"Learning technology?" About the informal learning potential of youth magazines

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Abstract

In former studies, youth magazines were often analysed with a gender perspective. For instance Mühlen Achs (1996) criticized the youth magazine's focus on so called "special female needs", Chagheri (2005) could show in her feminist-linguistic analysis that the description and pictures of women in both magazines can not be recognized as emancipatory. And Herrmann (1999) explored also a German teenage girls' magazine and describes it as reinforcing the myth of femininity.

In this paper I mainly discuss the methodology and first results from my work package "Youth, gender and SET in media", which I lead in the EU-7.FP-project "MOTIVATION" (http://www.motivation-project.com/), which shall bring a new perspective in the discussion above: Which role plays technology in youth magazines? Are images of technology gendered and if, how? What subtexts have technology images regarding technology jobs?

1. Introduction

This paper refers to the currently running EU project MOTIVATION[1]. The background of this project is that the number of science, engineering and technology (SET) students is declining in many European countries although SET offer job possibilities for the present and the future (see more in Sagebiel et al. 2008 a+b). Moreover we state that job choices of young people partly influenced by media representations of jobs and job fields, this is one of the starting points for my work package 2 "Youth, gender and SET in media" (WP 2). The consortium's hypothesis is that certain media can be seen as today's informal vocational counsellors for young people. In my work package all partners do fieldwork in different extents in two youth relevant media fields, namely TV series (soap operas) and print media (magazines).

In the first phase of the project, in 2008, the consortium explored youth magazines and analysed images of SET in general and images of SET with a gender focus in particular. For instance we asked what kind of photos and other pictures are representing SET.

In the second project phase, in spring and summer 2009, the consortium is looking at images of SET and gender in TV. The assumption behind that is that movies, television series, music clips and commercials mirror social reality and influence implicitly young people's study choices. Our special focus lies on "soap operas", because from youth studies we know, that especially many young women watching every day on TV daily soaps and mystery stories.

Research on SET and gender in media focussed on SET professions only so far (see for instance Griffin et al. 1994, Wasburn 2004, Flicker 2005, Bulck & Beullens 2005, Whitelegg et al. 2006). The new focus of my work package of MOTIVATION is to focus on general images of SET in youth magazines and television. The idea behind that is that relevant SET image shaping information is not only connected to shown scientists or engineers. And moreover, vocational and educational choices are not only based on explicit representations of SET professions and professionals. The various faces of SET images are constructed incidentally while different forms of SET are presented. And those images influence educational and professional choices in both ways, aware and unaware. Sometimes the information on the aware level can be positively shaped by measures and school information, but – as a psychologist I strongly assume that – they can only lead to positive effects (deep interest in SET, future SET career options) if the unaware messages do not contradict those intentionally positive mediated SET information.

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[1] MOTIVATION is funded as Coordination Action within the 7th Framework Programme of the European Commission. Involved are the following persons: Felizitas Sagebiel (coordination) and Jennifer Dahmen in Germany, Anita Thaler and Christine Wächter in Austria, Anne-Sophie Godfroy-Genin and Cloé Pinault in France, Els Rommes in the Netherlands, Carme Alemany in Spain, Bulle Davidsson in Sweden and Natasa Urbancíková and Gabriela Kolvekova in Slovakia. For further information see www.motivation-project.com.

Therefore my interest is to learn more about the SET images in youth relevant media (magazines and TV soaps) in order to explain interdependencies of those images with low interests of youth in SET degree courses and jobs.

2. Methodology

The role of a work package leader in a project like MOTIVATION means to provide the consortium with methodology based on operationalized hypotheses and research questions.

Therefore the consortium collected and summarized firstly relevant literature about youth media, SET and gender in their countries and international key literature in that seminal field as well. After that I provided a template for a "quantitative media analysis in all partner countries" based on available secondary data. Based on that template, the consortium members identified most influencing youth relevant media in each country, especially in the field of print media and television. We used up-to-date media data, for instance about the reach of TV shows and about the print run of magazines. In most cases we found those data on the internet pages of the respective media, some partners contacted media persons to gather information. However, all partners tried to answer the questions about the most popular TV series and most popular magazines in the age group of 14-19 years and if data were available they asked also about gender differences. Additionally all partners wrote descriptions of the context of youth activities in their country. To evaluate the importance of media (and especially TV and magazines) it is necessary to put the media consume in the context of the whole leisure behaviour of young people in the respective country. Therefore we collected country-specific background information about leisure activities of youth in general and about their media consuming in particular.

2.1 Magazine analysis

In first exploratory magazine analyses we found out, that youth magazines contain several SET representations, but only few of them are on the textual level, mostly they are images containing certain SET representations. That meant for us a concentration on images and content analysis of pictures (and headlines, picture sub-texts) and less textual content analysis. A positive side-effect of the focus on images was that they can be read by all consortium members, because there is no language barrier, which makes it easier for discussions and a common interpretation (like during the reflection meeting in October 2008 in Graz).

For the actual magazine analysis the consortium partners actually studied images of SET in their chosen country-specific youth magazines in different extents (regarding their allocated person months). It was important for the whole consortium to enable a methodological exchange and to discuss exploratory results; therefore it was necessary that all partners do at least some magazine analysis.

Like proposed, we focussed not only on person interviews with scientists (because they are very rare in youth magazines) but mostly on implicit information about SET. After comparing literature and first country-specific media-analysis, we decided in the first expert meeting (in Barcelona, July 2008) to concentrate our magazine analysis on technological artefacts (machines, hardware, software) on users of (shown) technology and on SET professionals (scientist, engineers, etc.). That means we referred explicitly to a layperson's definition of SET rather than an expert's view because we wanted to analyse SET representations, which would be recognised by young readers as SET.

For the image-focused content analysis I developed methodological tools considering feedbacks of the consortium partners and using experts' input. The feedback and the experts' input has been exchanged during the methodological workshop with experts in genderedness of SET images in media – as part of expert workshop 1 in Barcelona (July 2008). Finally, I provided a data sheet (see table 1 "WP2 media analysis: youth magazine analysis document", plus a fill-in-help with examples) for the standardized analysis of SET representations in youth magazines (with special focus on genderedness of contents) for all partners to enhance an inter-subjective reliable analysis.

Table 1: WP2 media analysis: youth magazine analysis document

WP2 media analysis:
youth magazine analysis document

SET representation nr. ▢

Magazine name: ▢
Issue: ▢

Country: ▢
Name of the researcher: ▢

Page number ▢ from ▢ (total number of magazine pages).

Step 1: Identification of SET representation

Please scan the whole respective original SET representing **picture** (and please add it as a separate file, named country_number.jpg, e.g. Austria_3.jpg).
If there is an additional **SET-related headline** to the picture, quote the text here (in English):
▢

Size of the whole picture:
☐ Full page
☐ Half page
☐ Quarter page
☐ Less than quarter page

Position of the picture:

☐ Left page		☐ Right page	
☐ Top left	☐ Top right	☐ Top left	☐ Top right
☐ Bottom left	☐ Bottom right	☐ Bottom left	☐ Bottom right

Step 2: Contextualisation of SET representation

In which **part** of the magazine is the picture?
☐ Journalist magazine content
  ☐ article / story / poster
  ☐ movie description
  ☐ special SET section
☐ Advertisement / product placement
  ☐ for a SET product
  ☐ for another product

Role of SET in the picture:
☐ SET in background / on the side of the picture
OR
☐ SET is the main topic of the picture (That means the represented SET could not be replaced by another thing, for instance flowers, without distorting the meaning of the picture.)

Colour code: What are the main colours of the picture?

☐ White
☐ Yellow / Orange
☐ Red
☐ Green
☐ Blue / Turquoise
☐ Pink
☐ Purple
☐ Brown
☐ Black / Grey
☐ other: ▢

What is the main **purpose** of SET in this picture?
☐ SET as accessories (for instance for models)
☐ Leisure activities / sport
☐ Beauty / fashion
☐ Helping others / saving the planet
☐ Learning / working:
  ☐ SET education / SET profession
  ☐ Other educational / professional field
☐ other purpose: ▢

What **field** of SET is shown?
☐ Music-technology
☐ Cell-phone / handheld
☐ Computer
☐ (Video) camera / TV
☐ Video game / toys
☐ Vehicle (car, bike, …)
☐ other: ▢

☐ SET is shown without person(s)
OR
☐ SET is shown with person(s):
  ☐ Female(s): How many? ▢
  ☐ Male(s): How many? ▢
→ see **Step 3**

SET is **represented** as a:
☐ job (engineer, scientist)
☐ product (technological product)
☐ other: ▢

Step 3: Genderedness of SET representation

Please describe the role of shown female(s) and/or male(s) in the respective SET picture.

Are females and males doing the same? Are they scientists or engineers or SET users? Are they competently using or discussing SET or are the shown technological products accessories for models? Who is actively using SET (for instance working on computer)? Who is passive (for instance just watching at the monitor of another person who uses the computer)? Are there other important factors in the SET representation (cultural background/ethnicity, heterosexual normativity, age, etc.)?
▢

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In an additional fill-in-help- document, I answered to frequently asked questions of test users[2] and gave explanations of the analysis document and the purpose of single.

For instance, I decided that the minimum-size of the analysed pictures should be one eighth of a page that means at least 7 x 10 cm. All pictures (including SET-related headlines) should be analysed and described in one data sheet; all images had to be scanned and stored on a CD-Rom.

One of our categories, the magazine place of the picture, is explained as important for our interpretation, because we want to know whether SET representations are mainly present in advertisements or in journalists' articles. What images of SET lie behind journalists' articles? Another category is the role of SET in the picture. This is important for the analysis, to learn more about if SET is presented as an interesting and self-contained topic.

A category, which goes back to the first expert-meeting in Barcelona (2008), is the main purpose of SET in the respective picture. We think this is a very important category, concerning images of SET. What happens to be one of the frequently checked items in this category was "SET as accessories". Which means for instance if a shown person holds a microphone or a camera and is obviously not using it, but using the item more as a prop to play a certain role just for that picture or an image is using SET in the background to produce a stage set.

The category "SET represented as a job or as a product" helps to identify, if the picture shows an engineer, a scientist, a computer specialist etc. (SET professionals) or if the picture just shows a technological artefact used by a person. If for instance a musician uses a microphone or a captain a boat, they are professionals using a SET-product, but they are no SET-professionals.

And the last category was the only openly asked question in the data sheet. It says: "Please describe the role of shown female(s) and/or male(s) in the respective SET picture. Are females and males doing the same? Are they scientists or engineers or SET users? Are they competently using or discussing SET or are the shown technological products accessories for models? Who is actively using SET (for instance working on computer)? Who is passive (for instance just watching at the monitor of another person who uses the computer)? Are there other important factors in the SET representation (cultural background/ethnicity, heterosexual normativity, age, etc.)?"

While the content analysis in step one and two could be analysed quantitatively, step three of the data sheet (see table 1) focused on the genderedness of SET representations and therefore needed a qualitative approach. Firstly all analysts should describe the SET images which were shown with persons very descriptively and only after that try to interpret their results. Therefore, I asked all partners to describe the role of shown female(s) and/or male(s) in the respective SET picture. The questions for such pictures should be: Are females and males doing the same? Are they scientists or engineers or SET users? Are they competently using or discussing SET or are the shown technological

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products accessories for models? Who is actively using SET (for instance working on computer)? Who is passive (for instance just watching at the monitor of another person who uses the computer)? Are there other important factors in the SET representation (cultural background/ethnicity, heterosexual normativity, age, etc.)?

In the qualitative analysis all partners should focus on two specific "gender and SET" issues:

1. Modes of gender productions and construction of mixed gender relations and SET. That means we are interested in how females and males are represented and how their interaction with SET is represented.

In my guidelines I suggested:

- "Please go through all your magazine analysis documents and take a closer look on all pictures (respectively analysis documents – step 3) where <u>at least one female plus at least one male</u> is represented."

- "If you have more than one magazine, it could be interesting to put the documents in an order (for instance in Austria, we look at all BRAVO-pictures and than at all Xpress-pictures). Our hypothesis is that we could find <u>differences from magazine to magazine</u>."

- "Read your passages of step 3 and try to find "the central threat" (the <u>main similarities and differences</u>) of the pictures (with both genders!). How are females and males represented? Are they interacting? And how? Are they using the technological artefact in the same way? Are there other factors which seem important (age, ethnicity, etc.)?"

2. Good practice of "SET and gender"-representations, where females and males are competently represented with SET.

My additional guideline text here was:

- "Please go through all your magazine analysis documents and take a closer look on all pictures (respectively analysis documents – step 3) where <u>at least one person</u> is represented."

- "If you find "good practice examples" where females and males are competently represented with SET, please describe those good practices: What makes them good practice? Are good practices concentrated on special magazine parts?"

Hence, my recommendation for all partners was to primarily answer these two questions and then if they were interested in further gender and SET issues (and have time for it) to analysis further gender motives as well. As a result all partners should write a qualitative analysis, where they conclude with their findings regarding gender and SET

- especially considering mixed gender relations and
- good practice
- for each magazine and also
- summarizing for your country.

4. Overall results

The meaningfulness of the results partly depends on the amount of analysed magazines, respectively number of analysed issues and SET images. To draw conclusions on SET images and genderedness of SET representations on an overall magazine or country level, representativeness is an essential requirement. But it is not only the amount of analysed images that matters; it is about continuity of analysis over a reliable time period as well.

Because of different extents of person months for my work package per country, the results can be split in two groups. The three countries with more person months Austria, France and Germany provided about 300 SET representations each which could be used for a reliable and valid quantitative processing of their data; and the other country group Slovakia, Spain[3] and Sweden[4] pursued a more exploratory fieldwork to try all instruments and methods and take part on reflections about results. Although the Dutch partner had less person months as well, they delivered with about 60 SET images a further possible source for the quantitative country-specific evaluation.

As the second, the qualitative, analysis of gender and SET reverenced to the previous analysed SET representations the limitation of the meaning of the results is similar than mentioned before. Although qualitative analysis does not need representativeness of its sample there are differences in the significance of statements if they are based on five pictures out of one issue or on fifty pictures coming from several issues of a magazine.

In a first step all received data[5] were put in a statistical database[6]. At the same time sampling inspections have been made. There, we recognized differences in the evaluation of SET representations concerning some variables (like purpose of SET in a picture, etc.). Therefore the statistical analysis was reduced to frequencies and cross tabs calculations of some basic variables for now.

In table 2 you can see the number of analysed pictures with SET representations in each country[7]. Like mentioned before, Slovakia and Netherlands have (like Spain and Sweden) reduced person months in this work package and could only analyse youth magazines in more or less exploratory way. Austria,

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[3] Until now, the Spanish team did not provide any SET representations and analysis work. Therefore the further analysis details contain no Spanish data yet.

[4] Until now, the Swedish team did not provide any SET representations and analysis work. Therefore the further analysis details contain no Swedish data yet.

[5] Data sheets regarding pictures without SET representation were not included.

[6] This was not part of MOTIVATION, but possible due the support of my students Magdalena Wicher and Susanne Kink.

[7] Fieldwork for magazine analysis was done by Jennifer Dahmen, (Germany), Gabriela Koľveková (Slovakia), Cloè Pinault (France), Anita Thaler and Magdalena Wicher (Austria) and Aniek Willemsen (Netherlands). Data from these named researchers were used for tables 2 to 16.

as a work package leader, analysed most pictures 427, followed by Germany and France with 262 pictures each.

Table 2: Number of analysed SET representations per country

number of analysed SET representations			
country	frequency	valid percentages	accumulated percentages
Austria	427	42.0	42.0
Netherlands	61	6.0	48.0
Slovakia	4	.4	48.4
France	262	25.8	74.2
Germany	262	25.8	100.0
total	1016	100.0	

The next table shows the analysed pictures distributed to the different European youth magazines. "BRAVO" leads this list with 491 SET images, because this magazine was analysed partly in Austria (316) and partly in Germany (175); averagely 22.3 SET pictures were analysed per issue. 111 SET images were found in the Austrian magazine "Xpress", which makes averagely 18.5 analysed SET images per issue; 13 in Dutch "Girlz!" (4.3 per issue); 48 in Dutch "Quest" (16 per issue), 4 in Slovak "Kamarát", 202 in French "Closer" (16.8 per issue), 60 in French "Phosphore" (20 per issue) and 87 in German "BRAVO GiRL!" (averagely 14.5 analysed SET images per issue).

Table 3: Number of analysed SET images per youth magazine

Analysed youth magazines			
	frequency	valid percentages	accumulated percentages
Bravo	491	48.3	48.3
Xpress	111	10.9	59.3
Girlz!	13	1.3	60.5
Quest	48	4.7	65.3
Kamarát	4	.4	65.6
Closer	202	19.9	85.5
Phosphore	60	5.9	91.4
Bravo girl	87	8.6	100.0
total	1016	100.0	

From all 1012 SET related pictures[8] nearly one half (48.8%) show SET as a main topic in a picture, for instance a singer holding a microphone in her hand, and the other half (51.2%) represents SET in the background, for instance a car in the background of a fashion shooting (see table 4).

Table 4: Role of SET in the analysed pictures

Role of SET in the analysed picture			
	frequency	valid percentages	accumulated percentages
SET in background	518	51.2	51.2
SET is the main topic	494	48.8	100.0
total	1012	100.0	

In table 5 it can be picked out that the vast majority, 96.2%, of all analysed pictures represent SET as a product, a cell phone, an e-guitar, a computer, a car etc. Only 3.1% of all analysed SET pictures represent SET as a job, showing an engineer or a scientist.

Table 5: Representation of SET as a job or as a product

SET represented as			
	frequency	valid percentages	accumulated percentages
a job	31	3.1	3.1
a product	976	96.2	99.2
other	8	.8	100.0

Most SET pictures are placed in a typical journalist content area (table 6), like an article or a story or a poster (59.5%). SET is often represented in advertisements as well (34.0%). 57.4% of those are

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[8] The total number of analysed SET images is actually 1016, but due to missing data in some data sheets the total number in some tables varies. The valid percentage always corresponds to the stated total number in the respective table.

advertisements for SET products and 42.6% of advertisements show SET even though the respective product of the commercial is not related to SET (table 7). Only 3.1 % of analysed SET pictures come from special SET sections; that are 29 images. These special SET sections are not very prominent in youth magazine. Only Austrian "Xpress" and German "BRAVO" have them. "Xpress" has a regular SET section in each issue, therefore 75.9% of those analysed 29 SET section pictures come from the Austrian youth magazine. German "BRAVO" has special job issues – which are dedicated to SET jobs sometimes – special SET sections are a temporary part of the magazine, which leads to 20.7% analysed SET section pictures coming from "BRAVO".

Table 6: Magazine part of the respective SET images

SET representations in magazine parts			
	frequency	valid percentages	accumulated percentages
article / story / poster	560	59.5	59.5
movie description	32	3.4	62.9
special SET section	29	3.1	66.0
advertisements	320	34.0	100.0
total	941	100.0	

Table 7: Product type presented with SET in advertisements

SET representations in advertisements			
	frequency	valid percentages	accumulated percentages
for a SET product	183	57.4	57.4
for another product	136	42.6	100.0
total	319	100.0	

A huge majority of SET representing pictures show SET with persons (78.3%, table 8). And 51.4% of all SET pictures represent at least one female (some together with males, more about that can be found out in chapter 4.2 about gender and SET representations); all in all the analysed SET images seem rather gender balanced: 27.1 % show only males with SET (table 9) and 28.3% show only females with SET (table 10).

Table 8: SET represented in pictures with or without persons

SET representations and persons			
	frequency	valid percentages	accumulated percentages
without person(s)	220	21.7	21.7
with person(s)	796	78.3	100.0
total	1016	100.0	

Table 9: Females presented with SET in pictures

SET representations with females			
	frequency	valid percentages	accumulated percentages
yes	520	51.4	51.4
no	274	27.1	78.5
no persons	218	21.5	100.0
total	1012	100.0	

Table 10: Males presented with SET in pictures

SET representations with males			
	frequency	valid percentages	accumulated percentages
yes	508	50.2	50.2
no	286	28.3	78.5
no persons	218	21.5	100.0
total	1012	100.0	

Nevertheless, table 11 and 12 indicate some slight gender differences. But again first some balanced data: on the basis of all SET pictures which show persons, 35.2% have no female person and 36.7 % no male person in it. Only when we look at the number of portrayed females and males, we see differences. 383 pictures show one female and 109 portray between two and five females. Whereas only 322 SET pictures show only a singular male, compared to the 383 singular represented females. And while only 109 SET images show little groups of two to five females, 161 pictures show two to five males plus SET. Again in chapter 4.2 some explanations for those unequal gender representations can be found. One example is the typical band representation of a female singer together with two or more male, instruments playing, band colleagues.

Table 11: Number of females presented with SET in pictures

Number of females in SET images			
	frequency	valid percentages	accumulated percentages
0	276	35.2	35.2
1	383	48.8	83.9
2	62	7.9	91.8
3	21	2.7	94.5
4	20	2.5	97.1
5	6	.8	97.8
6	5	.6	98.5
7	3	.4	98.9
8	2	.3	99.1
9	5	.6	99.7
11	1	.1	99.9
12	1	.1	100.0
total	785	100.0	

Table 12: Number of males presented with SET in pictures

Number of males in SET images			
	frequency	valid percentages	accumulated percentages
0	287	36.7	36.7
1	322	41.1	77.8
2	89	11.4	89.1
3	44	5.6	94.8
4	16	2.0	96.8
5	12	1.5	98.3
6	4	.5	98.9
8	3	.4	99.2
9	1	.1	99.4
10	1	.1	99.5
14	1	.1	99.6
15	1	.1	99.7
18	2	.3	100.0
total	783	100.0	

In the following tables, based on crosstab calculation, interconnections of two variables in each case are presented.

An interconnection of magazine and frequency of SET images in special magazine places can be gathered from table 13. While in most magazines SET representations are placed in the journalist content (between 53.8 and 76.2 %), in Slovak "Kamaràt" the majority of SET pictures is placed in the commercials. But a closer look makes clear that this could be a random number, because the sample of four SET pictures is too small for serious interpretations.

Table 13:

Place of SET representations in European youth magazines		journalist magazine content	advertisment / product placement	total
Bravo	number	374	117	491
	% of magazine	76.2%	23.8%	100.0%
Xpress	number	69	40	109
	% of magazine	63.3%	36.7%	100.0%
Girlz!	number	7	6	13
	% of magazine	53.8%	46.2%	100.0%
Quest	number	28	20	48
	% of magazine	58.3%	41.7%	100.0%
Kamarát	number	1	3	4
	% of magazine	25.0%	75.0%	100.0%
Closer	number	119	83	202
	% of magazine	58.9%	41.1%	100.0%
Phosphore	number	30	23	53
	% of magazine	56.6%	43.4%	100.0%
Bravo girl	number	59	28	87
	% of magazine	67.8%	32.2%	100.0%
total	number	687	320	1007
	% of magazine	68.2%	31.8%	100.0%

The next table (14) deals with a very interesting topic, the role of represented SET in the respective pictures and the question if it differs in the analysed magazines. And indeed there are some interesting details in this table. While in German "BRAVO" SET is nearly equally represented in background (49.7%) and as a main topic (50.3%), nearly like in French "Phosphore" (46.7% background; 53.3% main topic); in French "Closer", Dutch "Girlz!" and German "BRAVO GiRL!" around two thirds of SET is represented in background, while in Dutch "Quest" three quarters of SET images show SET as a main topic.

Table 14:

Role of represented SET in European youth magazines		SET in background	SET is the main topic	total
Bravo	number	244	247	491
	% of magazine	49.7%	50.3%	100.0%
Xpress	number	44	63	107
	% of magazine	41.1%	58.9%	100.0%
Girlz!	number	10	3	13
	% of magazine	76.9%	23.1%	100.0%
Quest	number	11	37	48
	% of magazine	22.9%	77.1%	100.0%
Kamarát	number	4		4
	% of magazine	100.0%	.0%	100.0%
Closer	number	123	79	202
	% of magazine	60.9%	39.1%	100.0%
Phosphore	number	28	32	60
	% of magazine	46.7%	53.3%	100.0%
Bravo girl	number	54	33	87
	% of magazine	62.1%	37.9%	100.0%
total	number	518	494	1012
	% of magazine	51.2%	48.8%	100.0%

Like in table 14, the Dutch magazine "Quest" is an exception in table 15 again. While all other magazines show SET mainly with persons (between 71.8 and 85.6%), "Quest" has a little more than a half (52.1%) of all analysed SET pictures showing SET without any person. Looking at this variable more onto a detail level, we can analyse the representation of females in those SET pictures. Not very surprising explicit girls' magazines like "Girls!" and "BRAVO GiRL!" show more SET pictures with females, but all magazines show mostly pictures with females or mixed gender groups. Except "Quest", where you can not only see more SET pictures without any person in it, but also more SET pictures with only males than pictures of females plus mixed gender groups (table 16).

Table 15:

SET representations with or without persons in European youth magazines		without person(s)	with person(s)	total
Bravo	number	85	406	491
	% of magazine	17.3%	82.7%	100.0%
Xpress	number	16	95	111
	% of magazine	14.4%	85.6%	100.0%
Girlz!	number	2	11	13
	% of magazine	15.4%	84.6%	100.0%
Quest	number	25	23	48
	% of magazine	52.1%	47.9%	100.0%
Kamarát	number	1	3	4
	% of magazine	25.0%	75.0%	100.0%
Closer	number	57	145	202
	% of magazine	28.2%	71.8%	100.0%
Phosphore	number	16	44	60
	% of magazine	26.7%	73.3%	100.0%
Bravo girl	number	18	69	87
	% of magazine	20.7%	79.3%	100.0%
total	number	220	796	1016
	% of magazine	21.7%	78.3%	100.0%

Table 16:

Females in SET representations in European youth magazines		Female(s)			
		yes	no	no persons	total
Bravo	number	260	146	84	490
	% of magazine	53.1%	29.8%	17.1%	100.0%
Xpress	number	58	34	16	108
	% of magazine	53.7%	31.5%	14.8%	100.0%
Girlz!	number	10	1	2	13
	% of magazine	76.9%	7.7%	15.4%	100.0%
Quest	number	9	14	25	48
	% of magazine	18.8%	29.2%	52.1%	100.0%
Kamarát	number	3		1	4
	% of magazine	75.0%	.0%	25.0%	100.0%
Closer	number	93	52	57	202
	% of magazine	46.0%	25.7%	28.2%	100.0%
Phosphore	number	31	13	16	60
	% of magazine	51.7%	21.7%	26.7%	100.0%
Bravo girl	number	56	14	17	87
	% of magazine	64.4%	16.1%	19.5%	100.0%
total	number	520	274	218	1012
	% of magazine	51.4%	27.1%	21.5%	100.0%

4.1 Austrian-German comparison

Further analysis of the quantitative and qualitative data will be done in the next months. Here I will present some interesting results of Austrian and German magazines. These magazine comparisons are especially fruitful as these magazines share the same language and market ("BRAVO" is the most popular youth magazine in Austria as well) and the amount of analysed pictures and issues gives enough material to make some valid statements. In these detailed comparative analysis we refered to data from:

- 22 issues of the German "BRAVO"[9] (complete analysis from July to December 2008)
- 6 issues of Austrian "Xpress"[10], (complete analysis from July 2008 to January 2009).
- 7 issues of German "BRAVO GiRL!"[11] (complete analysis from July to December 2008)

And so we found that all three analysed magazines have a different share of females and males represented in their SET images. While "Xpress" and "BRAVO" are nearly equally often present females and males with SET, the girls' magazine "BRAVO GiRL!" certainly emphasize their focus on female readers by portraying females in two thirds of their SET images. Another point I am interested in was what fields of SET and especially technology is presented, and one not much surprising result is, that the field of SET related images are connected to topics typically discussed in youth magazines. The most presented SET fields are music technology (277), vehicles (133) like cars or motorbikes, other – not pre-defined – technology (125) like for instance digital watches or kitchen equipment, cell phones/handhelds (115), camera/TV pictures (75), computers (41) and video games/toys (35). Further results of the comparison of "BRAVO", "BRAVO GiRL!" and "XPRESS" and an interpretation against the background of interview data of German and Austrian pupils as well can be found in Dahmen and Thaler (2009a + b). Especially the comparison of an adapted "Draw-a-scientist"-test and the gender-analysed magazine pictures brought interesting results. Because, certainly we found some gender equal representations of science, engineering and technology in youth magazines, but they represent SET very often in an unrealistic manner, using technological products as props of a scene and not in a meaningful technological context. If we see youth magazines as a source for informal learning processes (about various topics, about gender and about SET as well), then it is a very important result that SET images are often shown in an accessories-function, where those who do not already know the technological artefact get no further information about the proper usage. Keeping those results in mind, it is interesting that our adapted "draw-a-scientist"-test in both countries could show that the pupils' perceptions reflect a narrow picture combined with existing stereotypes of SET. For me it is striking that the majority of the Austrian and German drawing interviewees has not many reality-driven information in their SET pictures. They use certain symbols like vials to add the SET meaning to a stick figure. Their drawings reflect certain images of SET, the

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[9] Fieldwork has been carried out by Magdalena Wicher and Jennifer Dahmen.

[10] Fieldwork has been carried out by Anita Thaler.

[11] Fieldwork has been carried out by Jennifer Dahmen.

drawn SET persons are often even not connected to their SET artifacts, that means they do not actively handle or even touch their professional instruments and if those SET symbols were not present in the drwaings, you would not identify the persons as scientists or engineers – like in our analysed youth magazines, where SET artifacts serve as props (Dahmen and Thaler 2009b).

5. Conclusions

As far as the analysis of 1016 collected and evaluated SET images is advanced, there can be drawn some conclusions. A detailed interpretation concerning country-specific youth context data and results from the other work packages, furthermore discussions within the consortium and with experts, has to be supplemented in further WP 2 publications. This is work in progress and therefore the conclusions her are preliminary.

Most of the analysed images show SET products, only 3.1% represent SET as a job field. Given that the majority of SET images (that depends on the magazine) is placed in the journalist content (and not advertising SET products), there is the possibility to influence that situation. Journalists use SET too seldom to tell stories about SET professions or SET education possibilities, therefore the image of SET is strongly affected by the production of certain images containing SET products. Another evidence for that is that SET is often used like a stage set in the background of pictures or technical artefacts used as accessories or props for portrayed persons.
All those observations have in common that SET is too little represented in a meaningful way, let alone a positive meaning of SET.

German "BRAVO" (which is the most popular youth magazine in Germany and Austria) is partly overt gender and SET stereotypical. For instance are stereotypically male connoted technologies like vehicles definitely presented as male technology, showing males driving cars, motorbikes and even boats, females are mostly presented as co-drivers or even not that but just like models posing beside vehicles. Along with the gender and technology stereotype comes the heterosexual normativity.
In contrast to "BRAVO", Austrian "Xpress" has less overt gender and technology stereotypes, but in the analysis more subtle forms begin to show. For instance that in a group situation, the older male explains two younger females something at his computer. The Austrian magazine analysis could show that especially the journalist content could be improved, regarding SET images but also regarding gender and SET.
"BRAVO GiRL!" has been identified as a magazine with a strong hetero-normative direction, mainly aiming at girls and how they can appeal to boys. This is consistent with previous studies about girls' magazines, especially about "BRAVO GiRL!", where Parissa Chagheri (2005) found that the main topics are love/relationships and fashion/cosmetics and political and economic topics do not or very seldom occur, social topics are presented in emotional ways. Product advertisements are mainly

presenting fashion and cosmetics suggesting a female imperfection, which is also a huge topic in the counsel corners of both magazines. Chagheri's feminist-linguistic analysis could show that the description and pictures of women in that magazine can not be recognized as emancipatory.

Overall it can be stated that good practices of meaningful and gender equal SET representations are seldom, whatever youth magazine or country you look at. The more or less only positive exception is in German "BRAVO", where an irregularly special section called "Job Attacke" introduces future job fields to young people. One issue (43) even uses the "CSI effect" (Els Rommes: Rommes et al. 2007) where work in forensics is presented as 'dream job'.

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