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Children, learning, and educational TV

An overview of selected research results

This article provides a concentrated summary of research results related to children's learning from educational television.

Children are born with an innate human capacity to learn" (Messenger Davies, 1997, p. 3), but in their daily television routines children rarely look actively for educational content. While they tend to regard TV primarily as a source of entertainment, their parents (in a study from the U.S.) seem to value educational television as an important educational tool that can promote children's intellectual development (see fig. 1, Rideout et al., 2003, p. 12 et seq.).

In a Kaiser Family Foundation study from 2006, 1.051 parents of children

ages 6 months to 6 years old were fairly evenly split on whether TV mostly helps (38 %) or mostly damages (31 %) children's learning. However, in focus groups almost all parents responded that they considered "learning" to be one of the biggest advantages of television, and indicated that they observed their children learning from television (Rideout et al., 2006, p. 14). Though most parents in this study thought of the computer as being more educational than TV, many parents still preferred television or videos because these media require less supervision.

Most studies in the field of "children, television, and learning" (the majority of the research is from the United States) focus on educational programming aimed at pre-schoolers and the extent to which these programmes

promote their academic skills, school readiness, and linguistic development. There is also limited research on the potential educational impact of television on older children and adolescents. This may be due to children being less interested in this kind of programming once they enter school. Studies indicate that, compared with pre-schoolers, older children develop other viewing preferences favouring more complex programmes that feature verbal humour and relationships (see Huston et al., 2007, p. 59).

There is also little research on prosocial television aimed at children (see overview in Mares/Woodard, 2007). In general, the effects of prosocial television often appear less strong than the academic effects of educational television (Fisch, 2005, p. 12). One reason for this may be because those learning outcomes are more difficult to define and to measure than academic skills. "In particular, it is important to remember that the prosocial messages presented in an educational television programme are likely to be mediated by lessons learned from family and peers, as well as children's own life experiences" (ibid., p. 12).

Some researchers suggest that "education" should be distinguished from "learning" (Buckingham/Sefton-Green, 2004, p. 29) and refer to the potential value of non-educational programmes for children as well. They argue that such programming may lead to learning outcomes even though it is not produced for educational purposes. But up to now there has been limited research concerning the potential learning impact of children's entertainment programming. A German study indicates that children use virtually the entire range of television programmes as a learning environment and that they tend to regard popular entertainment programmes as a resource with a high learning potential (Neuss, 2005).

Books	96 %
Building blocks	77 %
Puzzles	74 %
Educational toys like talking books	62 %
Educational TV	58 %
Educational videos	49 %
Educational computer games	43 %
Educational websites	31 %

From Rideout et al., 2003, p. 15

Fig. 1: Percentage of parents who consider each item to be "very important" to children's intellectual development

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Does children's native language acquisition benefit from educational television?

There is strong agreement among researchers that children can learn words and their meanings from educational programmes. Although there is not much evidence that this kind of programming specifically helps children to learn grammar, research results suggest that in the field of lexical development and word diversity there are learning effects from educational programmes that have been designed particularly for word learning. This is confirmed by several studies that have investigated how children's linguistic development can benefit from television (see literature overview in Naigles/Mayeux, 2001; or Kondo, 2009).

However, this seems to be limited primarily to age-appropriate programmes with specific educational

goals for 3- to 5-year-olds (see Lemish, 2007, pp. 156-158; or Linebarger/Walker, 2005). According to a policy statement by the American Academy of Pediatrics, the educational merit for children younger than 2 years is unproven, and existing research suggests that media use does not promote language skills in this age group (AAP, 2011, p. 1041).

Only some programmes, therefore, seem to have educational benefits for younger children in terms of language skills.

A study of infants' and toddlers' television viewing and language outcomes found that only some preschool programmes can lead to richer vocabularies and higher expressive language scores among children under 30 months.

Series like *Blue's Clues* and *Dora the Explorer* in particular, which include characters who talk to the child, encouraging participation and inviting viewers to respond, were positively related to expressive language production and vocabulary, while watching *Sesame Street* was negatively related only to child language outcomes (Linebarger/Walker, 2005, p. 639).

In contrast, a comprehensive and substantial body of research shows positive relationships between *Sesame Street* and the linguistic development of children (see overview in Fisch et al., 2001). For example, a 2-year longitudinal study followed 2 cohorts of children (160 3- to 5-year-olds and 166 5- to 7-year-olds). Children who were regular *Sesame Street* viewers (measured with viewing diaries) achieved higher scores on a test of vocabulary, regardless of parental education, family size, gender, and parental attitudes. This relationship was stronger for the 3- to 5-year-old cohort than for the 5- to 7-year-old cohort, suggesting an "early window" of opportunity where the effects of educational television programmes are strongest (Rice et al., 1990).

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Does educational television contribute to school-readiness and academic achievement?

There is also a strong consensus in research that age-appropriate educational television has positive effects on children's academic skills (see literature overview in Kondo, 2009). "Educational television programs, those designed around a curriculum with a specific goal to communicate academic or social skills, teach their intended lessons" (Kirkorian et al., 2008, p. 46). A variety of educational television programmes was found to be effective and successful in enhancing children's skills in literacy, mathematics, problem solving or science and technology (see overview of programme research in Linebarger, 2009, p. 60 et seq.)

A large body of research in this area relates to *Sesame Street*, which was the first children's programme to address an educational curriculum with detailed goals. It pioneered the use of formative research to inform production, and the effectiveness of the programme was evaluated by comprehensive summative research. Improvements in academic skills re-

lating to literacy and maths were also evident in studies on international co-productions of *Sesame Street* (e.g. in Mexico, Turkey, Portugal, and Russia; see overview in Cole et al., 2001). The long-term effects of *Sesame Street* were evaluated after a span of 25 years (Anderson et al., 2001). In the early 1980s, researchers installed time-lapse video cameras in the homes of 106 American families for a period of 10 days and recorded their television viewing and interactions during the reception process. An additional 554 families completed TV viewing diaries. 570 of the 660 initial families were re-contacted by telephone in 1994 when the observed pre-schoolers were adolescents. Their high school transcripts were obtained. Pre-schoolers who viewed educational TV programmes had higher grades in English, mathematics, and science in junior high or high school, particularly among boys (see fig. 2). The researchers found that former heavy *Sesame Street* pre-school viewers read more often, had higher academic self-esteem, and valued academic performance more highly.

In a 2-year evaluation of Nickelodeon's *Blue's Clues*, an educational programme focusing on promoting pre-schoolers' problem-solving skills, researchers observed the cognitive development of regular viewers and non-viewers of the show. The 2 groups did not differ on measures of problem solving and flexible thinking at the beginning of the study. However, at the end of the observation period, regular viewers outperformed their non-viewing peers and were more successful and systematic in their problem solutions (Anderson et al., 2000).

Kondo, Kaoruko (2009). Can television be good for children? In: Nagaraj, N. Nagamani (ed.): Effect of television on children. Hyderabad: Icfai Univ. Pr., pp. 128-156.

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What are the characteristics of effective educational programmes for children?

Producing quality in educational TV programming that encourages the cognitive and social development of children requires a sophisticated understanding of how children learn and of how programmes can facilitate this learning. In general, successful learners are considered to be active learners. This active learning is referred to as metacognition, which means an awareness of "how" one thinks. Effective educational programmes will stimulate these metacognitive skills by enabling a child to relate knowledge already assimilated to new information, to make deductions beyond the provided facts and to draw conclusions based on these relationships (see Wainwright/Linebarger, 2009, p. 28 et seq.; Schlote in this issue). Fisch's capacity model provides a theoretical and systematic construct for explaining how children extract and comprehend educational TV content (see fig. 3). Fisch argues that apart from the implications on a theoretical level, his model also has practical implications for the creation of quality education TV. As comprehension depends in part on features of programming, the incorporation of appropriate programme characteristics and a close proximity between narrative and educational content

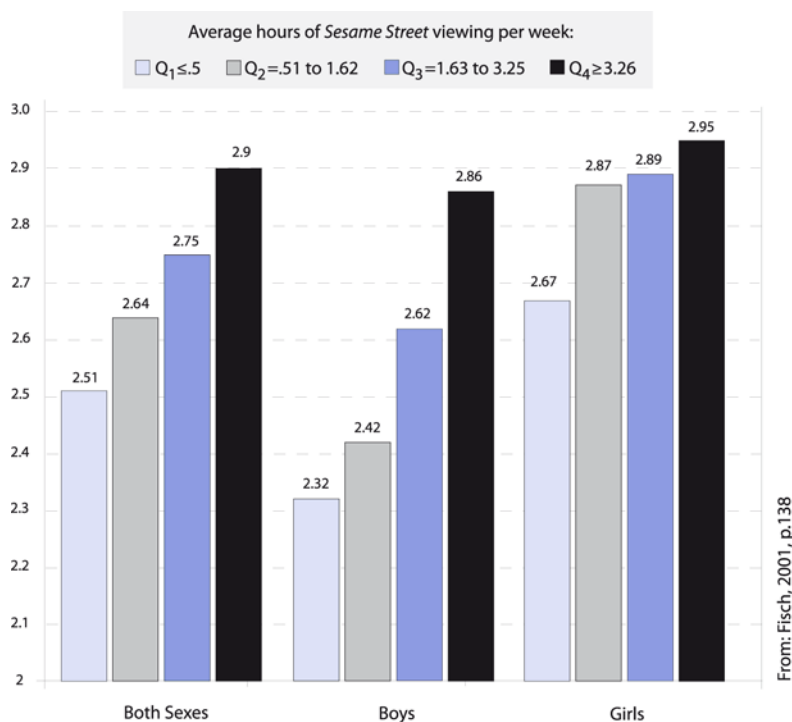
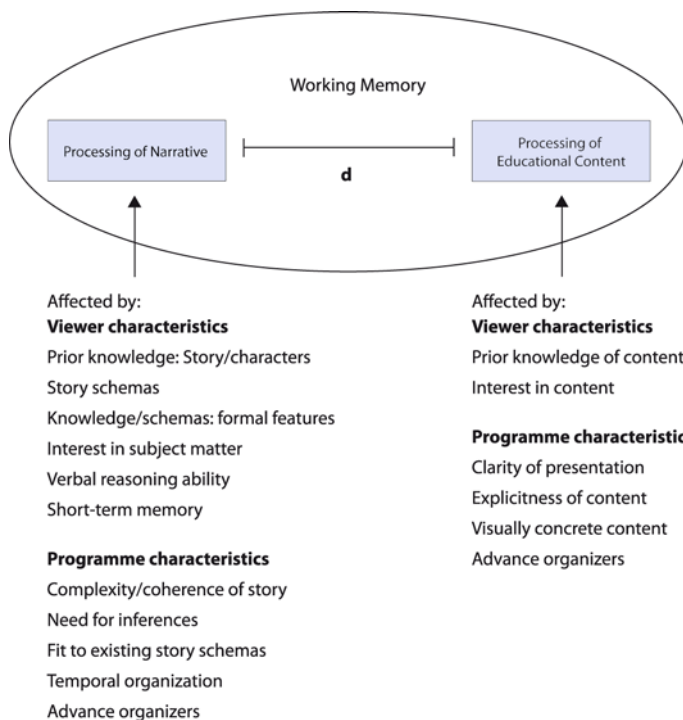


Fig. 2: Grade point averages in English, math, and science for adolescents who viewed different amounts of *Sesame Street* at age 5



From: Fisch, 2004, p.147

Fig. 3: Comprehension of educational content: the capacity model

contribute to a better understanding of content and therefore to learning impact.

Furthermore, research suggests that the following factors and features raise the effectiveness of educational programmes (see overview in Fisch, 2005, p. 13): the use of appealing elements such as humour, age-appropriate topics and language; the clear, direct and explicit handling of educational content; the focus on a small number of ideas in one episode; the use of engaging or action-filled visuals. Repetition is considered a key element in enabling children to transfer learning from one situation to another. Research found that the multiple viewing of episodes with educational content significantly increased the transfer of learning (Anderson et al., 2000).

Studies also indicate that children may attend more and learn more from characters who are like them or are familiar to them (Wainwright/Linebarger, 2009, p. 33 et seq.). Furthermore, a quality programme should aim to encourage children to engage actively in the content through viewer

participation and direct interaction. Presenting characters who speak directly to the child at home might facilitate the motivation of learning. For example, the pre-school educational series *Blue's Clues* was designed with the aim of eliciting verbal responses from the child viewers at home to help solve a puzzle. The research examining the impact of this strategy found that children who become familiar with the show and the interaction involved (e.g. onscreen characters speaking directly to them) tend to make more effort to help to solve the problem (Crawley et al., 2002, p. 278).

A series of reception studies with German primary school children found that if the appeal of an educational programme (in this case the German series *Wissen macht Ah! – "Knowledge makes you go Ah!"*) is increased, the learning outcomes may be improved at the same time (Götz, 2009). Entry points for different types of learners were intentionally provided, and elaborated with elements of humour. The result was that the presented item was perceived as

noticeably funnier and less boring, and during reception there was a great deal of laughter. Educational benefit and novelty value were also considerably enhanced in the opinion of the children. It was found that there was a considerable increase in quality in terms both of appeal and of learning outcomes. According to the author, these results clearly indicate that it pays to include more multimodal entry points for children's imagination in the basic conception of an item. ■

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A comprehensive bibliography and hyperlinks to full-text documents compiled from www.IZI-Database.org are available here: www.izi.de/english/publication/TelevIZion/25_2012_E.htm

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