

MAP: TV CHARACTER AND VISUAL REPRESENTATION OF SPACE

James R. Carter, Ph.D., Emeritus Professor
Geography-Geology Department
Illinois State University
Normal, IL 61970-4400 USA
jrcarter@ilstu.edu

Abstract

Introduction

Every day millions of preschool children watch the television show *Dora the Explorer* where the animated character Map shows viewers how to get to a destination. Map appears as a roll of paper with a mouth, eyes, and eye brows and is very talkative and physically active. Map the character stands above a map-like representation of the fantasy landscape and points out the route viewers need to follow to get to the destination. Viewers are called on to guide Dora to reach the destination.

Objectives

There are more than 110 episodes of *Dora the Explorer* and in every episode Map plays this same role. The objective of this study is to examine the maps and mapping as seen in this unique map use environment by preschool children. Reports show that young children understand the use of maps in this environment.

Methodology

The author has viewed and taken notes on more than half of the television programs and has written about *Dora the Explorer* serving as a teacher of geography to preschoolers. The creators of the series discuss the concepts that went into creating the programs. Their responses to a series of questions reveal that maps serve as a 'cognitive organizer' to give the program a consistent format and to address the visual/spatial intelligence component of the multiple intelligences incorporated into each episode.

Results

Map as a character and a representation of space has become an important part of this very popular television program for very young children. As such, these young viewers are introduced to the concept of a map and the use of maps. The cartographic and psychological literature has only recently come to recognize that such young children could comprehend the concept and use of maps.

A number of factors are combined to make the presentation and use of maps effective. The maps in their design and style are consistent across every episode. Every step in the introduction of the maps is presented at least three times by the character Map, who has a personality that appeals to

the young children. In testing by the creators they found that they had to provide paths between the steps along the way so that viewers could make the links between places.

Because of the care and consistency in the presentation of maps, it is hypothesized that young children who watch *Dora the Explorer* should be able to understand the use of maps as well as they understand the use of two languages, and the introductions of colors, shapes and numerals, which are also presented in the series.

While Map serves to instruct viewers on the route to follow, he also has a personality. In a few episodes, Map is a protagonist in the story and does great feats. Map always has the ability to show us where to go to solve the problem. Thankfully, he is never in error and no one on the program has trouble reading the map.

Conclusions

This paper focuses on Map which is an internationally known television entity in two forms in the *Dora the Explorer* series. He is little known to cartographers but is well known to millions of preschool children. We should know about this dual representation of maps because many children are getting their introduction to maps via this television program.

Introduction

Every day millions of young children around the world watch the cartoon program *Dora the Explorer* on cable television or on a DVD. The program is produced by Nickelodeon and is shown on their channels and is sometimes available on other channels. A few of the more than 110 episodes (tv.com, 2009) are on DVDs. The program is bilingual, with the primary language appropriate to the local viewing audience and a secondary language. In the USA the primary language is English and the secondary is Spanish. In Chile it is the opposite. In India I have seen *Dora the Explorer* in Hindi and English. It is shown around the world in many languages. (Carter, 2008)

Dora the Explorer first appeared on television in 2000 and has become very popular, especially for children from 2 to 5 years. Dora is a seven year old Latina. She is accompanied by a retinue of animated characters such as Boots the monkey, Swiper the mischievous fox, and a number of other animals. We do get to see her Mama, Papi and Abuela on occasion. In recent years we often see her cousin Diego, who has gone on to be the star of *Go, Diego, Go!*

The creators of Dora gave her a backpack which she wears all of the time. Her backpack is magic in that it provides the resources Dora needs to solve any task that she confronts. Early in each episode Dora and Boots encounter a problem or situation that needs to be corrected. In all cases they have to go someplace to address the problem, be it taking a gift to Santa Claus at the North Pole, to deliver pieces of a magic flute to Pablo on his remote mountain farm, or to take friendship bracelets to children around the world. To find out how to get there, Dora turns to the young viewers and states: "Who do we ask for help when we don't know which way to go?"

Young viewers are supposed to call out “Map” and then the character Map peeks out of his pocket in Dora’s backpack. As a character Map is a rolled-up tube of paper standing vertical. He has a mouth, two eyes and eyebrows and sings and talks. He moves around easily but has no appendages to aid locomotion. Although appearing to be asexual, Map is referred to as ‘he’ on occasion and so I refer to Map as a male.

As children continue to shout his name, Map jumps out of the backpack and emerges on a colorful map on the screen singing his signature song: Figures 1 and 2 “If there’s a place you gotta go, I’m the one you need to know. I’m the map, I’m the map, I’m the map, I’m the map.”



Figure 1 -- Map becomes Super Map when donning the red cape. Here the river is highlighted as Map leads viewers through the route to follow to get to Dora’s house. From the Super Map episode.



Figure 2 -- Map employs a global perspective as he directs viewers to go to France, Tanzania, Russia and China. From Dora’s World Adventures episode.

As appropriate, Map then gives an overview of the situation before telling viewers at least three times to go through the woods, then down the River to get to her house, and returns to singing “I’m the map, I’m the map, . . . If there’s a place you gotta get, I can get you there I bet, I’m the map, I’m the map, I’m the map . . .” and on and on. (Carter, 2007)

In most cases once Map comes out of the backpack and starts to sing his song, a spatial map appears on the screen behind map. (Figures 1 and 2) With few exceptions these flat maps are represented as being a piece of paper standing above the background as indicated by a drop-shadow and having one corner turned down as illustrated in Figure 1. The global representation of Earth in Figure 2 is one exception, but it is still a map representation.

Focus on Preschoolers

The purpose of this paper is to look at the role of maps and mapping as employed in the television program *Dora the Explorer* which is designed to be seen by young children. I was introduced to this program when a former student informed me his 18-month old son knows what a map is because he watches *Dora the Explorer*. I felt compelled to check out the program.

I watched a few episodes on television and started asking parents, geographers and cartographers about the program. Parents often gave me insightful feedback, but the professionals knew little about it. I posted an email to colleagues of the ICA Commission on Cartography and Children and received a reply from a person in Indonesia that *Dora the Explorer* is very popular there. I was able to view *Dora the Explorer* in Chile and Mexico. Then a colleague mentioned his three-year old daughter asked him about Tanzania after watching a *Dora the Explorer* DVD. I concluded that something important is going on and wrote: "Dora the Explorer: Preschool Geographic Educator." (Carter, 2008)

The key factor is that the program is targeted at preschoolers. Nickelodeon through NickJr maintains a web site where the creators of the program explain the background behind the creation of the series for such young people. They write:

"Preschoolers are our least powerful citizens. They can't reach the light switch; they have trouble pouring the milk on their cereal. They're faced with obstacles throughout their day and it can get pretty discouraging. Problem-solving strategies like stopping to think, asking for help, and using what you know are modelled in every Dora show." "*Dora the Explorer* teaches children basic Spanish words and phrases along with math and music skills and physical coordination. Children also learn with Dora how to observe situations and solve problems." (NickJr, 2007)

A great amount of research goes into producing every program, including testing on preschoolers. The show's curriculum is "based on Howard Gardner's ideas about multiple intelligences. In every episode we incorporate 7 different learning "intelligences" such as logical/mathematical, musical/auditory, and bodily/kinaesthetic. We script the show so little kids actively use each intelligence to help Dora and Boots." (ibid.)

Although the creators do not mention spatial intelligence in their online statement, it is one of the intelligences articulated by Gardner who wrote "Spatial problem solving is required for navigation and in the use of the notational system of maps." (Gardner, 1993, 21) The consistent use of maps on the program *Dora the Explorer* provides the focus on spatial intelligence. Gardner developed his theory relative to the practice of education. As such, his concern with spatial intelligence is quite comparable to the arguments of Balachin (1977) promoting Graphicacy, a term well known to cartographers.

In the television program *Blue's Clues*, Nickelodeon developed the practice of having children talk back to the characters on the screen to give answers. When they developed *Dora the Explorer* they continued the practice of giving these young children a role in the direction of the program (Toronto Star, 2005). Thus, when Dora asks "Who do we ask for help when we don't know which way to go?" the young viewers are compelled to yell 'Map.' By calling out Map the character emerges from backpack and displays the spatial map for the program. Map shows viewers how to follow the map to get to the destination and asks them to tell Dora how to get there. It is important to note that Map does not tell Dora how to get to the destination but gives viewers the information which they are empowered and compelled to pass on to Dora.

These programs which are designed to get children to talk to and interact with the characters on the screen certainly appeal to children of the target age. But, it also is the probable reason children abandon the programs when they get to be five or six years old. At that age they suddenly become too mature to talk to cartoon characters on the television screen.

Use and Presentation of Maps on Dora

Recently I corresponded with the creators and research staff of the *Dora the Explorer* program to ask them about the use of maps in every program. In addition to the spatial intelligence aspect, they reported the consistent use of maps in each program serves as a “cognitive organizer.” (Diaz-Wionczek, 2009) In each episode the viewers have the task of calling out Map early in the program, viewing a map display of where they need to go, and then telling Dora how to get to the goal. While this routine gives young children a comfortable framework for each episode, it also builds the concept of consulting a map before setting out on an adventure. I consider this a significant step in teaching about maps and map use.

When Map shows viewers the route to follow he goes through the entire process at least three times. Most of the episodes of *Dora the Explorer* are about 23 minutes long including the introductions and credits. In each episode more than a minute is devoted to the presence of Map on the screen singing his song and telling viewers how to get to where they need to go. Thus, more than 5 percent of the screen time is devoted to Map interacting with the viewers and showing the spatial map for directions.. In most cases, once Map has given his instructions that is the last we see of him.

“The orientation of the map has a lot to do with the format of the show. Dora always travels from left to right, so the map typically starts on the left and ends on the right. Also, in TV format, objects located at the bottom of the screen are closer and objects higher up are far away. The layout of the map follows this format (bottom left is closer and top right is further away). An interesting thing we found while testing the story concepts with children was that we needed to connect the locations (with a path) if we wanted children to look at the map and tell the journey.” (Diaz-Wionczek, 2009) See Figure 1 as an example of this format.

There are many ways the producers could have employed maps in the program and I appreciate the way they do it. They recognize that viewing maps on television creates a unique map use environment (Carter, 2005). In most television programming, if maps are employed they normally appear on a television screen for a few seconds and then disappear. When maps appear in that fashion, viewers have to quickly realize they are viewing a map and need to determine what area and subject is being shown. At some point the map will be removed from the screen and there will be no way to get back to the map. By contrast, in *Dora the Explorer* the map is presented at about the same time and in a similar fashion in every episode. And, the maps are generally consistent in their design. As a map use environment on television, this presentation of maps is similar to that of television weather programming where viewers tune in day after day to view new content on maps of a consistent style and format (Carter, 1998). I think it is not incidental that maps are presented in a consistent fashion on *The Weather Channel* in the United States and on *Dora the Explorer* around the world and both programs are very popular.

Children and Television

We know there is considerable controversy over the place of television in the lives of young children. Many parents keep their children away from television for their first few years, while other children are constantly exposed to television from day one. The American Academy of Pediatrics recommended in 1999 that children younger than 2 years of age should not be exposed to television. (Anderson and Pempek, 2005, 505) They do suggest that proper programming “could in principle be educational for very young children and have positive impact in addition to or instead of the presumed negative impact.” (ibid., 506)

In a controlled experiment of the effects of television viewing on language development by infants and children over time, Linebarger and Walker (2005) systematically examined 51 subjects every three months over two years as they moved from age 6 months to 30 months. They observed that on average these youngsters started to pay attention to television at about age 9 months. By about age 18 months they increased their amount of viewing (ibid., 638).

To observe the effects of different types of television presentations on children, Linebarger and Walker grouped individual programs into types. *Dora the Explorer* and *Blue’s Clues* were combined into a single type because these two programs have “onscreen characters speak directly to the child, actively elicit participation, label objects, and provide opportunities to respond”. (ibid., 639) They found that children of age 30 months who watched these two programs from Nickelodeon had the most significant increase in vocabulary words of all groups of children. Most important, their vocabulary words were well above those of non-viewers of television. However, the vocabulary development in children who watched some popular children television programs was negative, being below those who watch no television. Linebarger and Walker emphasize that repeated and consistent activities are required for infants to “acquire new skills and understand concepts.” (ibid., 626) I suspect the positive effects on children who watch these two programs on Nickelodeon is directly related to the fact the creators chose to employ repetitive and consistent presentations in every episode.

Young Children’s Abilities to Use Maps

“.. it is important to encourage children’s understanding of maps as soon as they are able to appreciate the idea that a map can represent part of the world around them. Realizing that a map can stand for something else is the first step in recognizing the importance of representations, and the starting point for learning how to use maps as sources of information about the world.” (Blades, Sowden and Spencer, 1995, 18).

These authors review the literature on maps and young children, noting that it was long held that children younger than about seven years would have no competence with maps. But by the 1980s evidence was accumulating that younger children were able to understand maps.

In 2003 two of those researchers along with two other researchers took their many years of research to another level. After reviewing seven controlled studies examining the abilities of

young children to use vertical air photos or to set up spatially-oriented play environments, these authors hypothesize that the ability to map and use maps “is a universal in culture, is part of the cognitive development of children everywhere.” (Blaut, et al., 2003, 166) If this is so, then the way Dora and Map take viewers through the on-screen map environments should build on their inherent capabilities. Based on their theory, the children who watch *Dora the Explorer* should be able to understand the use of maps as well as they understand the use of two languages, and the introductions of colors, shapes and numerals.

It is reasonable to assume that children understand of the use of maps as presented in *Dora the Explorer*. It is probable that for many of the younger children this is their first exposure to maps and that watching the program over the years develops a competency in this type of map use in the television environment. It is fair to ask how the learning of this type of map use carries over to way-finding in the real world on the ground. Obviously, some children get it for there are those stories of young children asking their parents to draw “a map—the bank, the grocery store—so they can track their routes as Dora does” (McGinn, 2002, 54). But, we must recognize, as Map interacts with viewers and instructs them to tell Dora what route to take, it makes no difference if a child does or does not perform for the show will go on. Dora will go where she needs to go whether any or all children give her the correct directions. Enjoying the program is not a test of a child’s ability to use the maps.

Map as a Protagonist

In the episode ‘Lost Map’ the character Map is captured by a goofy bird to be used to line his nest. As Map is carried aloft he tells Dora to make her own map to find him. She turns to her backpack to get paper and marker and sketches the route, passing by the butterfly garden and the corn field. After everyone gets to the mountain and Map is back, Dora shows him the map she made. We see her map close-up and Map praises her for her map. This act of Dora drawing her own map has to be a big step in demonstrating that a diagram can represent a larger world. Figure 4 illustrates this very well. This episode is quite popular and is the main entry on the DVD entitled ‘Map Adventure’ (Nickelodeon, 2003). In addition in this episode viewers see two maps on signs to help them get through the butterfly garden and the cornfield.



Figure 3 -- As Map is carried away by a bird, he tells Dora she should make her own map to find him. From Lost Map episode.



Figure 4 – Dora sketches her own map to determine how to get to Tallest Mountain to rescue Map. From Lost Map episode.

Map as a character was given a personality. As he steps viewers through the route to follow on the map his eyes shift to focus on the illuminated sites, as is illustrated in Figure 1. Map sings his song forcefully. He gives directions with authority. In many cases he ends his time on screen by singing his song and with the last use of 'map' he moves toward the screen and his red mouth covers the entire screen. This is a clear transition into the next step in the episode, but it gives Map a strong and dominant presence which some consider to be a little offensive. I queried the creators about the strong personality of Map, and they responded: "We don't think of Map that way at all! And I don't think kids ever found map offensive during testing. In fact, our research shows that children love him and his energy. He helps make each location feel different and exciting. The voice and the energy have to carry the map scene and keep kids engaged, being that they were looking at an almost static picture on their TV." (Diaz-Wionczek, 2009) Indeed, to keep young children interested in looking at a map on a television screen for more than a minute requires a dynamic personality. Map seems to fill that role very well.

Map is all knowing – thus he knows where to find kitty in a tree. He can find anything that Dora wants to find. Boots was waiting for a new fire truck, but the mailman lost it along the way. No worry, for Map knew it was on top of Snowy Mountain. I hope children do not come to believe that maps have infinite wisdom. On the other hand it is good for cartography that maps are seen as very useful tools by these youngsters. And, in this program the map has never been in error and Dora and her friends have never had trouble reading the map.

Distance seems to be of no concern, and thus the scale of the maps. Dora can always get where she needs to be within the time frame of the program. In World Adventure, Figure 2, she sets out from probably North America? Where do we find France? The Earth tilts and we see the Eiffel Tower in the distance across the water. She goes from France to Tanzania on a motor bike. Dora never seems to be in a hurry and she always gets to where she needs to be in time.

In the Super Map episode (Nickelodeon, 2003), Map finds a cape and puts it on. He becomes empowered and is able to fly and do great things. Thus, he is a protagonist in the program. When trees block the view along the trail, Map pushes the trees apart to let us see where we need to go. In another case he blows the clouds away. But, he helps Dora get back home and partakes in the celebration. We see Map going down the slide with Dora and Boots. We see Dora's Mama cuddling Map and everyone smiling. In another episode Dora gives Map a big hug.

Another Perspective on the Maps in *Dora the Explorer*

Much of the limited scholarly literature on *Dora the Explorer* focuses on the bilingual programming and the representation of Latina/os. Of particular note is this statement:

"The next spatial cue comes when Dora reads the talking map with the audience so that they can negotiate space and plan their adventures as part of an interactive learning process. . . . Attentiveness to space and maps demonstrates how historically "cartography is about locating, indentifying and bounding phenomena and thereby situating events, processes and things within a coherent spatial frame." (Harvey, 2001, 220) Cartography has always been about power relations. Cartography facilitated the colonization of the

New World. How ironic, then, that a seven-year-old Latina animated character would be teaching cartography (especially as a mechanism for problem solving) to children across the globe.” (Guidotti-Hernandez, 2007, 221)

Guidotti-Hernandez has even more to say on this topic. Obviously, the positive value of maps the creators saw, is not the focus shared by everyone.

Conclusions

Persons who are concerned with teaching map reading skills and the concepts of a map should pay close attention to the more than 110 episodes of *Dora the Explorer* on television. This well researched program for children ages 2 to 5 uses a map reading activity in every episode as a ‘cognitive organizer’ to give continuity to all of the shows and to address the spatial intelligence component in their research design. The designers of the programs note that in testing viewers, the children understand the maps. Thus, the program seems to be successful in introducing the concepts of maps and map use for children of this age range.

The way the creators of *Dora the Explorer* employ maps in each episode has much to do with the fact that maps are understood by most viewers. They found that repeating introductions three times is optimal and the maps employed in each episode are of a consistent design and style. As such they recognize that showing maps on television is a unique viewing environment that demands special accommodations. In that regard they make accommodations similar to the best of the television weather presentations.

Because this program is seen by tens of millions of young children around the world it should represent a significant step in our efforts to teach children how to read maps. We owe it to ourselves to evaluate what the young viewers of this television program learn and how that learning translates into the use of other types of maps.

Photos used with permission of Nickelodeon

References

- Anderson, Daniel R. and Tiffany A. Pempek, 2005, Television and Very Young Children. *American Behavioral Scientist*. 48, pp.505-522.
- Balachin, W. G. V., 1977. Graphicacy. *The American Cartographer*, 3(1), pp.33-38.
- Blades, Mark, Sowden, Steve, and Spencer, Christopher, 1996. Young Children’s Use of Spatial Relationships in Tasks with Maps and Models. *Cartographica, Monograph 46, Orienting Ourselves in Space: Implications for the School Curriculum*, 32(2), pp.18-29.
- Blaut, James M., David Stea, Christopher Spencer, Mark Blades, 2003. Mapping as a Cultural and Cognitive Universal. *Annals of the Association of American Geographers*, 93(1), pp.165-185.
- Carter, James R., 1998. Uses, Users and Use Environments of Television Maps. *Cartographic Perspectives*, 8, Spring 1998, pp.18-37.
- Carter, James R., 2005. The Many Dimensions of Map Use. *Proceedings, International Cartographic Conference*, A Coruna, Spain 2005, on CD, Theme 12, Session 3, 9 pages.

- Carter, James R., 2007. Notes by author on viewing episodes of *Dora the Explorer* on television.
- Carter, James R., 2008. Dora the Explorer: Preschool Geographic Educator. *Journal of Geography*, 107, pp.77-86.
- Diaz-Wionczek, Mariana, 2009. Response to my questionnaire from Director of Research and Development *Dora the Explorer* and *Go, Diego, Go!* [Email] (personal communication 20 February 2009)
- Gardner, Howard, 1993. *Multiple Intelligences: The Theory in Practice*. New York: Basic Books.
- Guidotti-Hernandez, Nicole M., 2007. Dora the Explorer, Constructing ‘LATINIDADES’ and the Politics of Global Citizenship. *Latino Studies*, 5, pp.209-232.
- Harvey, David, 2001. *Spaces of Capital: Towards a Critical Geography*. New York: Routledge.
- Linebarger, Deborah L. and Dale Walker, 2005. Infants’ and Toddlers’ Television Viewing and Language Outcomes. *American Behavioral Scientist*, 48, pp.624-645.
- McGinn, Daniel, 2002, Guilt Free TV. *Newsweek*, Nov. 11, 2002, pp.53-59.
- Nickelodeon., 2003. *Dora the Explorer, Map Adventurers*. DVD and VHS movie
- Nickelodeon., 2006. *Dora the Explorer, World Adventure*. DVD
- NickJr, 2007. *Dora the Explorer: All About and Show Creators*
 [online] Available at: <http://www.nickjr.co.uk/shows/dora/more.aspx#creators> [Accessed 25 April 2009].
- Toronto Star, 2005. Dora explores new TV territory: Can You Spot Dora’s Secret? *The Toronto Star*, May 29, 2005, Entertainment Section, p. C04tv.com., 2009. Dora the Explorer; Episode Guide. [online] Available at:
http://www.tv.com/dora-the-explorer/show/2817/episode_guide.html [accessed at 7 July 2009].

We instead rely on visual feature maps and a character-based language model with contextualized embeddings which could handle any unseen word considering the context in the sentence. 2.2. Mapping to common space. Attention has proved its effectiveness in many visual and language tasks [23, 1, 7, 52, 50], it is designed to capture a better representation of image-sentence pairs based on their interactions. The Accumulated Attention method [8] propose to estimate attention on sentences, objects and visual feature maps in an iterative fashion, where at each iteration the attention of the other two modalities is exploited as guidance.