eggs so they couldn't have their superpowers.
Researcher: Does that sound right to everyone? Anything else?
They had that little Buggs followed, they followed him to that big power, then Julie was like the little egg, then Buggs tried to fit it where the extra egg was supposed to fit, and she wouldn't fit so they brought it over to some sort of place and then Julie came out and a little poddle came out the back door with all these little eggs, so he came back with all these eggs and she tried to get the eggs in order and she got them in order, then that Buggs guy went zoom and chased away.
Researcher: How did the kids open the vault?
Patterns.
They were putting the pattern in.
The pattern.
Researcher: How did they do it? (No response.) Why did they talk about shapes and numbers?
Learn patterns.
So they could stop the bad guys.
Researcher: So what did they do?
They get the pattern and they go like that and they go like that (student pretends to be fitting patterns on the table).
Researcher: Participant 4, do you remember what they did?
Say, like this is an egg, they put them in order. She used the pattern and then she counted odd numbers backwards.

They got the eggs, and they put them in a cart so the bad guys couldn't get it. And they tried to stick another guy in it.
Researcher: Why were the kids at the cyberpower vault?
Because they thought the microwave got blown up.
Researcher: How did they get the cyberpower vault open?
A special code.
Researcher: What was the code?
A square, triangle, circle.
Researcher: They were talking about shapes and numbers, why did they talk about those?
So they could get the door open.
Researcher: Why was the triangle 1 important?

I give up.

Researcher: How did the kids and the podling open the cyberpower vault?

By math and they, they -

By using the pattern

(All respond) Triangle, circle, triangle, circle (repeating)

And keep going.

Researcher: You said that the shapes were important. Was there something else that was important to the pattern?

The eggs.

They worked together and if they needed help-

They did a team job.

Then if they, then if one needed help, then that person would go to the next and if that person needed help, they would go to the next and hopefully they would figure it out some way using each other's solutions and answers.

Researcher: Do you remember how the numbers were important?

They had to make a pattern. They had to do like, she had to go to the next pattern and then the next one to go down the thing.

Researcher: Do you remember what the pattern was? Like what kinds of numbers?

(All respond) One, three, five, seven, nine, eleven.

Researcher: Do you remember what kinds of numbers those were?

(All but one says) Odd.

They said two is an even number. That's what they said.

Did you try to solve any of the pattern problems in your head while you were listening to the show? If not, why not?

Over two-thirds (69%) of the listeners said that they tried to solve pattern problems while listening; most of these were boys (83% of all boys) rather than girls (56% of all girls). The gender difference here is most likely an artifact of 'showing off;' but clearly, a majority of the children were intrigued by the pattern presentations and thought about them. Many of those who did not try to solve the problems in their head said that they "wanted to listen to the story" or that they "were busy listening to the story."

Are the pattern problems ones that you think a fourth grader could solve?

All but five children (90%) felt that a fourth grader could solve the pattern problems. The retelling of the story indicated that most fourth graders could understand the pattern problems in the Poddleville story.

RESULTS: BRIDGE

Appeal

What did you like about this story?

More than one-third of the sample (35%) found most appealing the actual problem solving activity in the story; students liked the many solutions that the kids figured out to complete the bridge and get the elephant back. Another 10% of the sample were most taken with the use of bubble gum for the bridge. Small groups of 8% each liked everything and liked the kids' persistence. Small groups of 6% each liked Inez's intelligence and liked the whole story concept. No gender or ethnic differences were apparent in what respondents said they liked, but seven females could not identify anything they liked.

37% Liked problem solving activity, the bridge building (9 males, 9 females)

(6) I liked how they made the bridge.

(3) Liked the problem and the way they figured it out.

The way they all used brain strategy

I like how they knew. I like how they used how long she was.

How they made the bridge. That they thought they couldn't make the bridge with all the broken pieces, but they did.

I liked how they built that bridge, only if they were a little more apart, they could climb it like a ladder.

I liked how they used the tiles and how they made like a kitchen floor across the river.

I liked that they tried different things and had to figure it out. Like when all the pieces broke and they used it. I thought the story was good, because it showed to me the math and how they thought about it in their heads.

I liked the bridge. It was cool. I liked when they had the idea with the bridge so, that's when I think the helicopter dropped some bricks down for them. And so they had to find something to hook them on, so he, so the boy, he dugged in his pocket and he found some gum, so he was like 'everyone start chewing,' and so they started chewing until they got, until the end and then the elephant didn't want to get on, so they started singing. They started singing the song and so that's when she started dancing and everything.

I liked the part where the block was the right length of the pole and they did it and it cracked into pieces and they had to use bubble gum but it wouldn't really stick for the elephant to cross. And the part where they twirled around and the elephant trunk hits him, and I liked the part at the end.

I liked this story because it was well put and the title was good, because the main thing was that they had to build a bridge. And the math goes slowly step by step, but they should make it more specific and they should do like the Elephant is like 200 miles away.

10% Liked how they used bubble gum for the bridge (3 males, 2 females)

8% Liked everything (4 males)

8% Liked their persistence (2 males, 2 females)

(2) They were persistent.

I liked how they thought of the bridge and how they tried their hardest to get there and they didn't quit.

I liked that every time their plan was destroyed, they'd always think of another one. They didn't just stop.

6% Liked Inez (1 male, 2 females)

Liked that Inez knew that she could , it was a good storyline.

Liked that Inez was so smart and that she gave the kids ideas.
I liked how Inez thought of that stuff.

6% Liked the whole story concept (2 males, 1 female)

This story was kind of more like an adventure.

I liked the whole story. They all worked like a group to help get the elephant across. They were making a good solution.

Liked miscellaneous story sections

(2) I like how it is about technology--like that they go into a computer, and a web site

(2) I liked when the boy called her smarty-pants.

(2) I liked the song.

I liked the doggie that barked and begged and begged and begged Inez to take him for a walk. And I liked the last part where he said, "You'll never beat me Inez. Not till the next time you're in Cyberspace."

I liked whenever he was spinning around, he hit Hacker with his face and all that. With his trunk. And I liked whenever the dog was barking. And I liked whenever he was chewing the bubble gum, putting it on the board and putting all the other boards on.

I liked that they talked about jet-skis.

What did you not like about this story?

Over half (55%) of the respondents "liked everything" and were unable, despite probing, to identify anything they disliked. Another 16% of the sample disliked some certain negative behaviors of the characters and story (listed below). About 10% disliked features of characters; one group, in particular, felt that the 'bad guys' had special things to use whereas the 'good guys' did not. A small group (8%) of kids disliked part of the bridge solution, particularly the believability of using chewing gum. There were no apparent gender or ethnic differences.

16% Disliked Negative Behavior (4 males, 4 females)

The jet ski with the saw on it was too cruel, I think.

Didn't like the way the girl [Inez] was stuck up, when she said she just knew.

If they are fighting, they should at least say sorry.

Didn't like the part where Kyle called out giddy up-- like the elephant was a horse.

I didn't like the part where the elephant twirled around and hit the bad guy.

Didn't like how the elephant landed half way in the water and half way not.

About the guy, how he almost smashed the kids when he dropped it.

I didn't like how they kept on trying to destroy the planet. And I didn't get why they had to destroy the motherboard.

10% Disliked Features of Characters (2 males, 3 females)

I did not like that guy, that guy who flew the helicopter. I don't like Delete and Bugs. I didn't like them because I was jealous of them because they get to drive a helicopter and drive a motorboat. That's why I don't like them.

I don't like the fact the evil characters had things like jet skis and things. The kids use brain power but the bad guys have big tools. Why can't the evil guys just have things they take out of their hat or their shirts? I thought the kids were cool.

For all of them, they should have something, like Kyle could have shoes that ride on electricity and Julie could have a special brain power.

I think it was good, except for the part with the jet ski. Hacker had everything. Delete and Buggs should have things too, instead of just like a wire. I didn't like the way Hacker yelled, and the way the elephant spins around.

I liked everything except for Hacker has too many things, a jet ski, a ship and every time they talk

about him he has a different thing.

8% Disbelief about Bridge Solutions (1 male, 3 females)

I didn't like the gum, because it wouldn't really work to keep the elephant up. I thought he would have superglue in his pocket.

I didn't like that you could see the gum sticking out of the cracks and if they stepped on that they would trip and break the bridge.

I did not like the gum part because you would have to like leave that for 24 hours at least and it still wouldn't stick.

I didn't like how the way the things here are laying (points to picture of bridge). It would be really squishy and someone could fall through it.

6% Confusion About Parts of Story (2 males, 1 female)

A helicopter couldn't lift the huge thing.[trapeze]

I didn't like that the elephants would dance when they heard a song, it doesn't make sense.

I didn't get what India was.

4% Miscellaneous

Kind of babyish. Not really interesting.

The only thing is like, where is the math? The only thing I heard was that there was 16 squares and how did they get there? What I think that you should have on this show is a title that tells you it's about an elephant, so in the beginning it will tell what the story is about. I think they should have a problem, like Inez hurt her arm and then she needs help. Since it's a math show, each kid should be better at a different kind of math, Like Inez could be good at adding, Kyle could be good at subtracting (etc.).

Cast

What did you think about the kids: Inez, Julie and Kyle?

Respondents' main ideas about the kids in the story of Bridge fell into the following categories:

- 20% of the sample responded briefly that they "liked the kids."
- 22% liked that the kids were "smart;" "figured stuff out;" "solved problems."
- 18% liked that the kids "worked together as a team."
- 8% said Kyle was "cool" because he "thought of using gum."
- 8% noted that Inez was "smart."
- 6% disliked that Inez "yelled" at the other kids.
- 4% felt that the kids needed to cooperate more.
- 4% admired their perseverance in making the bridge.
- 4% recommended that the kids needed "special tools" like the bad guys.

What did you think about Hacker, Delete and Buggs?

Main ideas about the 'bad guys' fell into the following categories:

- 29% described the 'bad guys' as "good," "pretty good," "okay."
- 6% "I like the way they found a way to destroy what the kids were doing."
- 4% of the sample liked "the way that Hacker got mad and yelled at Delete and Buggs."
- 4% disliked Hacker's yelling.
- 4% admired "how stupid they were."
- 4% noted that the bad guys were smarter in this show as compared to Poddle.

Other singleton responses included:

I think they had a hard time, I like that.

Hacker didn't act that smart I think he should be more sophisticated, like he shouldn't have jumped up to grab the diamond.

If you ever watch Sonic, they really fit good, cuz if you ever watch Sonic, he has his evil villains do the same thing.

I like the way they let the kids get away with it.

I thought they weren't too realistic.

Comprehension and Interest

Describe how the kids were trying to save the elephant.

Describe how they made something to cross the river.

All groups understood the basic story: that the bad guys wanted the elephant's diamond and the kids were trying to recover the elephant by building a bridge to the island where it had been left by the bad guys. The groups varied significantly in their ability to recall and verbalize the details of the actual building of the bridge, but with a little bit of directional coaching from the researchers, most could put together a coherent story that involved measurement and problem solving. Some group discussions are presented below:

They made a bridge.

They did team work.

They followed the guy, Bugs and Delete, and they followed them and they made, there was that itsy bitsy island for the elephant to sit on, and they went and built a bridge with sticks and gum. They made a bridge that was checkered and the bridge if it didn't get ruined, they could have took it and made the biggest checkered board in the world.

They made a bridge so the elephant could get across but the elephant couldn't get across.

They took the trapeze seat and they were going to put it all the way across, but the evil Hacker guy, he took like tweezer things.

No that was Bugs and Delete.

And they took the trapeze seat, and it was all in squares so they made a bridge to get to the other side.

But they couldn't get the elephant to move so they had to sing.

Well I like how they thought about doing it.

Researcher: How do you mean that?

How they put their minds together and used their minds, not other peoples' ideas.

They tried to make a bridge to get across.

They tried to build a bridge, they sung to him so he would start dancing across and at the end of the song, he twirled around and hit Hacker in the face and knocked him off the bridge.

Researcher: Anything else about how they tried to save the elephant?

Well I think that building the bridge was really smart, but the way they did it with the gum, it wouldn't happen in real life, but for a cartoon I think it was a good idea. Five year olds would like the show. And so would I.

Researcher: What about the way that they crossed the river?

You know what I don't get is how she was on the other side and they got way over there without the bridge being made yet.

They tried to get stakes as the sand link and they tried to measure, and actually they took a piece of string or something and then they threw it across, and then they hit that and then they took pieces of sticks that were the same length and they couldn't do it, so Julie she got down and then she went to that little box thing to measure it and then, same length, so they picked it up, and then that guy dropped it and it broke into a lot of little pieces and the kid, he had a good idea, he got some bubble gum, then he chewed it a little bit and then he started putting it on there so they stuck it together so the elephant could get across.

They made a bridge to walk across it.

I think they used a little math in it.

Researcher: How did they use math in it?

Inez, when she laid on the ground to get measured. That's something like math.

She was measuring a brick.

And with her dog's leash and with Julie.

Researcher: So why were they doing that? What were they trying to do?

They tried to save the elephant because if she would have walked and fallen in the water, those little rats would have ate her. So they saved her.

Researchers: And, can you tell me how they made something to cross the river?

They made a bridge. He got lots of gum out of his pocket and they chewed it and put pieces of gum on the sticks. But I think the sticks and the bricks and gum was a good idea making a bridge because if there was, if he wouldn't have any gum, or if they wouldn't have had any sticks, the elephant would have stayed there.

Researcher: So why was the trapeze seat important? What did they do with the trapeze seat?

(pause) It didn't fit, did it?

All answered: No.

Researcher: So how did they make it fit?

By Buggs and Delete breaking it. And they broke it into pieces so it fit, and all sixteen pieces fit into the space.

And he had sixteen pieces of gum in the pocket.

Researcher: Were all those pieces the same size as the original, if you put it all together?

All answered: Yeah.

Did you try to think of different ways to solve this problem in your head while you were listening to the show? If not, why not?

About half of the sample said they thought of different ways to solve the problem while listening; the other half were interested in the methods that the kids were using.

Is the problem of how to cross the river a problem that you think a fourth grader could solve?

About one-quarter of the sample felt that the problem was difficult for a fourth grader to solve without some help. A few students pointed out that the 'bad guys' really helped the kids: "But they [the kids] couldn't really do it by themselves, if the bad guys didn't stop them, cuz they are the guys that really gave them the ideas, like breaking it into 16 different pieces."

COMPARATIVE APPEAL OF STORIES

Which of the two shows did you like the best? Why did you like that one the best?

Of 48 fourth graders who could make a choice, 58% liked Poddleville the best and 42% like Bridge the best. Poodleville appears to be preferred by both males (n= 14) and females (n=14) equally, whereas Bridge elicited slightly more female than male votes (11 vs. 9). The minority subsample did not prefer one show over the other.

Those who chose Poddleville focused mostly on the puzzle solving:

How they solved different puzzles with shapes and numbers.

Put even more mind into it.

Did a lot of problem solving that other kids could try to solve as they watched the show.

Fit shapes.

They fit all those shapes in the eggs.

I liked the story. I really liked that it's a whole new subject about patterns. I think it was nice.

I think it was a good story. i think this was a tiny bit better. There was more math, and things happening. I liked the story a lot.

Other miscellaneous reasons mentioned included:

How they worked as a team.

How the evil ones were really scared.

A lot more detail.

More adventure to it.

How they disguised themselves.

How they zipped and zapped into cyberspace at the end.

The story was extremely cute. And a lot of people like cute stories. The kids were alot better in this story than Bridge. They had more lines and it was more suspenseful.

Those who preferred Bridge focused on the problem solving also:

I like idea of building a bridge.

They had to get the elephant to the other side.

Because when the elephant couldn't get over, they put sticks right there. So they put gum, then they put some wood (retells solution).

They had to put cardboards down so they could get across the bridge.

They used lots and lots of information on how to do it. They used gum, they used bricks and sticks.

It was a little bit higher math. The eggs story was a little bit babyish.

It was a little bit more challenging and more like an adventure. Poddleville went on, and on, and on, and on.

At the same time, students also mentioned liking individual elements of the story or the whole story:

They danced around and across the bridge, hitting the Hacker in the face.

It had an elephant and bubble gum.

It had the elephant and I liked the song and Delete and Buggs were trying to get the diamond.

I liked this story better. Because they talked about Jet-skis.

It was more better and more shorter, more funner, and more exciting.

This story was kind of more like an adventure.

WHAT TV CHANNEL MIGHT CARRY THE SERIES

Due to time constraints, not all students answered the question of what channel might carry the series. The most frequently mentioned station was Nickelodeon (27%) followed by PBS (20%) with a few people suggesting Cartoon Network, Fox Kids and Disney.

APPEAL OF PROBLEM SOLVING AT THE PROPOSED WEBSITE.

The following was asked of 24 students: "The *Cyberchase* computer website has problems and puzzles like the ones that Inez, Julie and Kyle solved. Would you like to go to the website to try to solve those problems and puzzles?" All but one of the 24 students answered 'yes.'