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Learning in knowledge and documentary programmes

What are the benefits of contemporary programmes for primary school children?

Children learn about processes and singular facts in knowledge and documentary programmes. Such learning is less frequently about general coherences and values. But they do learn something different from every programme, as each creates its own specific learning space.

Learning in television

It is impossible not to learn. This fact also applies to television. Brockhaus, the German work of reference, tells us that learning is the

“relatively durable acquisition of knowledge, skills, abilities, attitudes and patterns of behaviour or the change thereof due to experience” (Brockhaus 1998, p. 310). If the aim of a *knowledge* programme is to transmit prescribed contents, then the success of such an effort can be determined precisely through use of pre- and post-testing (cf. Truglio in this issue). Such an approach is based, implicitly, on a reception model of television in which certain contents, chunks of content as it were, are transmitted by the programme and received in kind by the child. Experimental tests check whether, and if so, which chunks of content have been

“retained” by the child as well as how much can be “regurgitated” (see Figs. 1 and 2).

The limitations of this model lie in the conception that there is a fixed set consisting of chunks of content that are transmitted, just as a ball is “hit” to a player in a game. Accordingly, viewers are assumed to be “receivers” of previously determined content.

However, we know from reception studies (for example, Stuart Hall 1980) how differently people see television contents from one another. They are attentive to certain things and not to others. They comprehend what they perceive against the backdrop of their individual interests, experiences and patterns of interpretation (cf. Bachmair 1996, Mikos 2001). Accordingly, reception is not tantamount to imbibing chunks of information, but rather it consists of a process that involves the construction of meaning. As a result, we can claim that each child (and each adult) sees and interprets a different programme. If it is the case that everyone sees a different programme, then it must be concluded that learning by means of television should become more individual. And, models that interpret learning more or less as a one-directional instructional process are not adequate.

Increasingly, educational science is coming to embrace the constructivist-systemic perception of learning (cf. Larochelle inter alia 1998, Phillips



Fig. 1

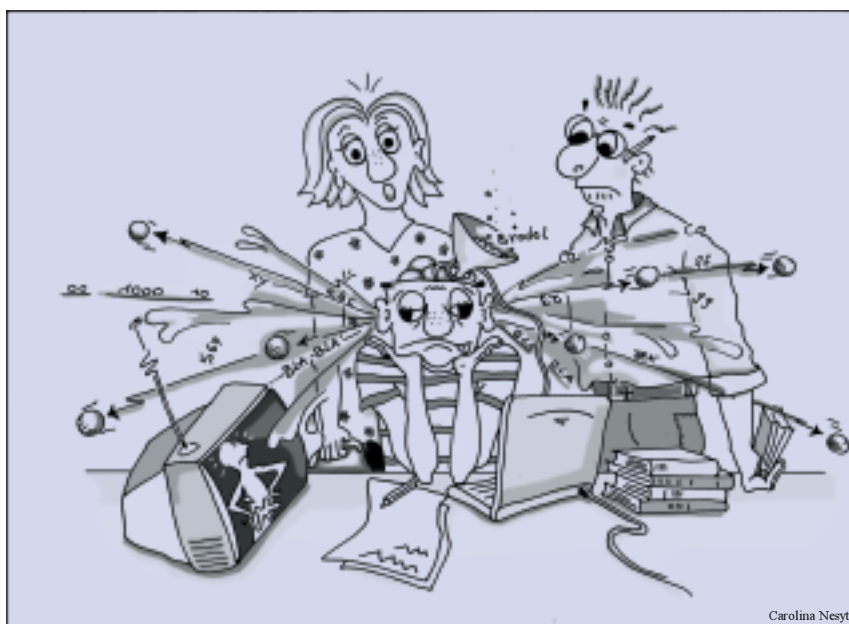


Fig. 2

2000). According to this conception, learning is not solely a process of accommodating and retaining contents, but one that mainly involves interpreting, acquiring and consequently developing individual constructions. The acquisition of knowledge is understood to be an active, self-regulated, constructive, contextual and social process (Kösel, Scherer 2002). Constructivist-systemic pedagogy (for example, Reich 2002, Voss 2002) can be linked to activity-oriented reception research, as both assume the active involvement of learners and viewers in learning and meaning making. Here the following “child in a cave” metaphor can be applied to illustrate this conception (adapted from Elschenbroich) (see Fig. 3). Metaphorically speaking, the child can be said to be using a torch to illuminate something on the wall that is found to be interesting. That is, children can be said to “illuminate” their environment for themselves, directing their attention to specific things and leaving out others. In doing so, the child subsequently interprets what is seen against the backdrop of the knowledge already “possessed”. Thus, if a picture of an express train is caught up in the light beam, the

child interprets the illuminated image as a train. Even if we are positive that this is a cave due to our different perspective and knowledge, for the child this is the image of a train. A considerable number of the perceptions, learning, meanings, etc. constructed by the child will be retained over a longer period of time. Further, the child links new phenomena to knowledge already possessed, as seen in the interpretation of what appeared in the beam of the torch. Such islands of knowledge are woven together into webs of understanding.¹

The meaning of this argument in terms of learning with television is that children direct their attention to specific aspects of the programmes, namely those to which they can relate. They then interpret these aspects through use of previous knowledge and experience, integrating parts of the programme they have interpreted into their evolving understanding of the world. Consequently, quantitative testing of their knowledge that may be the main interest of researchers may reflect but a limited part of what children have learnt from television. In this context the significance of Norbert Neuss’s study becomes apparent (cf. Neuss in this issue). The

open writing situation in particular reveals the astonishing variety of learning that children themselves realise they have achieved by viewing television. 10-year-old Robin, for example, refers to the benefits of learning about a culturally embedded ritual: “In *Dream Wedding* you learn how to get married”; he also mentions communication strategies: “In *Who wants to be a millionaire?* you learn how to answer” (cf. Neuss in this issue).

Given this theoretical background, it seems that the question regarding what children learn from knowledge programmes is far more complex than would appear at first glance. Methodological forms of access need to be applied that enable understanding how children develop and express allocations of meaning. The analysis of the children’s statements should be aimed at reconstructing the points children relate to during the programme as well as to identify what was found to be attractive to and supportive of their learning.

The mission of the Internationales Zentralinstitut für das Jugend- und Bildungsfernsehen – the International Central Institute for Youth and Educational Television (IZI) – is to promote quality in children’s, young people’s and educational television. Hence, its aim is to understand how learning in television takes place and to pinpoint the learning spaces offered to children by individual programmes. Particularly interesting are the factors supportive of learning that are present in the programmes as well as those programmes in which learning processes develop in ways that are different to producers’ intentions.

The research method

During the data-gathering period of the research reported here (2002–2004), 6 programmes that explicitly target primary school children were selected for the IZI study, entitled

“Knowledge and Documentary Programmes for Children”.² *Wissen macht Ah!* (*Knowledge makes you go Ah!*) (WDR*), *Willi wills wissen* (*Willi wants to know it all*) (BR*/FWU), *Null-Acht-13* (*Zero-Eight-13*) (WDR*/SFB*/MDR*), *Felix und die wilden Tiere* (*Felix and the wild animals*) (BR), *Anja und Anton* (*Anja and Anton*) (ZDF*) and *Was ist Was TV* (*What is what TV*) (Super RTL).³ 300 children (153 girls and 147 boys) between 6 and 12 years of age participated in the study. The average age of the sub-samples was adjusted to be as close as possible to the programmes’ target audience (cf. Fig. 1). Data gathering was conducted in a natural setting (Munich day-care centres), thus the children participated in the study in a familiar environment.⁴ Divided into groups comprising 7 to 10 children, they watched one episode of one of the aforementioned programmes. Following the viewing, the children painted a picture of what they liked most about the programme. During the interview that followed, participants were asked about their painting and perceptions of the show. 4 weeks later, during a second round of data gathering, the children were asked to paint a picture of what they

Table 1: Number of participants in the sub-samples

Programme	No. of Children	Average years of age
<i>Was ist Was TV</i>	46	9.4
<i>Wissen macht Ah!</i>	45	8.9
<i>Willi wills wissen</i>	51	8.2
<i>Felix und die wilden Tiere</i>	61	8.
<i>Anja und Anton</i>	44	7.9

remembered most about the programme. In individual interviews, they were asked the same questions once again.

In order to determine the dimensions and contents of what was learnt, we asked the children to define their learning achievement. Thus, during the interviews they were asked to relate to the scenes they found important (“What was the programme about?”). This was followed by the question “Was there anything you learnt?” Usually the children said “yes” or “no”, often adding a brief explanation like: “How to make a (news)paper”. The interviewers subsequently referred to the contexts mentioned in this case – “What about the paper? What happened?” Afterwards the children were asked once again what was new for them in the programme from their point of view. The transcribed interviews were then entered into MAXqda and, among

other things, coded in accordance with the following research questions: Do the children perceive any learning achievements? If so, what contents do they refer to as such an achievement? And, to which programme sequence? Does the construct they have learnt from the programme concur with a “generally valid” reality? On what level does this self-perceived learning lie?

The quantitative tendencies identified via MAXqda were subjected to further differentiation in accordance with qualitative research criteria. The children’s statements were reconstructed to capture the meaning or gist and their connections were identified (i. e. the points they related to during the programme).

The feeling of learning

Initially, the responses to the question – “Was there anything for you to learn?” – were simply added up and programmes ranked, accordingly. This admittedly simple procedure revealed a number of interesting tendencies (cf. Table 2). In the case of *Wissen macht Ah!*, virtually all the children perceived that learning was achieved. In *Anja und Anton*, on the other hand, only 50 % recognised such a benefit. It seems that several programmes such as *Willi wills wissen* and *Wissen macht Ah!* were identified more clearly by the children as knowledge programmes. *Anja und Anton*, a programme that integrates the learning contents into a fictional story in a relatively inconspicuous manner, is apparently less associated by the children with self-perceived learning. The subjective feeling of having learnt something remained at the same level in the second round of the research conducted 4 weeks later, except for the programme *Was ist Was TV*. In this case, the percentage of children who stated that they learnt something from the programme revealed a clear increase of 13 %.

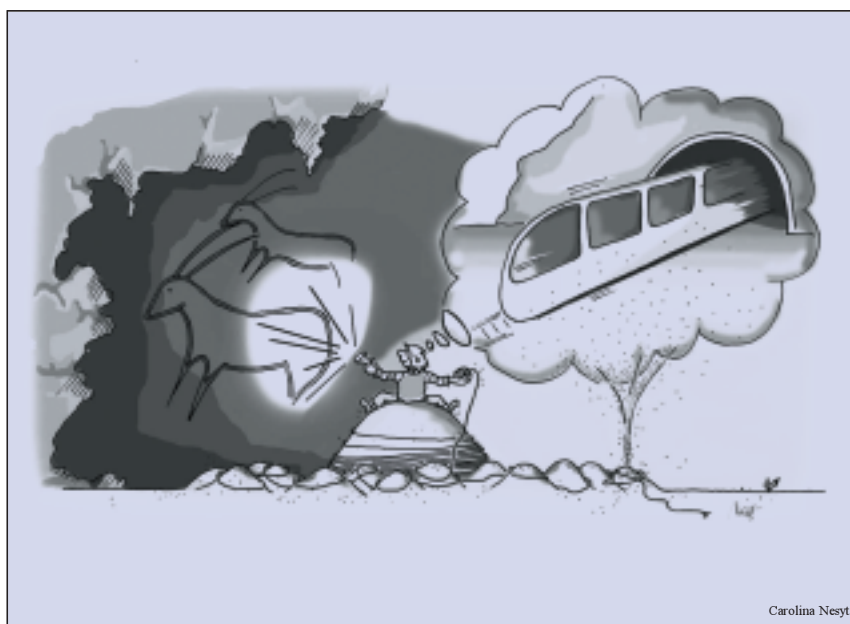


Fig. 3

That is, those who had said “no” in the first interview later recognised that they had in fact learnt something. While this does not necessarily correspond to what we generally term learning of contents, as will be demonstrated below, there does seem to exist something like a “feeling of learning”.

What do children acquire from the programmes?

The results of the second round of interviews are particularly interesting in terms of what children learnt and retained from knowledge and documentary programmes a relatively long period of time after viewing the programme. In the following section, each of the programmes is introduced and accounts presented of the children’s learning. The supportive and problematic aspects as reported in the individual children’s statements⁵, too, are presented. The results provide a synoptic description of what represents an initial characterisation of the learning environment offered by the respective programmes.

Learning by accompanying: *Willi wills wissen* (Willi wants to know it all)

A typical exemplar of children’s self-perceived learning of content after 4 weeks is the scenes and images they can recall. This applies especially to the programme *Willi wills wissen*

(BR/FWU, Munich). In this programme the reporter, Willi Weitzel, investigates a number of different questions related to specific professions and social issues. The episode shown to participants in the study focusses on the question – “How does a story get into the newspaper?”

Willi visits the *Neue Presse* newspaper in Passau, a town in southeast Bavaria. After observing the journalists’ meeting during their daily morning conference, Willi joins Elke, a reporter, and a photographer as they interview the “turtle men”. These are two inhabitants of Passau who share a house and garden with almost 600 turtles. Back at the editorial office, Willi and Elke write the article and select an expressive photo. At the printers, Willi follows the production process: he learns how their story, along with the other newspaper articles, is transcribed from the computer onto huge newspaper presses, how the individual print editions of the newspaper are produced, gathered, tied up into bundles and transported from the printer’s for delivery. During his visit Willi gets up to quite a lot of mischief, flirting with Elke the journalist and learning journalistic skills such as the “W” questions, which he remembers by singing the song from *Sesamstrasse* (the German *Sesame Street*).

Structurally speaking, viewers of *Willi wills wissen* learn first and foremost about the processes involved in producing a newspaper. Indeed, when asked about what they learnt, many of the children referred to the process of making a newspaper, in general; that is, few made reference to stages and links within the process. In their descriptions, they seem to grope at

the edge of the individual scenes, several of which are those where Willi himself expresses his astonishment.

N: “Yeah, how the papers are made and that the people have to work very long hours and really hard.”

I: “Great. And what happened exactly with the paper? Can you tell us a bit about it?”

N: “First, some people from the press got together in the morning and decided who will write about what; then they went off and did the interview. And then they sat down in front of the computer and wrote everything down. And then what they did was to take the photos. The report was passed on to a man who checked to see if there were any mistakes in it. And then they printed it, which meant it was finished. And then it was moved onto the assembly lines on the shop floor, the trucks then...” Nadja (10).

All in all, thanks to the programme, Nadja gained a few ideas about what the “editorial work of the press” looks like, as she calls it. She talked about the proceedings of the morning press conference, the interview and the writing of the article on the computer, the addition of photos, the correction of the errors and finally the printing of the paper and its distribution. Her description was well structured and reduced to what were for her the essentials: the editorial work that she recalls and describes in concrete terms beginning with the phrase – “and then they...”

Another aspect to which she attributed particular significance was the short scene in which the editor-in-chief corrects some errors in the article. In the off-screen voice accompanying the programme, Willi says: “The article is actually finished. But in every boss there’s a teacher, and teachers usually find a mistake, as we know.” This sequence, along with the commentary, relates to an everyday situation with which Nadja is familiar, namely that of the teacher making corrections after she has completed her work. An experience with which

Table 2: Learning rankings – Answer: “Yes, there was something to learn”

1st Round		2nd Round		
1.	<i>Wissen macht Ah!</i>	91 %	<i>Wissen macht Ah!</i>	92 %
2.	<i>Willi wills wissen</i>	78 %	<i>Was ist Was TV</i>	86 %
3.	<i>Was ist Was TV</i>	73 %	<i>Willi wills wissen</i>	79 %
4.	<i>Felix und die wilden Tiere</i>	67 %	<i>Felix und die wilden Tiere</i>	64 %
5.	<i>Anja und Anton</i>	55 %	<i>Anja und Anton</i>	54 %



Fig. 4: Ralph and Shary explaining how sharks smell.

many children can successfully relate. As she recounts her notion of the stages of producing a newspaper, Nadja relates to another point of interest to her: people who work at the press work hard and for long hours. This example is indicative of how children interpret Willi's long yawn at the end of the episode when he engages in a dialogue about the time at that moment. Willi realises that it was midnight and that they were at the tortoise breeders long ago, at 11 a. m. This means that it was a very long day; a point, too, to which Nadja can relate.

We can note that lost in her recall of the process is the dimension of the distribution of labour. Willi has had an extremely long working day, indeed. However, such was not the case for all of those taking part in the production of the newspaper. Willi's ongoing presentation endows the programme with its own reality. In turn, Nadja transforms the focus on Willi into a part of her world image: work is hard and involves long hours. This observation points to an aspect of the programme that could be improved.

The space of learning

Willi wills wissen

(Willi wants to know it all)

The space of learning offered by *Willi wills wissen* hinges mainly on Willi, the presenter. Viewers join him to watch the various processes. They are introduced to the individual stages and note the moments when Willi experiences something special. The

children cannot always reconstruct the details of these individual knowledge components. But they still know the path – the process – leading to the final result. The structure of learning offered in *Willi wills wissen* resembles a pattern of enjoyable “hopping” from one situation to the next. For the children this opens the chance of a conception of a process or a job set in positive emotional overtones.

Learning facts through use of models in explanations: Wissen macht Ah! (Knowledge makes you go Ah!)

Facts are another typical form of what children perceive as a learning in conjunction with a certain programme. They remember Figures and words, or individual, usually scientific events. A programme in which a particularly large number of facts can be learnt in comparison with other programmes is the science magazine *Wissen macht Ah!* (WDR).

In the episode viewed by participants in the research, the two presenters, Shary Reeves and Ralph Caspers, provide answers to 6 thematic questions: what do earthworms eat and how do they move? Why do frankfurter sausages burst in boiling water? How many teeth does a shark have and how do sharks smell blood in water? Why does a fish knife not have a sharp edge? When do we produce saliva and how is salivation linked to classical conditioning? Where is gold found and how is it mined? Additional information is provided by the two presenters in between the items – usually through explanations that use models.

After 4 weeks, 48 % of the children referred to facts as their primary form of learning from the programme. Exemplary of a particularly learning-intensive sequence is the one in which the special nature of shark's teeth is

explained. 21 children remembered among other things the learning contents of the shark scene. In the episode that takes place at the Düsseldorf Aqua-Zoo sharks are observed while being fed. The attempt to count the teeth fails. That is why a cross-section of a shark's head is used to show its many rows of teeth, with approximately 336 teeth in total. Further, presenters explain that if one tooth falls out, another moves in to replace it. As Ole explained about what he learnt from the programme:

“There was that thing about the teeth, [...] they've got loads of teeth. I think they've got over 300 teeth, I think” Ole (10)

Ole was able to extend his factual knowledge thanks to this item. The size of the figure he acquired roughly corresponds to the one given in the programme.

The shark is an impressive animal and the children's considerable learning retention is presumably due to their being stimulated (perturbed) by the high figures. The dramaturgical presentation, too, was a success: the images of the sharks were first shown in order to attract their attention. This was followed by the feeding session and the failure to count their teeth while they are eating.

A particular learning gain was the special nature of the shark's teeth. 10-year-old Bahar said, for example:

“So the sharks lose their teeth almost every day but they always grow again. They don't have just one row like we do, they have two or three.” Bahar (10)

Sharks, as Bahar reports, do not have just one row “like us”, but several. He relates to his own teeth and thus to the construction he has had used to date on the subject of teeth. The reference point in the programme is the explanation provided by Ralph: “This shark does not have just one row of teeth as we do, it has several.” This scene is highlighted by means of a model, the cross-section of a

shark's head. This manner of structuring of knowledge combined with the presenter's offer to relate to a concept already known to the children represents a successful approach to the extension of knowledge.

The programme *Wissen macht Ah!* uses approaches that are deliberately and specifically didacticised. The explicit formulation of questions, the search for and discovery of explanations and provision of an explanation by means of a model are a constituent part of the programme. In the case of the question as to how sharks smell blood in the water, Shary and Ralph also provide an explanation.

Shary tells about the huge nose, Ralph explains that the shark uses this sensitive sensory organ not only to smell the smallest drops of blood, but also to locate the direction of the origins of a drop of blood. The model of noise is applied to visualise this explanation. While Ralph covers his eyes with his hands, Shary creeps up behind him and claps her hands. Ralph then has to guess whether Shary's clapping came from the left or the right hand side.

This scene, which is extremely interesting and illuminating for the older viewers, is rarely mentioned by the children. Only one of the children interviewed refers to this sequence as a self-perceived learning gain:

"Yes, exactly! The sharks can hear very well on both sides, left and right." Mareike (7)

Mareike learnt something about the shark's hearing, namely that it can hear well on both sides. In the programme, however, not the shark's hearing but its sense of smell was explained. The explanation is linked to the modelling of hearing. In the visualisation, Shary claps behind Ralph's ears – first behind the left ear, then behind the right ear (see Fig. 4). The association for adults is unproblematic, but 7-year-old Mareike fails to make this link and remains at the level of what she has visualised concretely. Probably Mareike was able to understand and grasp the message that

sound arrives in one ear earlier than in the other. But she cannot handle the transfer from one model to another.

It has been proven that models and animations promote learning by assisting in the development of mental models. This is particularly the case when they correspond to the exact simulation of a cognitive process. In doing so, they relieve the working memory (Moreno/Mayer 2000). Learning paths are pre-structured by means of classification and clarification on a higher level. This approach can be very successful, as in the case of the cross-section of the shark's teeth. However, explanations provided through use of models have to relate to what the children already possess in the way of constructions of the world. Models operating on the lines of a double transfer seem to be less appropriate for young children.

The space of learning

Wissen macht Ah!

(Knowledge makes you go Ah!)

The space of learning offered to young viewers by *Wissen macht Ah!* has been clearly didacticised. The programme purposively uses explanations and models. They succeed by relating to children's existent concepts that relate to their prior knowledge and potential for development.

Learning without actually realising it: *Anja und Anton* (Anja and Anton)

In addition to facts, concrete images and the general nature of processes, children learn about general coherences from the programmes, albeit to a far lesser extent than other learning domains. *Anja und Anton* (ZDF) is a programme that features this aspect frequently. Most of the children who participated in the study retained the concept of coherences acquired through viewing, even at the

time of the second survey. Interestingly, this is not a programme children immediately identify as learning-oriented. Rather, it is programme-specific and is definitely intended as such, since the learning material – from the fields of nature and social affairs – is inconspicuously embedded in a fictive play story, featuring the three main characters – Anja, Anton and Klaus-Peter.

The learning theme of the episode *The Frog King* viewed by participants in the study is the lifespan of the frog. The learning content is embedded in the episode's storyline in which Anton, Anja and Klaus-Peter rehearse the play *The Frog King*. Since Klaus-Peter who plays the role of the Frog King cannot croak properly, Anja and Anton set out on a search for frogs in order to record genuine frog croaking on a tape recorder. In the process they rescue tadpoles spawn in an almost dried up creek bed and take them home. They observe the individual stages in the tadpoles' development as they grow inside the aquarium at home. Preparations for the play progress in parallel to the stages in the frogs' lifespan. Thus, by the day of the performance, the tadpoles have finally grown into adult frogs in the aquarium. Anja sums up the development stages once again on the board (Fig. 5) and in the performance Klaus-Peter is suddenly able to croak. Subsequently they go together to the forest and set the frogs free.

Half the children cited *Anja und Anton* as a programme where there is something to learn. While the incidence of the "feeling" of learning is not as high as in the other pro-



Fig. 5: Anja explains to Klaus-Peter the development stages of the frog.

grammes, many of the children (79 % in the first interview, 68 % in the second) are able to provide, at a minimum, an outline of the frogs' lifespan. Both those who said they learnt something and those who did not make this claim elaborated or presented evidence that they discerned the concept of the frogs' life cycle, as in the case of 7-year-old Josie:

"(...) I didn't know that frogs at first have no legs, like, that they have a tail, like. I didn't know that." Josie (7).

8-year-old Birgit described a sequence in the programme that contributed to her learning. "Yeah, they had a sort of poster showing the way frogs develop." Here Birgit is referring to a specific scene in which Klaus-Peter expresses his desire to be a tadpole so that he would not have to croak. Anja then explains to him through use of live models and the corresponding display board (cf. Fig. 5) how a frog develops. She ended her explanation with the question "And then, what happens then, Klaus-Peter?" And when the addressee of the question repeats the question "What happens then?" Anja closes the scene with "Then it says 'croak!'" This is a dramaturgically successful scene due to its integration into the overall context. Through the motivational application of a repetition it contributes to the development of knowledge. This idea of focussing the information on just a few facts and integrating them into the story reveals an interesting pedagogical approach. Unintended interpretations, too, do make a seldom appearance. Nergiz, (9 years old), for example, told us what she learnt from the programme:

"Yeah, that (...) some people can't say 'croak!'" Nergiz (9)

Nergiz elaborated upon her knowledge by thinking that real people exist that cannot say the word "croak"! The point of reference in the programme is the fictive part when Klaus-Peter

cannot produce the right croaking sound. Nergiz interprets the fictive part to be real. Since the programme gives an impression of very real life and seems to show things "as they are", Nergiz assumes that it is "really" possible that someone cannot say "croak!" This example underscores the caution required in the blending of fictional and non-fictional elements in programmes for primary-school children.

The space of learning **Anja und Anton** *(Anja and Anton)*

The learning space offered by *Anja und Anton* is the opportunity to join in the story and in the reflection process, to follow developments and thus memorise facts for a longer period in a context. This is a learning activity that is not perceived as such; the children fail to record this as a learning achievement. In summary, this is a pleasant, 'modest' aspect of the show that creates little fuss about its existence and its potential.

Space for developing a moral orientation: *Felix und die wilden Tiere* **(Felix and the wild animals)**

A fourth typical feature that children perceive as a form of learning is in essence of a moral nature. While in most of the programmes viewed only 1 to 3 children appear to have attained such an orientation, in *Felix und die wilden Tiere* 15 children did so and after 4 weeks 14 retained their learning achievements. The programme uses high-quality documentary animal photography, which is re-edited for children, then presented and accompanied by the animal filmmaker Felix Heidinger.

In the episode selected for viewing by participants in the study, Felix talks about an orphanage for elephants on the island of Sri Lanka. Besides describing the elephant orphans' daily lives, he presents

information about what and how much elephants eat, their weight at birth, reasons why the orphanage exists, the number of elephants that live there and why they were admitted. The fate of a few individual elephants is also covered, for example the story of little Sama, who lost a leg after stepping on a land mine.

38 % of the children interviewed had acquired and retained a moral position even four weeks later. In the interview, 8-year-old Fridolin, for example, says he learnt the following from the programme:

"Sometimes you have to help animals when they are injured. [...] And especially when the mother isn't there any more nor is the father and nobody can look after the young ones, then (you) have to help." Fridolin (8)

The general rule Fridolin deduces from the programme is that "people sometimes have to help animals", especially when the mother and father are not able to do so. The mode of expression in this case reveals a proximity to human experience in the family. The desirability of humanisation is certainly debatable, but it does reveal how children arrive at fundamental moral stances through efforts that compare the situation to their own (human) experiences. For 7-year-old Sabrina, for example, the programme presents such a moral dimension.

"Hmm, you can learn that you don't always have to take care just of yourself, that you can help others now and again." Sabrina (7)

Sabrina uses the concrete stories to generalise about a usual taking-action rule that is not related to animals. She relates not only to taking action, but also to a reflexive perspective, inferring that certain situations do not involve only one's self, but "now and again" helping other people is also important. She thus forms a moral rule, extending her self-centred perspective beyond herself. While, it is difficult to reconstruct in concrete terms when and where these realisa-

tions are developed in the programme, we can surmise that it probably developed during broad treatment of the elephant orphanage.

What Noah (7 years) learns from the programme is a little easier to reconstruct.

“Hmm. Yes, it’s not nice to be lonely (...)”
Noah (7)

Noah probably concluded this from the story about Sama. The episode shows the three-legged elephant Sama, who has to stay behind when the whole herd is bathing in the river, while clearly having a lot of fun. Felix’s comment: “Only one stays behind every day. That is Sama. But why does a small elephant have to remain chained up when its entire herd goes for a bathe in the river?” The camera zooms in on the elephant, focussing on the chains. This scene is accompanied by melancholic, state-ly background music. During the viewing of the programme, the children express their sympathy for Sama’s situation with comments such as: “*Oh, the poor little thing!*” – during a moving scene that offers plenty of opportunity for empathy and understanding. Noah presumably put himself in Sama’s position and personally identified the situation as being unpleasant. Here he is given enough space to arrive at a more fundamental discovery stretching beyond the concrete situation of the animal. It is not nice to be lonely. On the basis of empathetic involvement in (presumed) emotions, he makes a generally valid discovery beyond the confines of this particular story.

The space of learning **Felix und die wilden Tiere** *(Felix and the wild animals)*

In *Felix und die wilden Tiere*, the animals and their fate become a projection scope for emotions. The children studied extended their moral orientation through an understanding of the animal’s fate. From a pedagogical standpoint, creating a learning space

via emotionally moving stories that also enable the children to develop moral values, too, is an interesting approach.

The phenomenon ***Was ist Was TV*** **(What is what TV)**

The learning profile from the programme *Was ist was TV* (Super RTL) warrants special attention as the responses of participants in the research indicate that their learning increased even after 4 weeks. The format of this programme includes various sequences, scenes and images from already-existing adult programmes that are re-edited, set to dramatised music and presented by two speakers. The presentation of individual facts are edited so closely to one another that, for example, during the episode *The Cosmos* a total of 126 single facts were offered in the space of 25 minutes.

As an introduction to the theme “The Moon and the Cosmos”, short sequences were presented that illustrate the influence of the moon on man and nature. The story linking the holistic view is man’s first landing on the moon, narrated in three stages: the Apollo 11 rocket, the first landing on the moon and the return to Earth. Interspersed in this presentation were computer animations presenting the creation of the universe with its planets as well as the possible appearance of extra-terrestrials. In the next scene the focus is on Mars and its exploration. The elements linking and livening up the whole presentation are three 3-D animated figures – Theo (a question mark), Tess (an exclamation mark) and Quentin (a full stop) – who present and comment on the scenes.

Subsequently interviewed on their self-perceived learning, the children refer to facts gleaned from the programme. On the one hand, the incidence of unintended interpretations

on the part of the children and reference to contents that do not appear in the programme are exceptionally high (22%). On the other hand, the respondents’ perception that they have learnt something very significant from the programme remains strong four weeks later, as stated in this interview conducted with Abi (10) during the second round of the study:

I: “Right, Abi, did you learn anything from the programme?!”

A: “Me? Yes.”

I: “And what was it?”

A: “A lot, well, practically everything.”

I: “Can you tell me?”

A: “Well, about different planets and size, that the Earth is really big, and I thought that nobody had been on the moon. But they were there. That was really interesting. That’s it.”

Abi (10)

10-year-old Abi feels she has learned a great deal, indeed, “practically everything”. But when she is asked to talk about it in detail, her remarks on the contents are cursory. She now has knowledge about the existence of various planets and a feeling that the Earth “is really big”. She alters her previous notions when learning that man has already been on the moon. She also remembers that she was very interested. What Abi learnt most is that there are a lot of interesting aspects to this programme, an appraisal that features in many of the children’s statements. The programme itself conveys the impression that it is as an interesting place to learn. However, what the children actually acquire is knowledge about the topic, rather than concrete well-founded content.

Other typical characteristics of the programme are confirmed in the response given by Bernd, who 4 weeks later presented details about the Apollo rocket as evidence of a learning achievement attained by viewing the programme:

I: “And did you learn anything from the programme?”

A: Yes. Well, I didn't, I didn't know how the Poll-, how tall the Apollo 13, 11 is, it's 13 storeys tall. I didn't know that. I didn't know, either, that they want to build a space station, that they have remote-controlled things up there."

Bernd (10)

Bernd, 10 years old, feels he has learnt a lot from the programme, for example about the height of the Apollo, which he says is 13 storeys tall. In the programme the height of the Apollo is reported to be "110 metres (...) as high as a 36-floor tower block." The subjective dimension of "quite long" is correct, since 13 stories do indeed represent a very tall building for Bernd. However, the concrete Figure he remembers does not correspond to the one stated in the programme – a phenomenon that reoccurs quite often (in relation to other programmes, as well). That is, children think they know Figures very exactly. This particular example reveals very clearly, as well, that the way this scene itself is structured does not necessarily support the learning process. The text accompanying the picture creates dissonance portrays a man standing in front of a switch panel, not by the missile while the voiceover states that "This tower just under 111 metres high is as tall as a 36-storey tower block." (cf. Fig. 6) Such image-sound divergences make learning difficult.

But the figures in Bernd's response are not the only surprising element:



Fig. 6: Text accompanying this shot: "This tower just under 111 metres high is as tall as a 36-storey tower block."

Bernd is convinced that he learnt something through the programme about a planned space station. But nothing of this nature was reported in the programme. This is a phenomenon that recurred in the case of the *Was ist Was TV*. Children report seeing something in the programme that was not in fact in it. In this particular case, the children mix up information they already have about the subject with what they remember about the programme. Given that a wealth of information is transmitted in *Was ist Was TV*, not all of which can possibly be retained, the programme conveys the feeling of comprehensiveness, that "everything" on the subject has been shown. Further, the existence of prior knowledge – whose origins are from other sources – is only referred to by participants in the study on occasion.

Another typical phenomenon that surfaced only in *Was ist Was TV* is the children's presentation of themselves as competent in terms of knowledge. For example, 7-year-old Sarah recalls that she tells her grandma everything she has learnt:

"Well, I told my grandma, didn't I, that the sun is the centre, as far as the Earth goes, and that lots of planets go round it (...). And then I laughed myself silly 'cause I wondered why I was telling her that; after all I'm still a young child."

Sara (7)

Sarah is delighted as a "young child" to be able to tell her grandma something about the solar system. The 7-year-old experiences the opportunity to state her expert knowledge.

Lea, 10 years old, also feels she has gained competence from the programme:

I: "Did you learn anything from the programme?"

L: "Yes. Perhaps we'll do that later at school, and then I'll know what it all means. And I've learnt how the sun, err., how the moon was created and that the moon always ... above the sun. I can't remember exactly, I think the

moon revolves around the sun. Yeah, that's what I learnt, and then, for example, if we learn that at school now, you always know it. If you know it, you can say a lot about it in class."

Lea (10)

Lea answers the concrete question as to whether she learnt something from the programme by saying, to begin with, that perhaps they will deal with this subject later on at school. Then she lists her learning achievements: the creation of the sun or the moon, that there is a typical relationship between the sun and the moon. That her knowledge is very vague does not disturb Lea, for she knows what she can make do with her recently acquired knowledge. If this subject is dealt with at school, then she will be ahead of the others. She can make an active contribution to the lesson based on the security thus gained. In terms of content, this learning achievement will probably not lead to the success aspired to at school. But for the child (and for the programme ratings) this is an achievement, since Lea now knows how she can do something for school – namely watch *Was ist Was TV*.

The space of learning **Was ist Was TV** *(What is what TV)*

The success of *Was ist Was TV* is based on the concept of offering a large amount of specialist knowledge from thematic areas that are highly attractive to children. The items presented are not usually didacticised. A host of facts are shown, one after the other. The programme does not address the kids as pupils and learners, but rather as interested experts. Thus the children acquire individual special facts, similar to small islands of knowledge that often contain unintended interpretations or a few well-founded elements. Nevertheless, the subjective utility value (Götz 2002) is high. Expert knowledge is useful for self-promotion purposes and imparts confidence of having gained a

lot of experience in this field. What has been learnt does not always match that which was shown in the programme; nor is confidence in one's own expert knowledge always well-founded. The scope of potential learning provided by these programmes resembles a kaleidoscope of special facts. There is always something new and interesting to watch: as in the case of a kaleidoscope there is less of a memory of the individual patterns, and more amazement at the variety as a whole. In summary, *Was ist Was TV* is a programme that conveys itself as an interesting place to learn.

Learning in knowledge and documentary programmes

The findings of this study reveal that with each programme learning is different. Not only do the contents differ, but so do the learning spaces. Children learn by viewing processes that are accompanied by a likeable television personality with whom they can relate. Above all, they learn through viewing concrete images and scenes. They memorise facts more easily when the contents have been prepared with didactic expertise. This can be achieved through one of the afore-mentioned affable television personalities, but also by means of a perspicuous explanation with the corresponding visualisation. If the contents have been attractively prepared and if points are presented that relate to the children, the young viewers will note several of the facts offered in the programme. Similarly, it is possible to offer a feeling of learning achievement, for example by stringing together a wealth of specialist knowledge and informative items in subject areas that are highly attractive to children. What the children garner from this type of programme is less the case of "correct" single facts and more the case of a feeling that they have learnt "really a lot". The relatively fundamental combina-

tion of facts and the acquisition of a moral orientation are a rarer occurrence than the remembering of facts or scenes. This form of construction lies on a higher level, where generalisations are inferred via the comprehension of concrete items. Narrative integration approaches seem most suitable for this type of learning construction. Children probably need time to achieve these more complex forms of learning achievement: time for empathy and time to develop deeper understanding as well as to draw their own conclusions from what they have seen. ■

Translated by John Malcolm King
Revised by Peter Lemish

NOTES

* Abbreviations of German Broadcasting Stations:
BR: Bayerischer Rundfunk (Bavarian Broadcasting Corp.), Munich
MDR: Mitteldeutscher Rundfunk (Central German Broadcasting Corp.), Leipzig
SFB: Sender Freies Berlin (Radio Free Berlin), Berlin
WDR: Westdeutscher Rundfunk (West German Broadcasting Corp.) Cologne
ZDF: Zweites Deutsches Fernsehen (Second German Television), Mainz

1 As is the case with all the models, this pictorial example has its limitations. In particular, it describes just a minor part of the complex process of learning. The learning process here seems to be purely cognitive, which it definitely is not. For example, the significance of the social context and human relationships, vital in learning processes, have not been considered.

2 Scientific supervision: the author with the co-operation of Tanja Meyerhofer (M. A.), Monika Reichel (M. A.), Julia Knoller (M. A.), Dipl.-Oec. Ole Hofmann, Annette zur Mühlen (M. A.), Dipl.-Päd. Marieke van Oostrum, Dipl.-Päd. Miriam Brehm, and Dipl.-Päd. Heidi Gleißner.

3 The selection of the respective episode was left up to the editorial teams. To avoid going beyond the scope of this article and since the programme has been discontinued in the meantime, the findings on Null-Acht-13 have been excluded.

4 Only day-care centres equipped with a television set that is located in a separate room for purposes of this study were selected. As a result, it was quite natural for participants in the study to watch TV in these surroundings. The catchment's area of the day-care centres included both the education-oriented middle-class and the working-class area. Approximately 15% of the children came from ethnic-minority families. The study was carried out during the months of June and July 2002.

5 The children's responses were edited to omit their "erms and ers" and repeated words.

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