

# Formal Features of Canadian Sesame Street Segments

Richard F. Lewis

**Abstract:** The CBC Sesame Street program aired in Canada contains segments produced in all regions of the country. The study sought to determine production differences in segments produced in the regions. Using a stop-frame VCR, the author performed a detailed content analysis on the 1985 production year, consisting of 41 segments. The average segments lasted 103 seconds but larger production centres had longer segments than the smaller ones. Eleven of the segments contained cues which identified the city or region. Narrative or demonstration formats were used for most segments. Twenty-eight segments used an urban locale, eight used a rural one. In the segments which presented French, many different formats were used. Regions should continue to produce segments which reflect their character and which include multicultural and bilingual content.

**Resume:** La Société Radio-Canada Sesame Street essaie de nous montrer la diversité régionale au Canada, les segments sont produits dans ces régions. Cette étude détermine, à l'aide d'une illustration d'une diversité régionale, jusqu'à quel degré l'objectif a pu être réalisé. L'année 1985 a été choisie pour ces segments. Le nombre de photos par minute, la distance entre le sujet et l'appareil-photo, le genre de production (narratif ou subjectif) et l'emploi des effets particuliers ont été utilisés pour comparer les variables de production. Les segments moyens durent 103 secondes. Les prises de vue moyennes et en gros plan étaient servies pour la plupart des segments. On utilisait un genre d'effets particuliers pour plusieurs morceaux. Le lieu n'était pas donc la question se pose à ce qui concerne le but d'une représentation régionale. Des images des minorités visibles comprenaient plusieurs segments. Des recommandations pour le renforcement d'une représentation régionale dans les segments sont indiquées à la fin de ce résumé.

---

With increasing realization that television imposes a form on its content, research emphasis has shifted to formal features of the medium, i.e., characteristics which mold and shape a message (Rice, Huston, and Wright, 1983; Calvert, et. al., 1982). Formal features signal production conventions: a code which a literate viewer can use as a guide to interpret content (Huston and Wright, 1983). They form the grammar and syntax of television. Formal features can serve as organizational aids for attention, information acquisition and affective aspects of messages (Huston and Wright, 1983). Formal features include types of camera shots, visual effects and soundtracks. US. television

programs have been analyzed so that their formal features can be documented (Huston et. al., 1981; Mielke, 1990). Other studies have linked formal features to attention and comprehension (Anderson and Levin, 1976; Strommen and Revelle, 1990; Lovelace, 1990; Link and Cherow-O'Leary, 1990).

This study had three objectives: to describe the formal features of one production year of CBC Sesame Street, to determine differences between the segments produced in the regions and to determine the degree and methods of regional reflection used in the various segments.

A content analysis of Sesame Street segments produced from 1972 to 1982 described the length and format of segments, the goal area which the segment addressed and the region in which segments were produced (Caron-Bouchard and Bouchard, 1982). Based on the production location, the authors concluded that Sesame Street represented regional diversity and Canadian culture. Since the study was not based on segment content, but on the number of segments produced at each location, a more detailed analysis was needed to determine whether segments actually reflected their region.

### *CBC Sesame Street*

The CBC has aired Sesame Street for 18 years. Each year, the previous year's production is purchased from the Children's Television Workshop. In Winnipeg, an editor removes content which is irrelevant to Canada, such as references to American coins, the U.S. flag, US. national holidays etc. All segments containing Spanish are deleted along with alphabet segments (because they use the American pronunciation of the letter Z). The program is reassembled using 12- 15 minutes of Canadian content, consisting of segments produced by CBC studios in six locations: Halifax, Montreal, Toronto, Winnipeg, Regina and Vancouver. The segments focus on the goals of the program, decided each year by the CBC and its Advisory Board. Many of the goals reflect the goals of CTW Sesame Street; however, some are unique to the CBC. Unique goals include the teaching of French, Canadian history and geography, how Canadian children live, multiculturalism and regional diversity. Program segments last between nine seconds and four minutes. Some segments are animated, some are live. Most segments are filmed although some are videotaped. Segments include location shooting and studio shooting. Almost all segments feature children. Most contain music expressly composed for the program.

In 1972, all segments were produced in Winnipeg. Toronto was added in 1973, Montreal in 1976 and Vancouver in 1982. Since 1982, Halifax, Regina, Edmonton, Ottawa and Yellowknife have been added as production sites. Presumably, one of the reasons for producing segments in the regions was to increase the regional reflection process. Previously, the Montreal crew had filmed segments in the Atlantic region. The Pacific region and the Prairies had been filmed by the Winnipeg crews.

### *The Segments*

The 1985 production year was used as the subject matter. To seek regional differences, all segments shot on film or videotape and showing actors in non-studio settings were analyzed. Segments shot in the studio and animated segments were not analyzed. Of the 173 segments produced in 1985, 41 segments met the selection criteria. Of the 41 segments selected, Montreal produced 20, Vancouver produced nine Regina produced eight, and Toronto and Halifax each produced two. During 1985, none of the Winnipeg segments met the selection criteria.

### *Method*

The author watched each segment six times using a stop-frame VCR, noting all relevant information. Each segment was then formally coded on two different occasions. If a discrepancy was discovered, the segment was coded again.

## DEFINITIONS

### *Type of Shot*

Shots were coded as Extreme close-up (ECU), Close-up (CU), Medium close-up (MCU), Medium Shot (MS), long-shot (LS) or extra long-shot (ELS). The following definitions were used.

ECU	Any part of the face, e.g. nose ear or object of similar size.
C U	Chin to forehead face shot, or object of similar size.
MCU	Top of head to mid-cheat.
MS	Head to waist.
LS	Head to feet.
ELS	Any image showing more than a long shot.

### *Special Effects*

The following special effects were coded: camera movement, dream sequences, dissolves, pixillation, animation, still frame shots, and dream sequences. The following definitions were used:

<i>Camera movement</i>	Pan, zoom or dolly
<i>Dissolve</i>	Fading one picture out while fading another in.
<i>Pixillation</i>	Unnatural movement of people or objects.
<i>Animation</i>	The presence of non-studio or non-live content.
<i>Still-frame</i>	A single frame which is repeated without change.
<i>Dream sequence</i>	Visual special effects used to connote a dream.

**Identification Cues**

There were several ways in which a segment could reveal its regional identity. These included identification features, oral cues or signs and Canadian cues. Identification cues would allow either a native of the region or any Canadian to name the location of the segment. If the segment was coded with an oral cue, the name of the city or region was mentioned. If the segment included a sign with the name of the city or the region, it was coded as having an identification cue. If the segment included a Canadian cue, such as a flag or other Canadian symbol, it was coded as positive.

**Multiculturalism**

The number of seconds in which any member of a visible minority (oriental, native, black, or east Indian) was on the screen was counted. In addition, the number of seconds in which a cultural characteristic appeared was also counted. Cultural characteristics included the presentation of foods, games or dress.

**Presentation of Language**

Segments vary in how language is presented. English and French are presented in several forms with accompanying visuals. The segments were classified into one of the categories below:

<b>English only</b>	No French was presented.
<b>French only</b>	No English was presented.
<b>Bilingual</b>	English and French were presented.
<b>Question / answer</b>	Either English or French was used as a question. The answer was presented in the other language.
<b>Translation</b>	The same content was presented in both languages.
<b>Cue to French</b>	The French word was labelled as French.
<b>Running French</b>	The narrative was in English while the background dialogue took place in French.

**RESULTS****Length of Segments**

The average length of a segment was 103 seconds (See table 1). When regional differences were examined a different picture emerged. The two Halifax segments were 54 seconds long, just over half the length of the average segment. Regina segments were 88.1 seconds long, Vancouver segments were 95 seconds long. Toronto's two segments averaged 102 seconds, Montreal's 20 segments were the longest at 117.8 seconds on average. On the surface, it appears that the larger production centres have more money to spend on a

segment, hence the longer segments from Montreal, Toronto and Vancouver. Since a longer segment contains more subject matter, it must use more sophisticated production techniques and increased dialogue to sustain its length.

Table 1  
Summary statistics by production location

	Halifax	Montreal	Regina	Toronto	Vancouver	All
Number of segments	2.0	20.0	8.0	2.0	9.0	41.0
Average length (in seconds)	54.0	117.8	88.1	102.0	95.0	103.0
Shots per segment	11.0	26.4	33.9	27.5	26.3	27.2
Shots per Minute	11.3	14.8	25.0	16.3	17.2	17.2

The segments analyzed here are longer than those produced in the period from 1972-1982, when 70% of the segments were less than 90 seconds long (Caron-Bouchard and Bouchard, 1982). Between 1982-1985, more than 80% of the segments were less than 90 seconds long (Caron-Bouchard, 1985). Anderson and Levin (1976) used a special Sesame Street program in which the average segment length was 87 seconds. These studies were based on animated and non-animated segments. Since animated segments are generally shorter than live ones, the length of live segments has not increased over the years.

#### *Number of Shots and Shots Per Minute*

The average number of shots per segment for all segments was 27.2. Halifax was well below the mean at 11 shots per segment. Montreal, Toronto and Vancouver were all very close to the mean. Regina at 33 shots per segment was substantially above the average for all segments. The number of shots in a segment indicates its complexity. Segments from Regina were more complex than segments from other centres. The Halifax segments were the least complex.

The average number of shots per minute for all segments was 17.2 (See table 1). Halifax had the lowest number of shots per minute at 11.3. Each Halifax shot lasted more than five seconds. Montreal had 14.3 shots per

minute. Toronto and Vancouver were very close to the mean at 16.3 and 17.2 s/m respectively. Montreal, Toronto and Vancouver segments had shots which lasted between 3-4 seconds each. Regina had the highest number of shots per minute at 25. Regina had the most complex segments in which most shots lasted just over two seconds.

Sesame Street segments have shots which last three to four seconds. This editing pace is quicker than programs like *Mister Rogers Neighborhood* or *Mr. Dress-up* but considerably slower than most television commercials.

### ***Types of Shots Used***

To arrive at comparable statistics, the number of shots of each type which made up the segment were expressed as a percentage of the total number of shots. Close-ups made up 25% of all segments (See table 2 on following page). Vancouver used the highest number of close-ups (30%). Montreal used 29.8% close-ups. Halifax segments contained 21.9% close-ups; Toronto and Regina segments contained 12.2% and 11.0% respectively. Medium closeups made up 12.8 percent of all shots used. Regina and Toronto used close to 18% medium close-up shots. Montreal, Halifax and Vancouver all used fewer MCU's. Extreme close-ups constituted only 35% of all shots used. ECU's were used only by Montreal, Regina and Vancouver.

Twenty-two percent of all shots for all segments were medium shots. Halifax used the most medium shots (32.5%). Regina used 25.1%; Montreal used 23.2%. Toronto and Vancouver used 10.4% and 17.9% respectively. Long shots constituted 29.1% of all shots. Toronto used 44.3% long shots; Vancouver used 34.6%. Montreal used 25.1%. Halifax and Regina used less than 16% long shots. Extra long shots comprised 7.3% of the shots used. Halifax used 19.2%; lbrontoused 15.2%. Montreal, Regina and Vancouver used less than 10% extra long shots.

### ***Use of Special Effects***

Thirty-three of the 41 segments used one or more special effects. Eighteen segments used camera movement (pan, zoom or dolly). Five segments used dissolves. Three segments used a dream sequence in which some visual special effect tried to convey an imagined scenario. Three segments used pixillation. Two segments used animation within the live action. Two segments used still-frame shots to end the segment. Halifax and Toronto used a special effect in each segment. Regina used effects four times. Vancouver segments contained 10 special effects; Montreal segments contained 15 special effects. Special effects are more costly and difficult to produce than simple editing and camera work. Regina, Vancouver and Montreal all used many special effects but fewer than might have been expected.

The literature on the effects of visual effects like zooms, pans and quick cuts presents contradictory findings. Although brief zooms and pans increased attention (Larch & Anderson, 1979), earlier studies suggested that quick cuts, zooms and pans were unnecessary (Anderson & Levin, 1976) and that changes in the soundtrack would be most elicitive of attention.

Table 2  
Percentage of Each Type of Shot by Production Location

	Halifax	Montreal	Regina	Toronto	Vancouver	All
Number of segments	2	20	8	2	9	41
Shots per Segment	11.0	26.4	33.9	27.5	26.3	27.2
<b><i>Type of Shot</i></b>						
Close-up	21.9	29.8	11.0	12.2	30.0	25.0
Medium CU	10.5	12.5	17.7	17.8	8.7	12.8
Extreme CU	-	3.5	4.9	-	3.9	3.5
Medium Shot	32.5	23.2	25.1	10.4	17.9	22.2
Long Shot	15.8	25.1	12.8	44.3	34.6	29.1
Extra LS	19.2	6.0	8.5	15.2	4.8	7.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

### ***Age of Speakers***

Twenty-one of the 41 segments used only an adult voice for narration. Eight segments presented an adult and child in conversation. Six segments used both adult and children's voices, five segments used a child talking to another child or to a group of children. One segment had no voices. In its two segments, Halifax used one adult alone and one conversation between adults and children. In its two segments, Toronto used adult voices. In six of eight segments, Regina used adults. In the other two Regina segments, conversations between adults and children were used. Vancouver used adults in four segments and adult/child conversations in five segments. Montreal had the most variety. Eight segments used only adults. Six segments had a group of people. One segment had an adult/child conversation, four segments had a child/child conversation. One segment had an adult/child conversation and one segment had no speaking or singing.

Previous research (Anderson, et. al., 1979) found that high attention was related to the use of children's voices. Huston et. al. (198 1) found that Saturday morning educational programs made great use of children's voices. The segments analyzed here did not make wide use of children's voices since more than half used only adults and since eight of the remaining segments used adults and children together.

**Identification Cues**

It was expected that segments would contain cues which would help to identify their shooting location. Eleven cues were discovered in the 41 segments (See table 3). Eight segments contained a cue which identified the city in which they were shot. In one Halifax segment, the clock on the Citadel was shown. In the Montreal segment which identified the city, the SPCA office in a Montreal suburb was pictured. The Regina segment presented the RCMP training college which Regina parents and children would probably identify as their home town. One of the Regina segments featured a boy and his Appaloosa horse. This segment appeared to convey the locale as somewhere in the west without identifying Saskatchewan, It reflected the region but not a province or city. The five Vancouver segments featured scenes of parts of Vancouver or the Vancouver aquarium. One sign appeared in Vancouver segment. Two segments contained oral cues. In both segments, a voice identified the cities as Vancouver or Halifax.

Table 3  
Segment Characteristics by Production Location

	Halifax	Montreal	Regina	Toronto	Vancouver	All
<i>Types of Cues</i>						
Identifiable Cues					5	8
Signs					1	1
Oral Cues					1	1
<i>of Segment</i>						
Participatory		4				4
Narrative	2	6	5	2	4	19
Demonstration		10	3		5	18
Setting						
Urban	2	14	3	2	7	28
Rural		1	2		2	5
Inside		5	3			8



These findings were surprising. Producing a segment in a particular location provides an ideal opportunity to reflect the region by using landmarks and scenes which clearly identify the location. It appears that producers are neglecting an opportunity to exploit the segments they produce to show their city, province and region. Most segments were produced outside with backgrounds of parks or buildings. The producers should include characteristics which both local people and other Canadians would identify as that city. The problem would be to perform this task without appearing stereotypical. The CN tower clearly identifies Toronto, the Stampede, Calgary. However, it may not be desirable to have such a symbol in every segment.

Television creates a reality where none exists. Comstock et. al. (1978) suggested that where the environment provides no cues about a certain topic, the child will gain such information from television. Since most Canadians cannot see or travel to all parts of the country, Sesame Street could provide such information in its segments. Moreover, this information could be presented as part of a segment on counting, the alphabet or other content.

One Winnipeg segment produced several years ago, showed ice-skating on a rink near Winnipeg's city hall. This segment provided a glimpse of Winnipeg in Winter which Winnipeggers could readily recognize. By subtle identification, other Canadians could also have been cued to this feature of the city. Many Montreal segments have used the same park as the locale. Cues which identified it could help all Canadians to recognize this locale.

### *Segment Style*

Segments were coded as participatory (encouraging the child to answer), narrative or demonstration. In a narrative segment, a verbal or visual description of action was presented. A demonstration segment showed a process or situation without any narration.

Four segments (9.7%) were coded as participatory (See table 3). All of these segments were produced in Montreal. Nineteen segments (46.3%) were coded as narrative. Both Halifax and both Toronto segments used narratives. Six Montreal segments, five Regina segments and four Vancouver segments used narratives. Eighteen segments (43.9%) were demonstrations: ten from Montreal, three from Regina and five from Vancouver.

Sesame Street strives to involve the child. It was surprising; therefore that only four segments (all from Montreal) encouraged overt participation. By encouraging overt participation, segments encourage children to respond to the set instead of being passive viewers. Research studies have confirmed that children have increased attention to segments which encourage participation (Lorch & Anderson, 1979).

### *Locale*

Segments were coded as having an urban, rural or inside shooting locale. Twenty-eight segments (68.3) used urban settings (See table 3). Five segments (12.2%) used a rural location. Eight segments (19.6%) were shot inside. All

Toronto and Halifax segments were urban. Fourteen of Montreal's 20 segments were urban. In Regina, three of the eight segments were urban. Seven of Vancouver's nine segments used urban settings. Of the five segments using rural settings, one was from Montreal, two from Regina and two from Vancouver. For inside settings, Montreal produced five segments and Regina produced three segments.

These segments appear to reflect Canada's population quite accurately since more than 65% of Canadians live in urban settings. The problem might be that all urban settings appear very similar, unless clear cues are used.

*Visible or Identified Groups*

Seventeen segments showed and/or identified a member of a cultural group. The number of seconds devoted to each person(s) was noted. The segment was coded as positive whether the member of a different cultural group was with other people or not. The four visible groups coded were Oriental, East Indian, Black and Native. Thirty-one percent (1340 seconds) of time in all segments was devoted to a visible or identified cultural group (See table 4). Vancouver segments presented a visible minority 74.3% of the time. Toronto segments contained 68.6% visible minorities. Halifax and Montreal used minorities just over 20% of the time. Regina segments devoted 4% of total time to minorities.

Table 4  
Visible Minority Ttime (in seconds) by Production Location

	Halifax	Montreal	Regina	Toronto	Vancouver	All	Percent
Oriental		223	28	62	334	647	15.3
East Indian		125				125	3.0
Black	24	148		78	205	455	10.8
Native					99	99	2.3
Spanish		4				4	0.1
Italian		6				6	0.1
French		4				4	0.1
Total Vis. Min							
Exposure	24	506	28	140	638	1340	31.7
Total non-Vis. Min.							
Exposure Segment length	84	1849	677	54	221	2891	69.3
Percent of V.M. Exp. to Total	108	2355	705	204	859	4231	100.0
	22.2	21.5	4.0	68.6	74.3	31.5	

Segments were also analyzed to determine the time devoted to each cultural group. Oriental people were shown for the greatest amount of time (15.3%). Blacks appeared for 10.8% of the time, East Indians 3.0% and native people 2.3%.

One segment produced in Montreal identified one French, one Spanish and one Italian child by stereotypical names (Sylvie, Carlos & Tony) as being a member of their cultural group linked with food (souffle, Spanish omelette and futada respectively).

In Canada, with its many cultures and heritages, television must show minorities on television because as Barcus (1983) suggests, exposure on television says that a minority has arrived. The above data suggest that although some visible minorities and cultures are presented, their exposure could be increased to reflect Canada's multicultural mosaic.

**Language(s) and Style of Presentation**

One of the objectives of CBC Sesame Street is to present and teach French. The seven ways in which language could be presented were described above. Fifty-six percent of the segments presented French in some way (See table 5). One segment had no language, 41.5% of segments had only English. Five

Table 5  
Number of Segments by Language Presentation Mode by Production Location

	Halifax	Montreal	Regina	Toronto	Vancouver	All	Percent
No language		1				1	2.4
English		2	4	2	9	17	41.5
French			3			4	9.8
Bilingual		3	1			4	9.8
Translated		5				5	12.2
Point out							
French		4				4	9.8
English							
Rng.French	1	4				5	12.2
Q English							
A French		1				1	2.4
All Formats							100.0

segments (12.2%) had an English narrative with French in the background. Five segments presented the same words in both English and French. Four segments (9.8%) presented only French; four segments (9.8%) presented a bilingual message in which the same content but not necessarily the same words were presented in both English and French. One segment used a technique in which the question was posed in English and the answer given in French.

Seventeen of Montreal's 20 segments presented French though interestingly, no Montreal segment presented only French. Montreal used the most innovative formats of English narration and running French in the background and a question posed in English and the answer given in French. Most of the other production centres used very little French. Only 5 segments (12%) produced outside Montreal presented French. Of segments produced in other regions, one of the Halifax segments presented a child attending a French immersion program for the first time. Since many Canadian children watching the program may attend French immersion programs such a segment provides some direct experience of what to expect.

### CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

The regions do not produce an equal number of segments. If all 173 segments produced in 1985 are considered, Toronto produced 72, Montreal produced 48, Winnipeg produced 29, Vancouver produced 13, Regina produced eight and Halifax produced three segments. The outlying regions had fewer opportunities to produce material than the central section of the country. The information on formal features such as number of shots per minute, type of shots, and age of speaker all point out regional differences in the techniques used. The use of sophisticated techniques requires more resources. Therefore, regions with available resources could afford to produce more sophisticated segments than those with fewer resources.

The researcher was interested in how the segments reflected Canada and the regions in which they were produced. It appears that much could be done to exploit the potential of segments to reflect the regions in which they are produced. Identifiable features of the regions and cities could be introduced as background elements to the segments. Since production from regions outside central Canada is limited, the regions have to strive to increase their visibility by using identifiable features and backgrounds wherever possible.

Visible minorities and cultural customs must continue to be shown especially in the context of the regions. The Halifax segments could focus on the Celtic, MicMac and Acadian cultures along with the other features of the region. The Winnipeg and Regina segments could present Ukrainian, Native Western cultures and features of the geography of the West.

This study focused on the 1985 production year. Future work must increase the database by examining other years to determine trends and to describe means of presenting cultural and regional information in engaging and effective formats. Further studies need only concentrate on the portrayal of the regions, culture and language. Canadian segments do not appear to make frequent use the wide range of special effects available to producers.

Another series of studies could select segments which experts agree overtly portray a region and determine whether members of the target audience and

school age children can identify the region in which the material was produced. In segments presenting culture, retention of material presented could be tested.

## REFERENCES

- Anderson, D. R., Alwitt, L. F., Lorch, E. P. and Levin, S. R. (1979) Watching children watch television. In G. Hale and M. Lewis (Eds.) *Attention and the development of cognitive skills*. New York: Plenum.
- Anderson, D. R. and Levin, S. R. (1976) Young children's attention to "Sesame Street". *Child Development*, 47, 806-811.
- Barcus, F. E. (1983) *Images of life on children's television*. New York: Praeger.
- Calvert, S. L., Huston, A. C., Watkins, B. A. and Wright, J. C. (1982) The relation between selective attention to television forms and children's comprehension of content. *Child Development*, 53, 601-610.
- Caron-Bouchard, M. (1985) *CBC/Sesame Street: Review of the 1982-1985 production*. Outremont: Les Communications ABC Inc.
- Caron-Bouchard, M. and Bouchard, A. (1982) *Sesame Street/ CBC: Ten years of production (1972-1982)*. Outremont: Les Communications ABC Inc.
- Comstock, G., Chaffee, S., Katzman, N., McCombs, M. and Roberts, D. (1978) *Television and human behavior*. New York: Columbia University Press.
- Huston, A. C. & Wright, J. C. (1983) Children's processing of television: the informative functions of formal features. In J. Bryant & D. Anderson *Children's understanding of television: research on attention and comprehension*. New York: Academic Press, 35-68.
- Huston, A. C., Wright, J. C., Wartella, E., Rice, M. L., Watkins, B.A., Campbell, T., and Potts, R. (1981) Communicating more than content: formal features of children's television programs. *Journal of Communication*, 31(3), 32-48.
- Link, N. & Cherow-O'Leary, R. Research and development of print materials at the Children's Television Workshop. *Educational Technology Research and Development*, 38(4), 34-44.
- Lorch, E. and Anderson, D. R. (1979) Highlights of "Paying attention to Sesame Street". *CTW International Research Notes*, Spring.
- Lovelace, V. (1990) Sesame Street as a continuing experiment, *Educational Technology Research and Development*, 38(4), 17-24.
- Mielke, K. W. (1990) Research and Development at the Children's Television Workshop. *Educational Technology Research and Development*, 38(4), 7-16.
- Rice, M., Huston, A. C., and Wright, J. C. (1983) The forms of television: effects on children's attention, comprehension and social behavior. In *Children and the formal features of television*. Edited by Manfred Meyer. Munchen: K.G. Saur, 21-55.

Strommen, E. F. & Reville, G. L. (1990) Research in interactive technologies at the Children's Television Workshop. *Educational Technology Research and Development*, 38(4), 65-80.

---

AUTHOR

Richard F. Lewis is an Associate Professor of Communication Studies at the University of Windsor, Windsor, Ontario N9B 3P4.