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STEM and Equal Opportunities in TV Drama Formats



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Foreword

Germany's future is largely dependent on innovation through research and development. New insights from science and research make a decisive contribution to finding solutions to numerous problems of our time. In addition, it is especially important to enter into a dialogue with the public. Only people who are conversant with the prospects and possibilities of new technologies will develop an interest in them and be prepared to integrate them into their everyday life.

It is therefore a matter of great concern for the German Federal Government to create an interest in research topics within society. We have initiated numerous measures and initiatives for this purpose within the framework of our science communication work. With targeted measures like the National Pact for Women in MINT Professions, we are reaching out especially to young girls and women. I am particularly pleased that we have also been able to interest numerous partners in the media in this Pact because, even today, professions in the Natural Sciences and Technology are still largely presented in a gender-stereotypical manner.

One should not underestimate the influence which the media have on the career choices young girls make. For this reason, the German Federal Ministry of Education and Research has been keen to support the project "Career orientation in entertainment format". The results are presented in the accompanying brochure. The project, which was conducted by the Technical University of Berlin, has activated a creative and productive collaborative process between scientists and young scriptwriters of both genders. The objective, on the one hand, is to make use of entertainment formats to create an awareness of careers in the Natural Sciences and



Technology. On the other hand, the project raises questions such as: What can the science sector and the entertainment sector learn from one another? How can they inspire one another? This will produce a new momentum in science communication. Hence topics relating to the future – Health, Energy, Climate Protection, Mobility, Communication and Security Research – will not only come to the fore in science and research policy, but will also become the subject of a new discussion within society.

Prof. Dr. Annette Schavan,
Member of the German Bundestag
German Federal Ministry of Education and Research



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Introduction

This publication documents central results of the project „Career Orientation in Entertainment Formats“ and of the final International Conference, held from September 6th to 8th 2010 in Berlin as part of the „mediaweek@IFA“ supported by the German Ministry for Education and Research (BMBF) and the European Social Fund (ESF).

The aim of the project was to explore the potential of TV movies and series for the public understanding of STEM professions through various research studies, and – on the basis of these results and of an analysis of best practices in other countries – to tread new paths for STEM-science communication and for the recruitment of young adults. To reach this goal the initiative “STEM and Equal Opportunities in TV Drama Formats” (MINTiFF) and the MINTiFF Network were set up at the Technical University in Berlin together with the Fraunhofer Society, the Helmholtz Association and the Max Planck Society. At the international conference not only the key findings of the studies and the measures implemented with the partners from the non-universitarian research societies were presented to the public, but also exemplary international initiatives and measures.

“Don’t think it’s only entertainment – STEM and Equal Opportunities in TV Drama Formats”, the title for the conference, was chosen carefully. It was not the objective to once more declare the demand of the educated middle-class for „high culture“ as the central measure of quality evaluation, to complain about the triviality of television films, series, daily soap operas and telenovelas, or to warn of the dangers of cultural decline. Rather the conference aimed to raise awareness of how important fictional television productions are for the career choice process of young people. At the same time the far-reaching symbolic non-depiction of STEM professions in German fictional TV productions should be taken into account, and another goal was to examine the opportunities and chances that female role models in STEM occupations in feature films, series, daily soap operas and telenovelas offer to raise the interest of young women in these professions and to encourage a corresponding study and career choice.

These goals have been encouraged by exemplary entertainment-education practices developed in other countries, which show that TV movies and se-

ries have a high potential to contribute to prosocial change and to promote interest by young women in STEM-studies.

At this point it is appropriate to thank the many international speakers for undertaking long journeys from Hollywood, Mexico, India and several European countries. Their experiences greatly enriched the conference. We would also like to thank the numerous speakers from the German film and television industry, who in various discussions shared their perspectives on the creative leeway for more STEM and equal opportunities in German fiction.

A very special thanks goes to the Federal Ministry for Education and Research (BMBF) and to the European Social Funds (ESF) for the support and promotion of the MINTiFF initiative and the international conference. Without this support neither the conference nor this documentation would have been possible. The first part of the documentation presents a brief overview of the state of research on socialization and educational effectiveness of fictional TV entertainment. After that are presented the results of the aforementioned studies that have been developed by the MINTiFF initiative under the title “STEM and Equal Opportunities in TV Drama Formats”. Its results were presented to the public at the conference for the first time.

The contribution of Corinne Marrinan, writer-producer of the U.S. television series “CSI – Crime Scene Investigation” (also highly successful in Germany) shows that the world of STEM provides rich material for exciting TV drama formats that attract and interest young people in STEM subjects and careers. She makes clear how “fiction” can be sustainably enriched by a strong emphasis on “science” and on strong female characters in science careers. It also shows how the series inspires and motivates young women to choose forensic studies. The next text summarizes the panel discussion that dealt with the question why in Germany the world of STEM and the German strengths in the areas of STEM research and industry so far have received so little attention in the narrative culture of fictional television.

Further contributions show exemplary international entertainment-education practices, that purposefully harness TV movies and series for prosocial purposes.

The contribution of the Mexican „father of Entertainment-Education“, Miguel Sabido, shows how daily soaps, especially popular among young women, can be used as a motor for pro-social change.

The creative leeway German producers, editors, and writers see for Entertainment-Education in daily soaps and telenovelas is documented by the subsequent summary of the corresponding panel discussion.

Next, the approaches and measures to promote Equal Opportunities and STEM-Entertainment-Education-Quality that were presented at the conference are summarized. These include measures developed in the U.S. by the Norman Lear Center, by the Alfred P. Sloan Foundation, by the Science and Entertainment Exchange in LA and at the University at El Paso, Texas. They are followed by presentations about projects at the Open University in Great Britain, at the Center for Media & Gezondheid in the Netherlands and a report about the project titled „Cause Entertainment“ in Mumbai.

In this context, the first results of the MINTiFF Science Events and the MINTiFF Idea Competitions that have been conducted in Germany in cooperation with the Fraunhofer-Society, the Helmholtz Association and the Max-Planck-Society, are presented. The end of the second conference day was crowned by the exclusive prescreening of the TV movie „Outcrossing“, a production of broadcaster WDR from the famous German serial „Crime Scene.“ For the script development the writer, Karl-Heinz-Käfer, received in the course of the first „MINTiFF Idea Contest“ a MINTiFF-Fellowship, during which he was supported by the Fraunhofer-Society with professional scientific advice.

The final part of this documentation discusses the current debate about the legitimacy of public service broadcasting and its financing as well as the debate about the public value of fictional TV entertainment– topics that were at the center of the third conference day. The starting point was the question: To what extent – from the perspective of public broadcasters and of the committees for broadcasting regulation – can certain strategies provide a chance for the German public broadcasters ARD and ZDF to underline their public value? Specifically, to reach young audiences and to fulfil their public cultural

and educational assignment – strategies that consciously are aimed to perceive and pursue STEM education opportunities and equal opportunity objectives in the field of fictional TV entertainment. In this section the results of the discussion with filmmakers and representatives of TV production companies and of the German film evaluation office about the criteria and methods that possibly can be used to measure public value are also presented. Finally, there is a summary of the discussion about the contributions that science organizations and universities can provide for filmmakers to make the STEM-science world more accessible, and to support the development of high quality TV movies, series and serials.

Information about the MINTiFF initiative can be found at <http://www.mintiff.de>. The conference program and videos of most of the talks are available at <http://www.mintiff-konferenz.de>.

Effects of TV Movies and Series on Socialisation and Education



STEM and equal opportunities in German TV – Select results of an evaluation of German TV programmes

Prof. Dr. Marion Esch

Despite numerous labour market, educational and equal opportunity policies as intervention measures, so far efforts to diffuse far-reaching gender-typical career choices and (female) distancing from technical professions in commerce and science have proved inadequate.

Multifaceted reasons for the reluctance of young women to enter into scientific and technical careers

The reasons why young women in Germany are reluctant to enter into scientific and technical careers are multifaceted.

Some important entry barriers are:

- negligible confidence in their own science and technical competencies
- a lack of support on the part of parents, environment and school
- shortcomings in teaching methods regarding science and mathematics
- the lack of a regulated technical education at schools
- insufficient career counselling relating to these areas
- the unappealing “male” image of these professions and a shortage of female role models
- the prevailing conditions applicable to this line of study and ongoing discrimination in professions (compare Esch 2008; Haffner et al 2006; Heine et al 2006; Kerst 2007; Ihsen 2010; Renn 2009; Bauer 2009; Kraus (2006); Solga & Pfahl (2009)

Gender-typical career preferences are to a large extent the result and expression of culture-specific gender roles and socialisation of technology

In this context, comparative international studies such as the Rose-Survey (Sjøberg & Schreiner 2005) clearly indicate that gender-typical career preferences and female distancing from technology is particularly pronounced in European industrial countries, Japan and Russia. In countries such as China and India young women are interested in technical careers to a large degree and gender differences are less pronounced by far. According to the results of the Rose Survey (Sjøberg & Schreiner 2005), Indian, Chinese and African women on average turned out to be more interested in technical careers than the average Western European man. Over and above this, studies confirm that female technical distancing arises with increasing age and that gender-typical career preferences first become intensely pronounced on entry into adolescence. It becomes clear from this that gender-typical career preferences are not inherent “by law of nature” but to a large degree the result of and expression of a culture-specific socialisation of gender roles and technology.

Social learning through models: Female role models in STEM professions are lacking

According to Bandura’s cognitive theory, learning takes place through real and media models. Bem proved with her gender pattern theory that children view the world through the “gender lens” right from the start (Bem 1983, Steinke 2005) and learn gender roles in this way.

In view of vertical and horizontal gender segregation in the labour market, young girls in Germany predominantly come face to face with female role models in their environment that are involved in gender-typical professions, and hardly in manage-

rial positions (Krais 2005). As has always been the case, these role models take on primary responsibility for the family and have employment histories attained accordingly (Max Planck Institute 2010; Federal German Statistical Office 2010). Children and young adults hardly ever come across female role models in STEM professions, i.e. Science, Technology, Engineering and Mathematics, in their environment. What about in the media?

In the media it is also hard to find role models in STEM professions

The representation and transformation of career roles and STEM professions in fictional television formats has hardly been analysed up until now, even if especially in recent times a growing interest is being displayed in vocational issues in fictional films and series (Dostal & Troll 2005; Gehrau 2011; Kirby 2011; Mangold 2006; Keuneke, Graß & Ritz-Timme 2010).

Gender roles have been attracting far greater interest in fictional television programmes both domestically and abroad. In their analysis of gender role stability and transformation, gender studies have also been investigating whether women are exercising certain professions, what positions they hold, and which roles in the family they have. These studies unanimously found that there was greater diversity in gender roles and a clear trend towards the “cool power woman” and women who are naturally involved in careers (compare Sichtermann 2009, Becker & Becker 1999; Haran et al 2008, Kitzinger et al. 2007; Nisbet & Dudo 2011, Wolbers 2009, Klaus 2001/2005, Hannover & Birkenstock 2005, Flicker 2005 Esther 2000). Findings of these studies show that women are still less defined in terms of their professions. According to Kitzinger et al, an observation of British television reveals that female scientists are primarily portrayed in a way that coincides with popular female stereotypes and ideals, while male scientists reflect traditional scientific stereotypes (Kitzinger et al 2007).

The type of professions portrayed on German television and the extent to which these professions are represented by women and men is analysed in a published study by Germany’s Institute for Labour Market and Employment Research, the IAB, dating back to 2005. It analysed, among others, fictional

programmes broadcast in 1999 and in 2001. The study draws the conclusion that technical professions are only represented as a 1.7% share of the programmes that German television offers and that the majority of these are represented by men (compare Dostal, Troll 2005, 161). The daily soaps, which are particularly popular among women, command a 0.7% representation. Services provision professions, on the other hand, are clearly overrepresented with 91.6% (compare Dostal, Troll 2005, 163). According to Dostal und Troll, overall women are underrepresented in career roles (compare Dostal, Troll 2005, 117). Female professions can mostly be classed under the following sectors: television, media, culture and the humanities. On the whole, science, technology and science and research are hardly represented and are predominantly represented by men. Not only have the career choices of young people become narrow, structured gender-typically and dominated by hostility when it comes to technical professions, but this is also true of the career spectrum in fictional formats.

Although the media belong to the most important socialisation mechanisms, aside from the parental home and schools, their influence on career and study choice has hardly been investigated in Germany. Also receiving hardly any attention are the reasons for the discrepancy between the social relevance of STEM professions and their representation in feature films and series. This means that the question of establishing greater leeway for presenting more STEM professions in feature films and series remains largely unresolved. This is where MINTiFF, the initiative for promoting equal opportunities for STEM professions in fictional formats, funded by the German Federal Ministry of Education and Research, the BMBF, and the European Social Fund comes in.

The objectives of the MINTiFF initiative are

- To determine the potential television films and series have in popularising STEM professions
- To improve the knowledge instrumental to influencing the media and media role models when it comes to career preferences and study and career choices

- To research current conditions and the potential for innovative content development and female characters in the STEM world, through programme analyses and from the perspective of authors, producers and broadcasters
- To learn from the development inroads that other countries have made in theory and practice with regard to STEM-entertainment education
- To open up dialogue opportunities for the STEM world and filmmakers
- To offer an incentive for and specialist STEM consultation services when it comes to innovative content development (through science events, workshops and ideas competitions)

To follow are key results that have initially emerged from the studies regarding

- The representation and portrayal of the (STEM) world of work and gender roles in feature films and series in Germany
- The status of fictional and non-fictional media in the career choices of young people, as well as the factors responsible for the affinity for or distancing from STEM careers experienced by young people
- The reasons for the very low number of women in gender-typical STEM professions and the leeway for more STEM and equal opportunities in fictional formats from the perspective of filmmakers, and helpful measures to bring this about.

(STEM) professions and gender roles: Select results of analyses conducted on representation in feature films and series

Investigation objectives and approach

The objective of the study “(STEM) professions and gender roles in fictional films and series” is to determine the representation and portrayal of professional and gender roles in fictional television programmes in Germany. During the investigation period from 19th October to 1st November 2009, Germany’s five big broadcasters ARD/Das Erste, ZDF, RTL, SAT1 and Pro7 were monitored and analysed daily between 1 p.m. and 1 a.m. Together these five big broadcasters make up a market share of 80% (compare ALM 2010). In total, 50400 programme minutes of programme coverage (10080 minutes per broadcaster) were appraised.

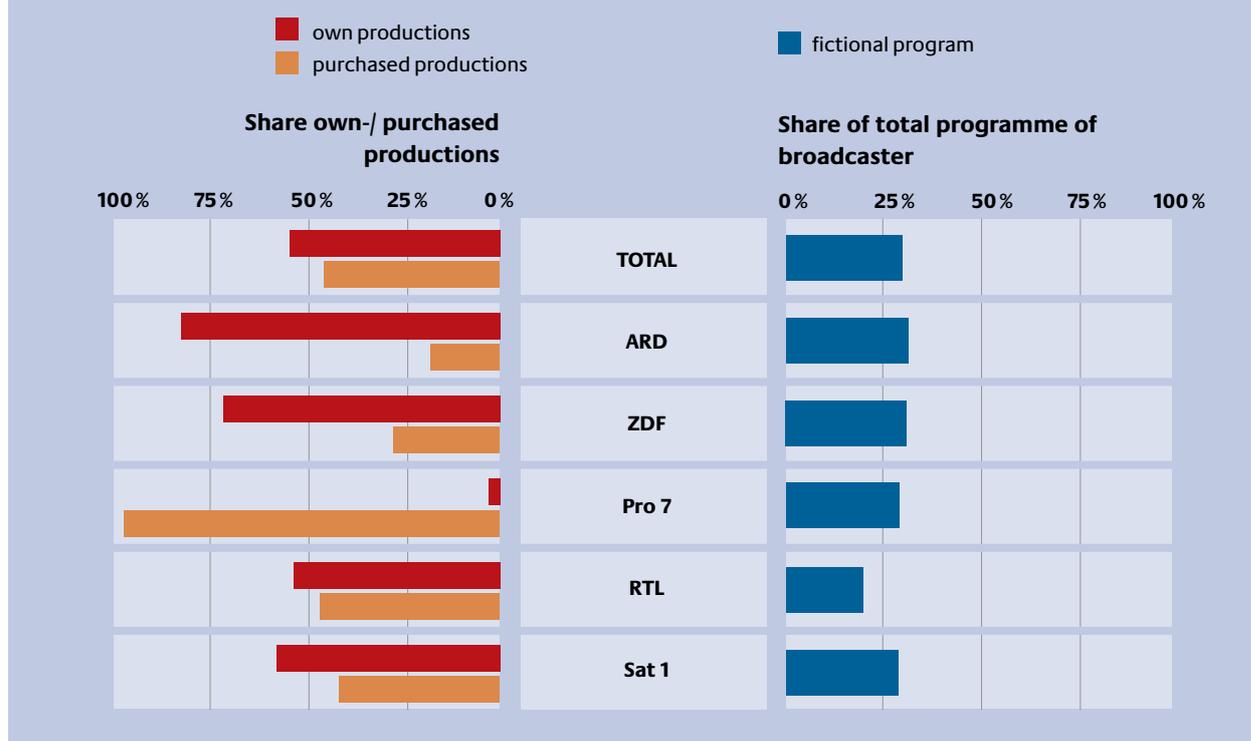
The partial result is presented here as to whether the representation of STEM professions and of women in gender-untypical STEM professions has increased compared to the above-mentioned prior investigation by Germany’s Institute for Labour Market and Employment Research, the IAB. Also presented is the dramaturgical status of professions in different genres and how men and women are represented in these genres.

The broadcasters’ fictional programme profile

Programme scope and production types: A large share of the programme is taken up by own productions that dominate broadcasters regulated by public law

Fictional programmes constitute a 30.9% share of the total programming investigated. The public services broadcaster regulated by public law, ARD, had the biggest share, 32.1%, followed by ZDF, also a public services broadcaster, with 32%. The private broadcasters Pro7 and SAT1 followed with shares of 29.9% and 29.5% respectively. RTL had the lowest share,

Chart 1: Fictional programming: Share of the programming and share taken by own productions and purchased productions



20%. Of all fictional programmes, own productions and co-productions constitute a 54.2% share and bought productions a 45.8% share. However, there are important differences between the broadcasters regulated by public law and the private broadcasters. At ARD, 81.9% of broadcast programmes are own and co-productions, at ZDF it is 71.5%. In the case of Pro7 own productions represent only a 2.8% share, with 97.2% being bought productions. At SAT1 and RTL, own productions form the majority share with 58% and 53.1% respectively, but clearly to a much lower extent than in the case of the broadcasters regulated by public law.

The world of work and gender roles in fictional TV programmes

Dramaturgical weight that men and women carry: Women still underrepresented

In total 2515 characters were identified during the investigation and were categorised either as lead

(1022) or minor (1493) characters. Of the total characters 1467 are men and 1048 women. Women are underrepresented in the lead and minor character roles. Men constitute 58.1% and women 41.9% of the total lead roles. Men constitute 58.5% and women 41.5% of the total minor character roles. More women can be found in minor character roles than in lead roles (59.2% in minor roles, 40.8% in lead roles).

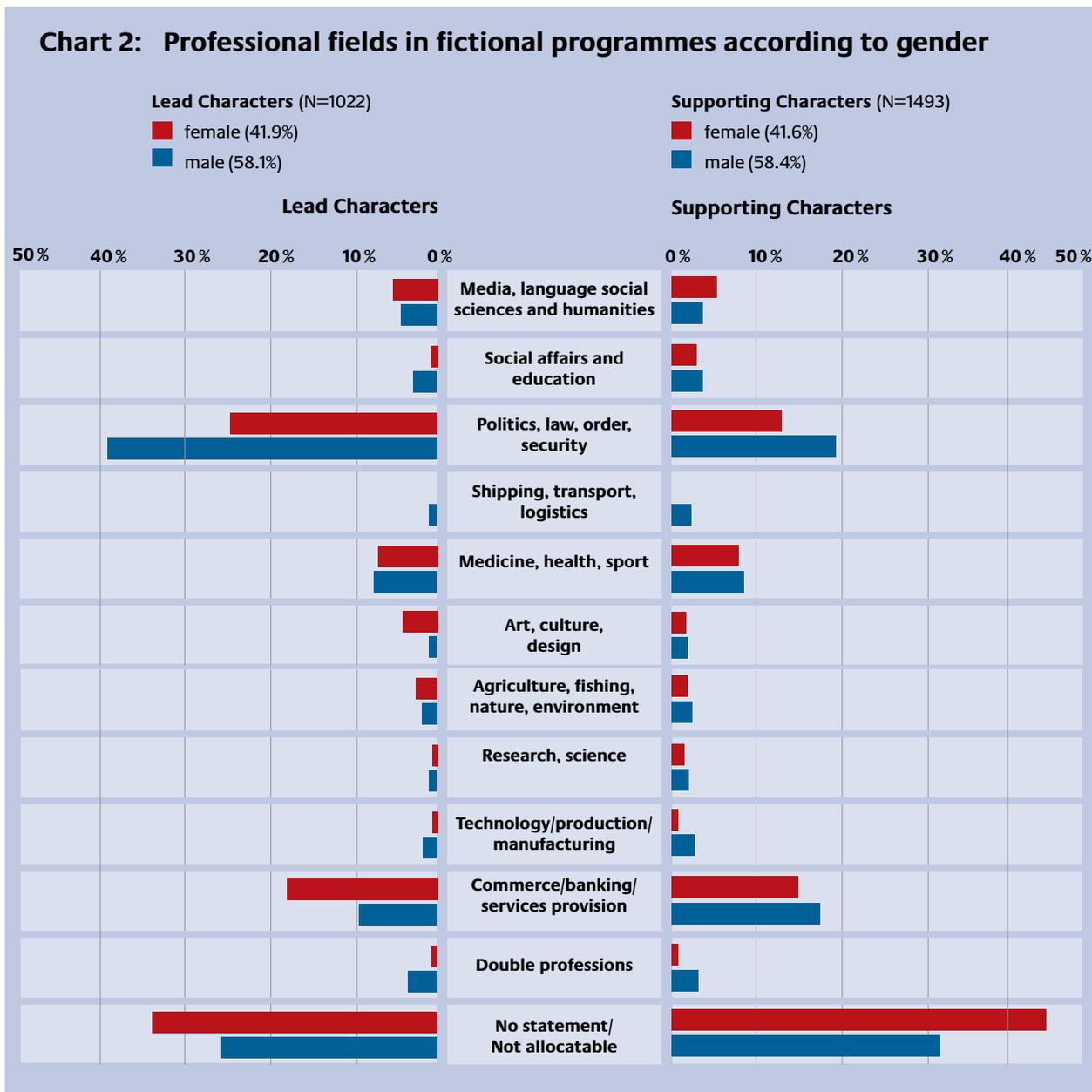
High representation of professions in fictional programmes

A first indicator of the high profession-orientated content of fictional television formats is the finding that in 70% of the cases of the lead characters and in 63% of cases of minor roles, the job title is either explicitly mentioned or becomes unambiguously recognisable. In the case of 35.5% of lead characters and 27.1% of minor characters the job title is mentioned, while in the case of 34.5% of the lead characters and 36% of the minor charac-

ters the profession they are in is unambiguously recognisable, even if not mentioned explicitly. By contrast, in only 29.9% of the lead characters and 36.9% of the minor characters is there no mention of profession.

Women in professional roles are represented less

Coinciding with the earlier finding by Germany’s Institute for Labour Market and Employment Research, overall women’s professions are distinctly represented in far fewer cases than men’s. For men, their profession is mentioned or unequivocally recognisable in lead characters 60.1% and 61.2% of the time, respectively, and in the minor characters 67.7% and 61.5% of the time, respectively.



The most prevalent professional fields in which women are portrayed: “Law and order”, “economics, commerce, banking, services provision” and “medicine, health, and sport”

Of all women’s lead roles, the group to which no professions can be ascribed is the biggest, representing 33.2% of the lead roles and 47.4% of the minor roles, followed by the professional field “politics, administration, law and order”, taking 25% of lead roles and 17.1% of minor roles. This is followed by professions in “economics, commerce, banking and services provision” with 17.3% of lead roles and 15.5% of minor roles, “medical professions” with 7.5% of lead roles and 8.5% of minor roles. Professions in “media, the humanities and social sciences, language” as well as “art, culture, design” are represented by only 5.4% of lead characters in each case and 5.6% and 1.6% of minor characters respectively. While in the group of lead characters “agriculture, fishing and the environment” still manage to take a 3% share, “shipping, logistics and transport” are not represented at all. “Science and research” appear in 0.7%, “technology and production” in 0.5%. The “social and education” field takes on a comparably low share in the case of lead roles with 0.9%. In the minor roles the “social and education” field is represented with 2.3%. “Agriculture, fishing and the environment”, “art, culture and design”, as well as “science and research” are each represented with 1.6%, “technology and production” with 1% and “shipping, logistics and transport” with 0.2%.

Most prevalent professional fields for men: “Law and order” dominate

Male characters to whom no profession can be ascribed make up a smaller share than the corresponding female characters – 25.3% of lead male characters, 32.8% of minor male characters. By far the biggest share of professions can be ascribed to male lead characters in the field of “politics, administration, law and order” with 38%, followed by 9.6% in the professions “economics, commerce, banking and services provision”. The professional fields “medicine, health and care, wellness and sport” represent 7.7%, “media, social sciences, humanities and language” 4.5%, and “social affairs and education” 2.7%. “Technology, architecture, surveying, produc-

tion and manufacturing” are also only represented with 1.7% among the male characters, “shipping, transport and logistics” with 1.3% and “science and research” coming in last with only 1%. Of all minor male characters 19.5% are represented in the professional field “politics and administration, law and order”, 17.9% in “economics, commerce, banking, services provision”, 8.7% in “medicine, health and care, wellness and sport”, 4.5% in the “media, social sciences, humanities and language”, 3.1% in “social affairs and education”. “Agriculture, fisheries and the environment” crop up with 2.3%. Also taking last place in the case of minor characters, but attaining a higher share than in the case of the lead roles are STEM professions. “Technology, architecture, surveying, production and manufacturing” and “science and research” are represented with 1.7% and 1.6% respectively. Coming in last is “shipping, transport and logistics” forming only 1% of the minor role share.

STEM professions are still hardly represented and when they are it is primarily by men

Even though men are represented with a greater share than women when it comes to lead and minor roles in STEM professions and in “technology, architecture, surveying, production and manufacturing”, this share is negligible and even smaller than the share of men in traditional female professional domains such as “media, social sciences, humanities and language” or “social affairs and education”. Even though men dominate just about all the professional groups with their lead and minor roles, it is in STEM professions that male dominance is particularly pronounced. In science and research the share for lead characters stands at 66.5%, in technology, architecture, surveying, production and manufacturing at 83.3%. In “shipping, logistics and transport” is 100%. The majority only portray women in lead roles from the professional field of “art, culture and design” at 71.5%, as well as from “economics, commerce, banking, services provision” at 52.2%. Also in the case of minor roles, men dominate all professional fields – except for media professions, in which women form the majority with 54% – and particularly prominent here is also the male dominance of STEM professions with 84.2% in “technology, architecture, surveying, production and manufacturing” and 93.3% in shipping, logistics and transport.

Dramaturgical status of professions

High profession-related educational contents of fictional programmes

To appraise the information content that is profession-related and the educational potential of fictional programmes, not only was an analysis conducted into whether the professions of lead and minor characters are mentioned or recognisable, but also into the dramaturgical importance of these professions. The results show that for 47.3% of the lead characters and 35% of the minor characters, exercising of the profession is the focal point of the plot and for a further 2.3% of the lead characters and for 1.5% of the minor characters the profession itself is the focal point of the plot. The profession plays no role whatsoever for 27.9% of lead characters and 42.7% of minor characters. A profession cannot be ascribed to 22.6% of lead roles and 20.8% of minor roles.

Women are more frequently portrayed in roles in which a profession is not the focal point of the plot

In the group of lead characters whose main plot lies in the pursuit of a career or in exercising a professional activity, men take the lead with 66.3% and 60.9% respectively. Women are level with men in the group in which the profession plays no role in the main plot, while they hold a greater share in the group to which no profession can be ascribed. Of all female lead characters, the pursuit of a profession is the focal point in 38.1% of cases. For 2.1% of lead characters and 1.1% of minor characters respectively the exercising of a professional activity is the focus. In the group of all male lead characters, with 56.3% the share of those for whom the pursuit of a profession (53.9%) or a professional activity (2.4%) is the focal point of the plot is noticeably higher than in the case of female lead characters. This is also true for male minor characters. For 38.8% of minor characters pursuit of a career and for a further 1.8% a professional activity is the focal point of the plot. Belonging to a profession plays no role for 33.2% of female lead characters and 46.5% of female minor characters. By comparison, a profession does not play a role in the main plot for only 24.1% of male lead characters and 40% of minor male characters.

Chart 3: Dramaturgical status of the profession of lead and minor characters according to gender

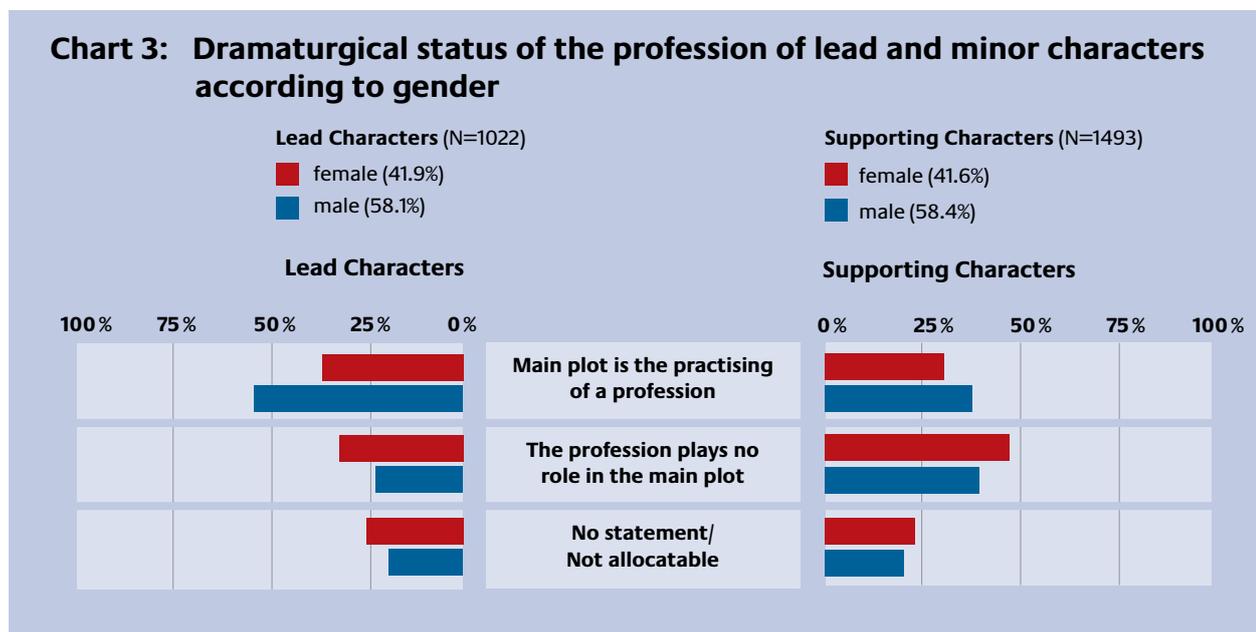
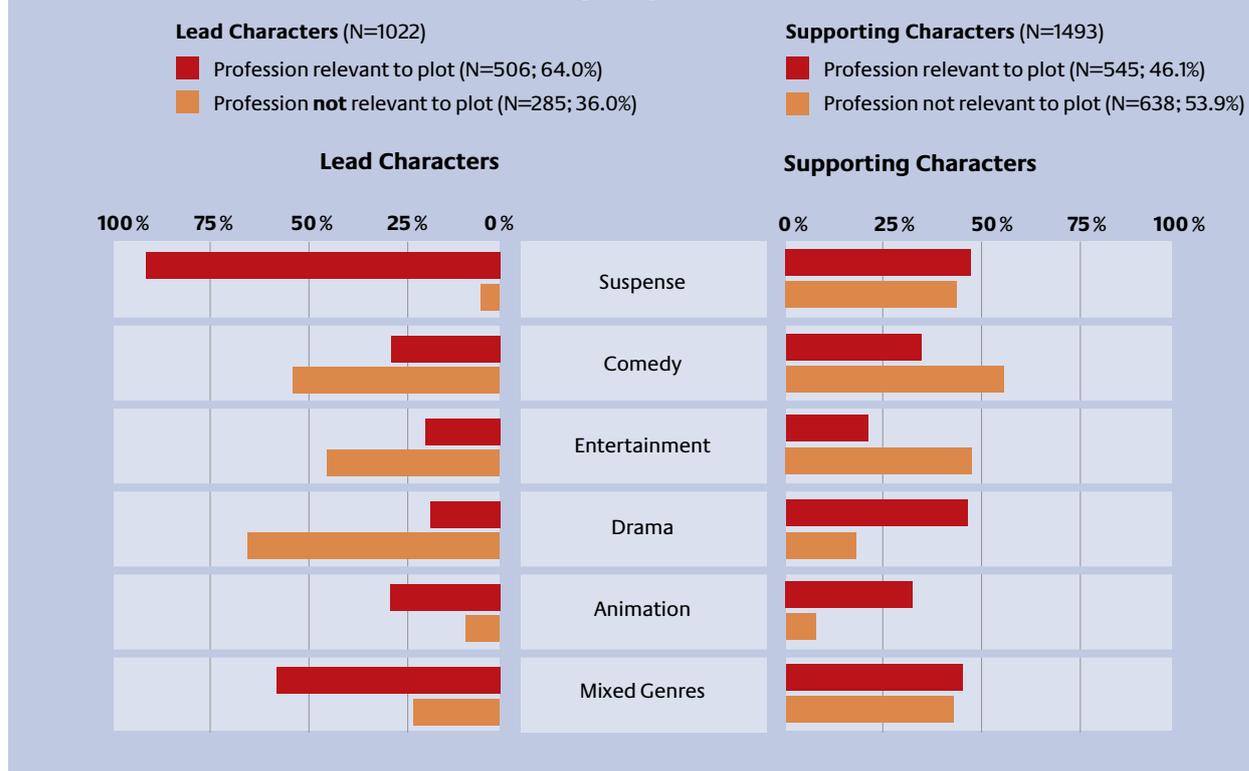


Chart 4: Dramaturgical status that the profession of the lead and supporting characters holds according to genre



The dramaturgical status of a profession varies substantially depending on the genre: Professions that take centre stage are predominantly in the suspense and mixed genres

The dramaturgical status of a profession varies substantially depending on the genre¹. For the vast majority (91.1%) of lead characters in the suspense genre the profession has relevance to the plot. Also in the mixed genres, which to a large degree exhibit suspense aspects, the group of lead characters for whom their profession is relevant to the plot forms a 60% majority. These groups still have a share of more than 25% in the comedy and animation genre. They have the smallest share in entertainment with 20% and in drama with 18.2%. In drama, entertainment

and in comedy the lead characters clearly show a bigger share of having a profession, however with profession being irrelevant to the plot. For minor characters, for whom there is less narrative time within the plot, the share in suspense or mixed genres whose professions are relevant to the plot is far less than for lead characters. At 46.7% and 43.3%, it does however always remain above the share of those for whom profession is not relevant. In comedy and entertainment, by contrast, the minor characters for whom profession is not relevant outweigh these. With 7% their share is the smallest in the animation genre. With 30.4%, the share of the minor characters whose profession is relevant to the plot is as big as it is for lead characters. Especially in drama, but also in comedy and animation, the share of characters for whom their profession has relevance to the plot is even higher than in the case of the lead characters.

¹ For genre analysis the categories of the German "Society for Consumption Research" (GfK) were used. These are also used for daily programme and range research and thus permit the correlation of the results of further analysis steps with the results of daily range research.

Women, especially, are represented in genres where the profession plays no role for the main plot

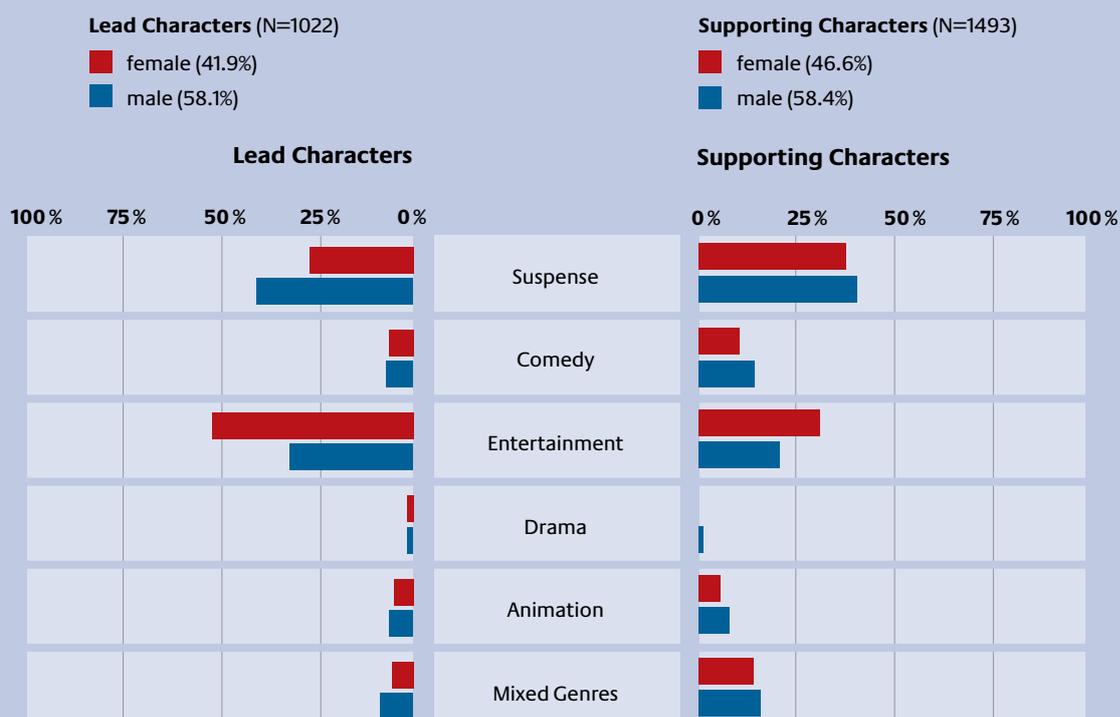
Looking at the share that the gender groups command of the different genres reveals that women are represented with a large share in genres in which profession does not play a role in terms of the main plot.

Women are underrepresented in lead and minor roles in most of the genres. Men command the majority of lead roles in comedy (59.5%), animation (65.2%), and drama (54.5%). They also dominate the suspense genre with 67% and the mixed genres with 70%. It is exclusively in the entertainment genre that women constitute the majority of lead characters with 53.2%. Even in minor roles men form the majority: in comedy with 65.4%, in animation with 64.3%, in mixed genres with 61.6%, in drama with 90.5% and in the suspense genre with 60%. When it comes to minor characters, women also form the majority only in the entertainment genre, with 52%.

These differences become even more apparent if one takes into account how the female lead and minor characters are divided among the genres: Of all female lead characters, 52.1% of women are found in the entertainment genre, 27.8% in suspense, 7.9% in comedy, 5.6% in animation, 5.4% in mixed genres and 1.2% in drama. In contrast, of the entire spectrum of male lead characters, 39.3% are represented in the entertainment genre, 30.3% in the suspense genre, 11% in mixed genres, 9.6% in comedy, 8.4% in animation and 1.2% in drama.

When it comes to the minor characters compared to the lead characters, a shift becomes apparent in the significance of the genres. Of the entire spectrum of female minor characters, 31.3% are found in the entertainment genre, 37.9% in suspense, 10.5% in comedy, 7.7% in animation, 14.7% in mixed genres and 0.2% in drama. In contrast, of the entire spectrum of male minor characters 20.5% are represented in the entertainment genre, 40.3% in suspense, 15.5% in mixed genres, 8.2% in comedy, 8.5% in animation and 1.1% in drama.

Chart 5: Lead and minor characters according to genre and gender



The results underline the importance of professions and profession-orientated content in fictional television formats. These differ considerably dependent on genre. Not only are the genres and the different broadcaster profiles responsible for structuring the dramaturgical importance of professions, thereby providing the scope for and insight into someone working in the profession, but they also determine which professions will shift into the focal point of the narrative and the awareness of the (young) audience. The high share of regulatory and security professions is the result of the pronounced preference for the suspense genre and the numerous crime and justice series. The high share of professions from the “economics, commerce, banking, services provision” field corresponds to the high share of daily soaps and telenovelas, which feature the owners and staff of small businesses and in which hotels and restaurants serve as meeting places. The high representation of medical professions is the result of the numerous doctor and hospital series and the high share that medical staff also commands in the daily soaps. In the period investigated, STEM professions were represented in almost all the genres. The negligible number of lead and minor characters in STEM professions within the analysed period investigated here does not offer any ensuing generalised outcomes when it comes to the question of whether there is (can be) a preference of STEM professions in the narrative of special genres.

Conclusion: Still a shortage of female role models in STEM professions – Traditional role models continue to prevail

The results show that in comparison with the prior investigation by Germany’s Institute for Labour Market and Employment Research, the IAB, which investigated fictional programme content in the years 1999 and 2001, representation of STEM professions has hardly increased. Also in line with the prior investigation, the results show that women are still underrepresented in professional roles. What is different from the prior investigation is that women today are no longer predominantly found in the traditional female professions such as “art, culture and design” and “media, the humanities and social sciences”. Far more dominant in the male and female lead characters are the fields of “politics, law and order, and safety and security”, followed by “economics, commerce, banking, services provision”.

There is no trend towards more STEM professions and towards more women in STEM professions. STEM professions are still hardly represented and when they are represented, it is by men.

Not only does the traditional image of STEM professions as being the domain of men prevail, so do traditional perceptions of gender roles. It goes without saying that women are involved in professions and in professional fields that were previously reserved exclusively for men. Yet they are still less defined by their professional roles: Women are underrepresented in dramaturgical and professional roles, and appear in roles in which a profession does not take centre stage of the plot. For 56% of male lead characters the profession takes centre stage of the plot, but only for 40% of lead female characters. Furthermore women take a large share of those genres in which not a profession, but relationships, love, family and personal fulfilment in life take centre stage. Female lead characters command 51% of the entertainment genre, but only 27% of the suspense genre.

Therefore there remains a shortage of female role models in STEM professions for young women, not only in their personal environment, but also in fictional media. In fictional media too, young people encounter a professional reality that is structured gender-typically, in which hardly any STEM professions are represented. The partial results from a German nationwide survey of young people that follow show the status that fictional role models play in the career choice of young people and which factors are instrumental for females distancing themselves from technology.

The Role of Fictional Television Programmes in Career Choices – Select Results of a Nationwide Survey of Young People in Germany

Prof. Dr. Marion Esch, Jennifer Grosche

Objective of the investigation and spot tests

The explorative study “Career Orientation in TV Drama Formats” tries to determine the potential of TV-movies and -serials for STEM communication and recruitment of the next generation from the viewpoint of young people. It analyses on a broad empirical basis information behaviour relating to the direction of studies and career and the relative importance of parental home, social environment, school, media and institutionalised career advice in the career choices of young people. It also analyses career orientations and the affinity or distance with which young people perceive STEM professions. Also examined were professional goals and selection, self-efficacy and performance factors, goal-oriented expectations, perceived opportunities and risks when choosing a study direction or career, as well as perceptions regarding engineering as a field of study and as a career. According to the social cognitive theory of Bandura, these aspects are instrumental in determining whether young people will consider these directions of study and careers.

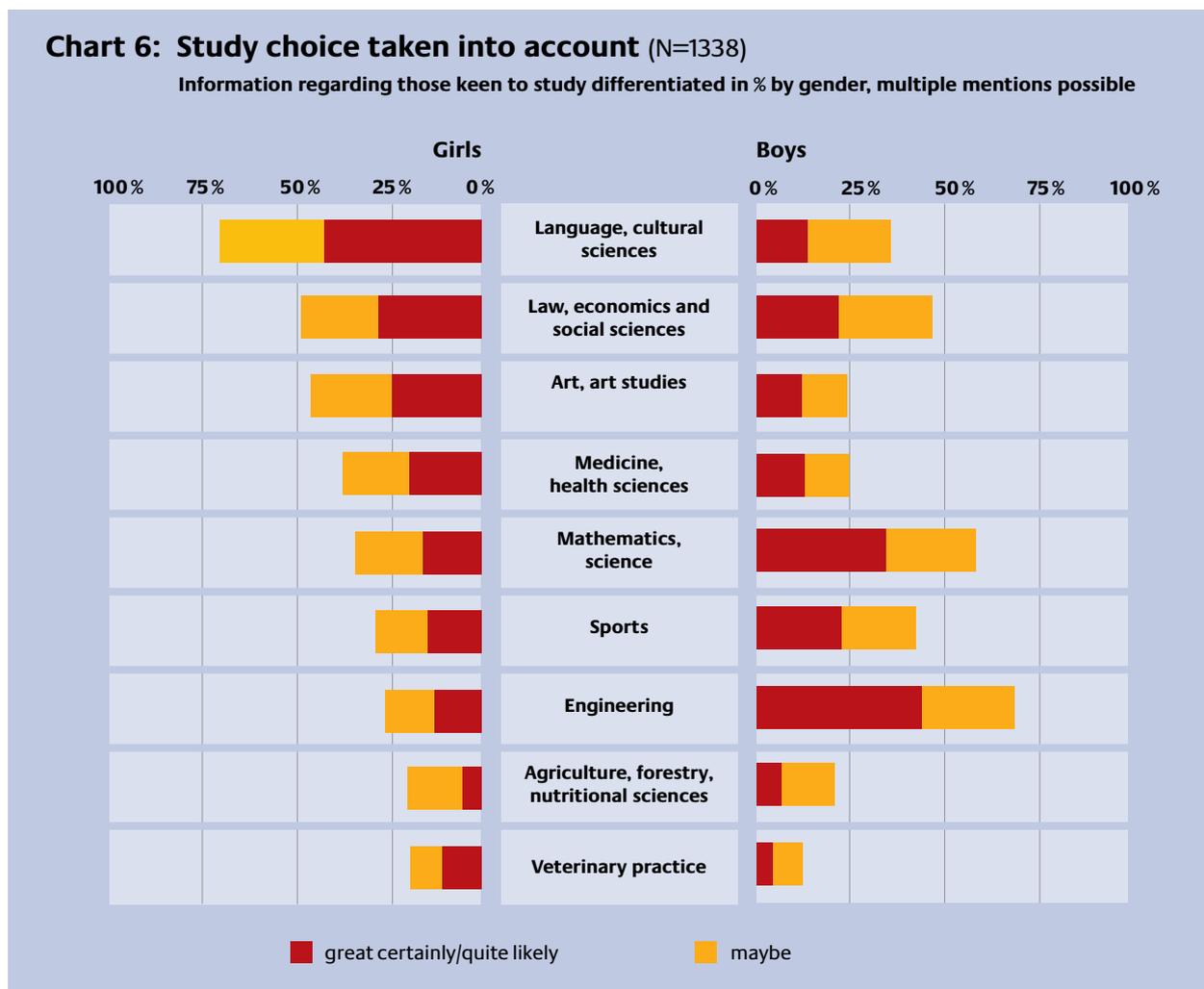
A total of 2457 pupils (1249 girls and 1208 boys) who were a year to two away from finishing school and selected from different education sectors in different German states were surveyed in class. Grammar school pupils, who were the focal point of the investigation, constitute 1155 of those surveyed (641 girls and 514 boys), Intermediate General School pupils numbered 917 (425 female and 492 male). Secondary General School pupils numbered 385 (183 girls and 202 boys).

Study preferences and study-related information behaviour

Subject preferences when it comes to studying: Still determined by gender-typical subject preferences

When surveyed in a spot test as to what study direction males and females would consider, the age-old gender-typical subject preferences emerged. The frontrunners among young women were language and cultural sciences, followed at a considerable distance by law, economics and social sciences, as well as art and cultural sciences. Language studies and the cultural sciences were considered with great certainty or quite likely by 38% of young women, law, economics and social sciences by 27% and art and art studies by 26%. The study of medicine or sport science was considered with great certainty or quite likely by a share of around 20% and 16% respectively. While a majority of more than 66% of females keen to study would consider studying language and cultural sciences with great certainty or quite likely, only a share of 17% would consider studying science and a share of 14% engineering with great certainty or quite likely.

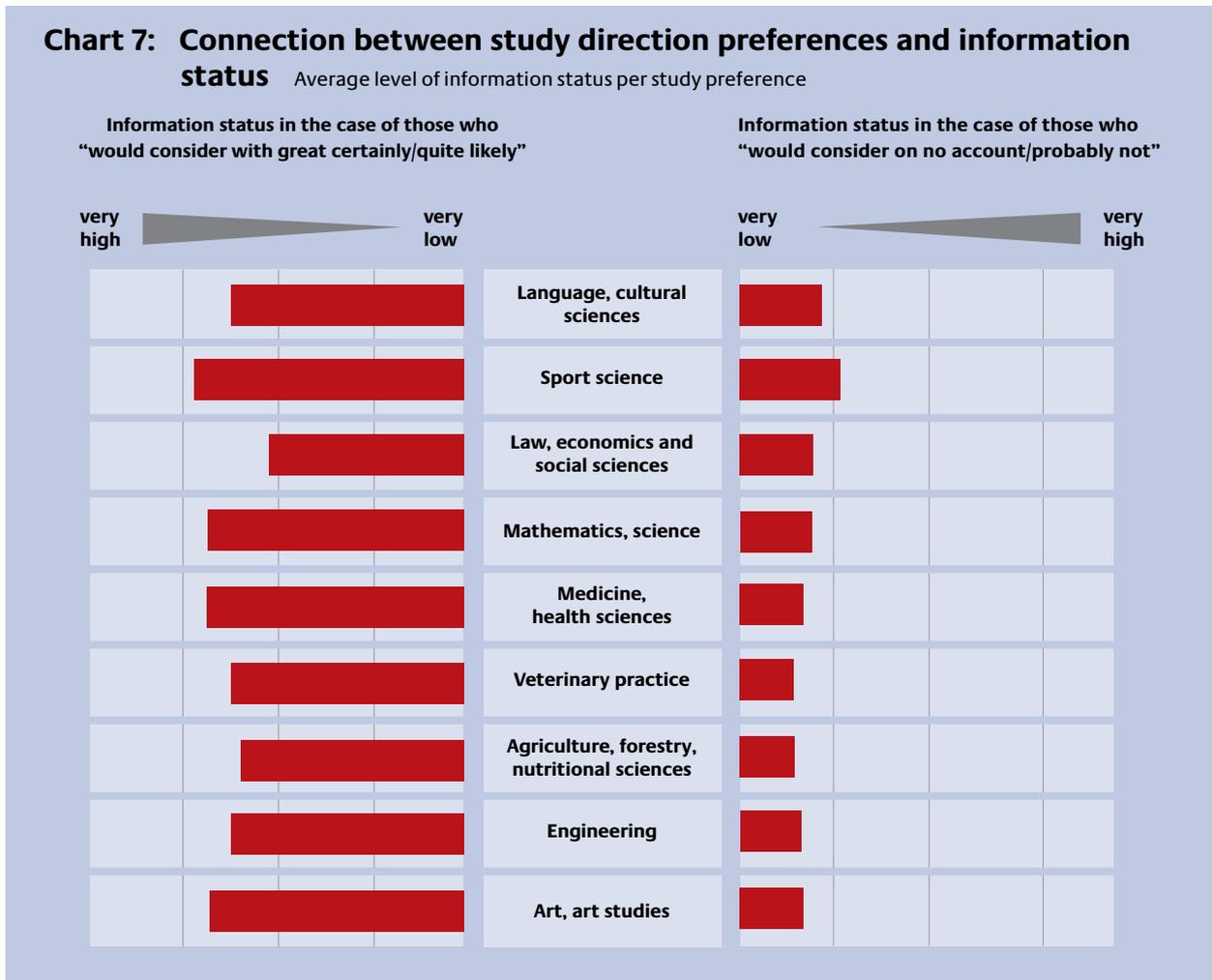
In contrast, 45% of the questioned males would consider frontrunner engineering with great certainty or quite likely followed closely by science with a 35% share. Remarkably high among the men is the share keen to study sport science. Around 23% would consider studying sport science with great certainty or quite likely, approximately as many as those who would consider studying law, economics and the social sciences (22%) with great certainty or quite likely – noticeably more than those who would consider any of the traditional female domains of study such as language and the cultural sciences, art and art studies or the humanities with great certainty or quite likely. These command a share of 13.6%, 10.6%, and 12.5% respectively.



While a trend may be discernible of more women tending towards the traditionally rather male dominated sectors such as economics, law and medicine, the reverse is not true for greater male prevalence in the largely female domain.

Study-related information behaviour: Young people focus on a few study areas that appear to be interesting

When asked how they evaluate their knowledge of the different groups of subjects that can be studied, young people revealed, as they have in other investigations, that they focus their search for information on very few fields of study and find out more about these only on a broad basis. Now taking the subject group out of the equation, it becomes apparent from young people's own evaluation of study choice that their level of knowledge of fields they would consider with great certainty or quite likely is average to high. Those surveyed felt they were best informed on subjects such as sport science, as well as art, language and cultural sciences. Study



choices which were hardly or not at all considered were ones about which young people had low levels of knowledge.

Thus, as a rule, the decisions of young women where technical fields of study and professions are not favoured do not hinge on knowledge of the reality of these professions, but more on an image of a profession that has little appeal when compared to competing professions that appear to be more interesting and have greater suitability.

Bolz's (Bolz 2004) survey of careers that require formal training reveals that right from the start, the vast majority of young women do not even consider a technical study or career direction. Instead they tend to favour fields of study perceived to be more interesting and suitable for them and therefore they focus their search for information accordingly. Of

the girls surveyed, 80% indicated that they would not consider a technical-commercial career. In the case of female migrants this percentage was even as high as 89.5%. At the same time, these women admit to not having any conception whatsoever of these professions (compare Bolz 2004, 45).

Image of engineering studies and professions

High uncertainty in opinion – especially among young women

Corresponding with the lack of awareness of these fields of study, especially among women, are considerable opinion uncertainties when judging engineering studies and professions. The slightest uncertainties of opinion and the biggest opinion differences between male and female grammar school pupils appears in regard to the questions: Whether pursuing a study direction in engineering science coincides with one’s own inclinations; interests and aptitudes; and whether one’s parents would welcome such a study choice.

As has previously been the case, young women are uninterested in a study direction in engineering – a large share of young men by contrast show an inclination towards it

Only 8.1% of the young women surveyed but 37.4% of young men rather or totally agree that the study direction coincides with their own inclinations and interests. At 6.4% even fewer women agree that the

study direction coincides with their own aptitudes rather or totally, while 33.5% of young men agree with it totally. Not at all or hardly is what 69% of the women voted in this instance, while 35.5% of men gave this answer.

Young women feel they are lacking aptitude and do not have their parents’ support – despite their existing high STEM performance level

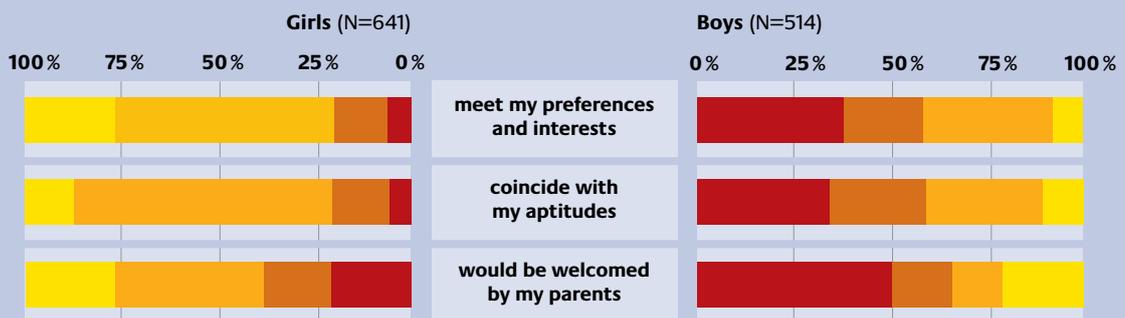
Those surveyed hardly showed any differences in their achievement levels when it came to scientific, technical and mathematical achievements (subject mark). The share of females with excellent to good marks in scientific, mathematical and technical school subjects is almost the same as the males. Once again this confirms that women have far less confidence in their STEM aptitudes than young men and that when evaluating their own aptitudes and skills, young people will use normative typical gender role skill expectations as their benchmark, rather than actual achievement levels. This is not only true for the young women and men, but evidently also for their parents. Only 24% of the surveyed women totally or rather agree that their parents would welcome an engineering science study direction. Fifty percent of the young men surveyed answered affirmative to this question,

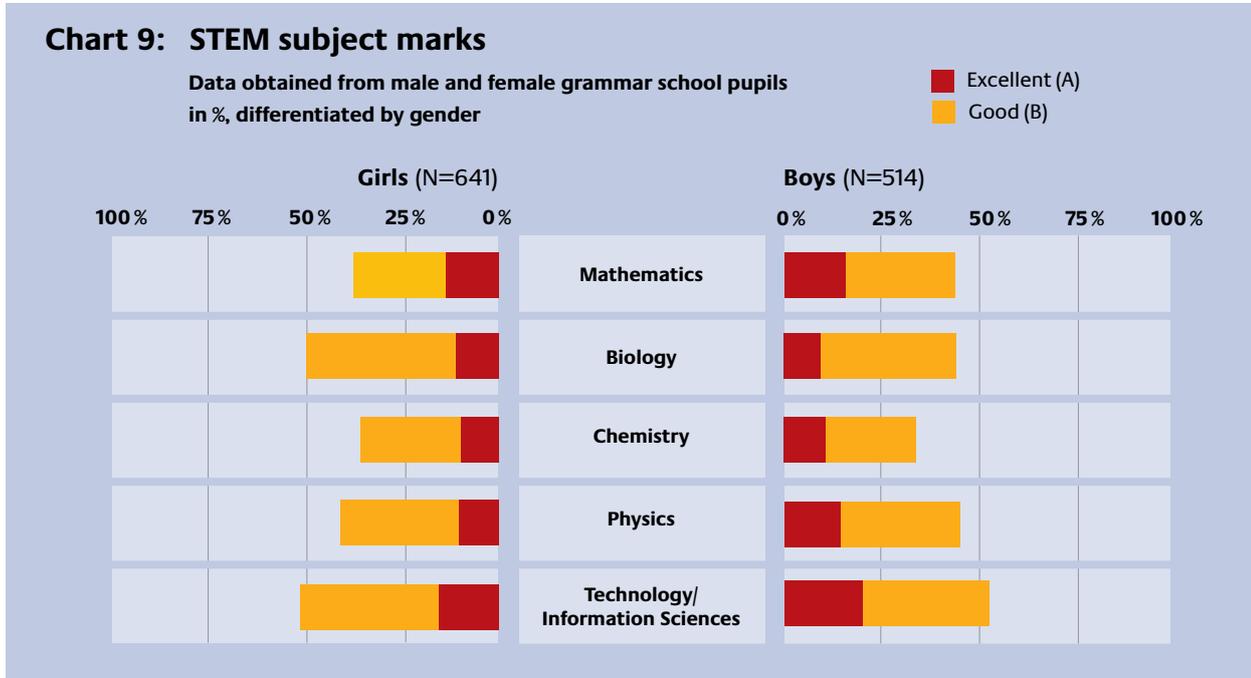
Chart 8: Engineering sciences – Aspects of study choice

Data obtained from male and female grammar school pupils in %, differentiated by gender

■ Totally/rather agree
 ■ More or less agree
 ■ Hardly agree/agree not at all
 ■ Don't know/No statement

If I were to study engineering sciences, this would...





almost double the rate of the women surveyed. No or hardly was voted by 36% of the young women and 13% by the young men.

The suitability to their own inclinations and aptitudes was cited as two of the most important selection criteria for study and career directions both by the young men and women. Of the grammar school pupils, 96.6% of females and 93.8% of males indicate that it is rather to totally important to them to choose a study direction or education and training that coincides with their own preferences and interests. Studying in a direction that coincides with their own aptitudes is rather to totally important to 86.6% of the female and 83.3% of the male grammar school pupils. In other words, only for a share of 6% to 8% of the grammar school female pupils surveyed, studying engineering coincides with two of the four most important selection criteria for their choice of study direction. In contrast to this, in the case of the young men the figure for meeting two of the four most important selection criteria still stands at 37% and 34% respectively. Equally important to the career choices young people make are secure employment and employment prospects: To find a career that will offer secure employment is rather to totally important to 92.5% of female and 83.3% of male grammar school pupils. Choosing a career with good employment prospects is rather to to-

tally important to 77.1% of the female and 80.2% of the male grammar school pupils.

Positive results for grammar school pupils' perspective on employment prospects

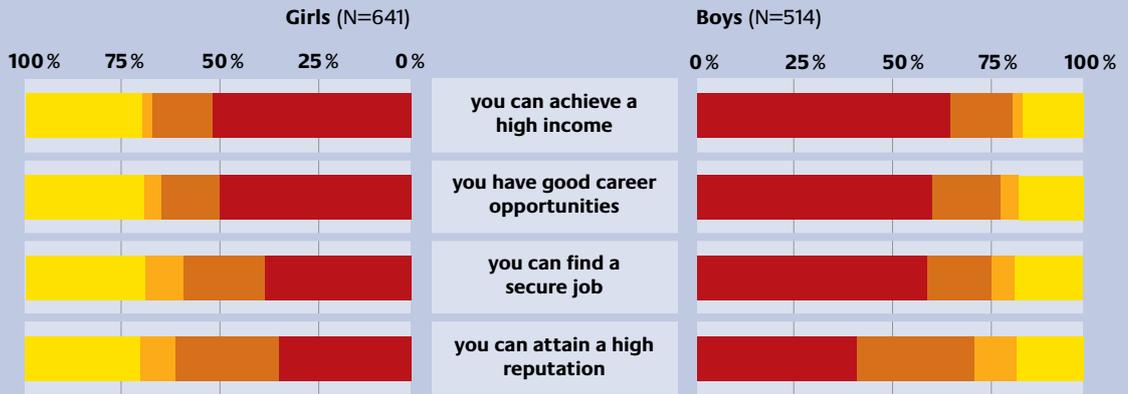
Regarding the selection criteria of employment security and employment prospects, these get a noticeably higher vote from the perspective of the women than suitability to own interests and aptitudes. By contrast, uncertainties of opinion when it comes to the engineering profession rise when it comes to evaluating job market and terms of employment aspects: Up to 32% of the females surveyed and up to 18% of the males surveyed indicated that they had no knowledge of this. With regard to the second-most important selection consideration of employment security, 59% of young males and still 40% of young women agreed totally or rather that engineering careers promise employment security. Even more agreed totally or rather that in these professions high incomes can be attained and promotional opportunities achieved. Of the females surveyed, 50% and 52% respectively, while 66% and 65% of males surveyed totally or rather agreed to these assertions. There was noticeably less agreement that the profession holds the promise of status. Only 43% of males and 36% of females surveyed agreed with this assertion.

Chart 10: Engineering sciences – Aspects of study choice

Male and female grammar school pupils in %, differentiated by gender

■ Totally/rather agree
 ■ More or less agree
 ■ Hardly agree/agree not at all
 ■ Don't know/No statement

Employment prospects: In these professions...



Aspects of equal opportunities: In these professions...



Social impact: In these professions...



The aspects that commanded especially high ratings – also among women – are those that are less important to women in their study and career choices. Although it is equally important to males and females surveyed to find secure employment, it is more important to males to target a high income, to be eligible for promotions and to gain status through one's profession.

Targeting a high income is rather to totally important to 75.7% of the males compared to 66.9% of the females. For 67.7% of the males it is rather to totally important to be promoted, compared to 58.8% of females. Status is only rather to totally important to 31% of females but also only to 43% of males surveyed. With 68.9% and 65.6% respectively it is clearly rather to totally important more so to women than to men to have a profession that will allow you to reconcile family and career.

High opinion uncertainties when it comes to evaluating questions of equal opportunities – results rather on the negative side

The biggest uncertainties in the opinions of those surveyed relate to questions of compatibility between career, family life and leisure time, equal opportunities and the suitability of the engineering profession. 44.6% of females and 35% of males do not consider themselves in a position to form an opinion on whether the engineering profession offers the opportunity to reconcile career with family life. Only 13% of young women and 20% of young men totally or rather agree with the assertion that the profession is conducive to offering this opportunity.

By far the biggest share of those surveyed – 48% of women and 52% of men – hardly agree or do not at all agree that these professions put lots of leisure time at one's disposal – an aspect which is absolutely important to young men, but not to women, in their career choice. Having plenty of dealings with people in one's profession is rather or totally important to 69.7% of surveyed women, but only to 43% of the males surveyed. Only 16% of the women and 17% of the males agreed totally or rather that such opportunities exist in these professions. Achieving the biggest rate of agreement and least uncertainty of opinion is the assertion that women have a hard time in these professions. Of females 30% and males 23% of those surveyed totally and rather agreed with

this. Only 20% of women and 23% of men hardly or did not at all agree with this.

This means not only do women anticipate difficulties due to their gender in these professions, they also do not regard the opportunities for people contact or for reconciling career and family life to be good.

The social influence and value of engineering professions – especially grammar school pupils are sceptical

Even with regard to the evaluation of the social influence and value of engineering professions, great uncertainties of opinion exist especially among young women; most are rather sceptical. Up to 38% of young women do not consider themselves in a position to form an opinion. Young men also prove to have evaluation doubts here but with a smaller share (up to 23%), while the share of those evaluating the social value of engineering professions as positive is higher.

Admittedly the majority of grammar school pupils perceive engineering professions as being highly influential to society. Of young women, 59% and 48% of young men agree totally that these professions have the opportunity of shaping the future. Barely 6% of the young women and men agree with the assertion that this is hardly or not at all the case.

By way of contrast, the overall opinion when it comes to the social value of engineering professions was clearly far more sceptical. While the young women and men, with 33% and 51% respectively, still totally or rather agree with the assertion that engineering professions offer the opportunity of developing solutions for environmental problems, only 16% of the female and 28% of the male grammar school pupils trust the engineering profession's ability to create jobs and 11% and 19% respectively acknowledge its ability to contribute towards healing illnesses and disease. Only 6% of female and 11% of the male grammar school pupils agree with the assertion that engineering professions can totally or rather fight poverty and hunger in the world. Here the young people who hardly or do not at all agree with this assertion are in the majority (46% of females and 25% of males). Also when it came to whether the engineering profession makes a con-

tribution in the identification and cure of serious illnesses and disease, the young people who do not at all agree form the biggest share with 36% and 23% respectively, followed by those who indicate that they don't know and have no statement to make respectively.

Even in this arena it is evident that the engineering profession only has very conditional suitability when it comes to young female preferences. Admittedly, an almost equal share of 58.8% and 58.4% of females and males respectively agree that it is totally or rather important to be in a profession that offers the opportunity of shaping the future. For the females surveyed, it is however totally or rather important with a similar share of 53% both to do something useful for society and to become involved in social responsibility (51.3%). This takes a higher priority share as being rather or totally important to them compared to "pursuing a career at any expense" and "taking on a leading role" (39.6%). To campaign for the environment is rather or totally important to a clearly smaller share with 29% but still more important than to the young men. To the males surveyed, campaigning for the environment is rather or totally important to 23%. With a share of 34.4% and 36% respectively, also clearly fewer males than females surveyed consider it rather or totally important to exercise a profession that makes it possible to make a difference to and become involved in society. With 49.6% it is clearly more important to the males surveyed to "pursue a career at all costs" and "to become a mover and shaker" (58%), "to be among the best" (50%) and "to take on a leading role" (48.6%).

In short: Even though there is consensus among all-party experts in economic and political circles that it is precisely science and technology that are in a position to work out solutions to the ecological, social and economic challenges facing our modern world and through research and development to make a greater contribution to social justice and sustainable development, particularly young women are highly sceptical and unable to form an opinion. The scepticism of young women and men is not only noticeable with regard to the social value of engineering professions, but also with regard to the perceived appeal of STEM skills and professions for men and women, with men displaying greater uncertainties in their opinions than women.

Perceived power of appeal for men and women of characteristics, skills and professions

The impact of perceptions of cultural regard for and gender-typical acceptance of characteristics, skills and professions on study and career choice has not been taken sufficiently into account.

In the survey, the young people were asked about the power of appeal of characteristics, skills and professions.

Chart 11 shows how women rated the appeal of the mentioned characteristics, skills and professions to women, and how men rated that for appeal to men.

Perceived power of appeal of characteristics and skills – STEM skills not very attractive especially to women

As expected the results show that 91.3% of the young women and 93.8% of the young men say that a good outer appearance is rather or totally appealing. High intelligence is rather or totally appealing to 81% of the young women and 77% of the young men. The reaction is different when it comes to evaluating the power of appeal of female science and technical skills. Only 22% of the young women and 19.4% of the young men regard science and technical accomplishment as having rather or total power of appeal. With 39% of the female grammar school pupils and 40% of the male grammar school pupils, clearly more feel that it hardly has power of appeal for women, or not at all.

Good outer appearance appeals rather or totally to 86% of the young women and 74% of the young men. For men, having high intelligence has power of appeal rather or totally to 82% of the young women and 77% of the young men. Also where men are concerned, high intelligence is perceived as having power of appeal rather or totally to far more young women and men than accomplishment and skill in science and technology – clearly a much higher share than where women are concerned. Where men are concerned, 44% of the young women and 49% of the young men regard their having science and technology skills as having power

of appeal rather or totally. Only 23% and 16.1% of young women regard this as hardly having power of appeal or not at all. This negligible regard for and acceptance of STEM skills, especially on the part of women, is perpetuated in their opinion of the power of appeal that professions have. The chart indicates the frontrunners for women and men. It highlights the professions regarded by the majority of male and female young people as having power of appeal more or less to hardly and not at all.

Perceived power of appeal of professions – gender-typical career preferences are updated

Young women and men agree: STEM professions do not make women very attractive

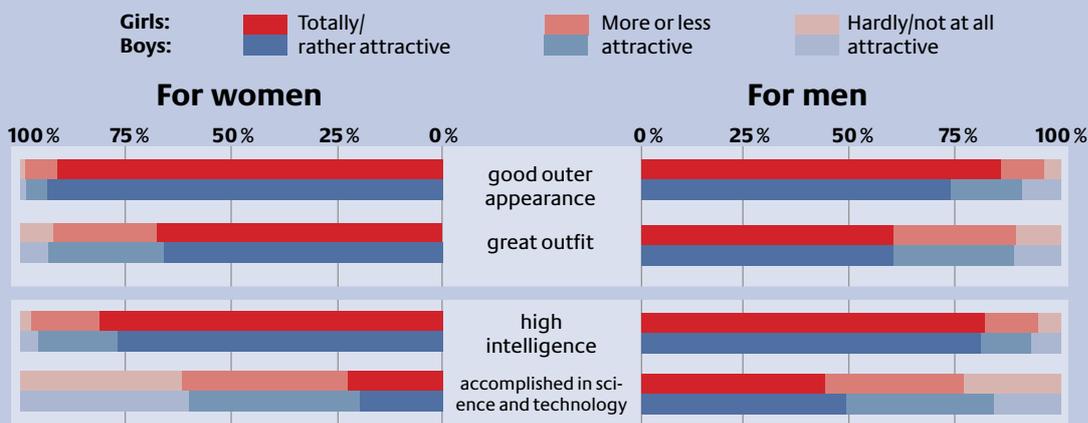
For the vast majority of female grammar school pupils, professions perceived as having power of appeal totally or rather were medical doctor (74%), manager/entrepreneur (69%), a career in culture and media (60%), attorney (57.3%), artist (51%) and top sportswoman. Even with regard to the profession of police commissioner/inspector, 46% of female grammar school pupils think that it makes women come across totally or rather attractive.

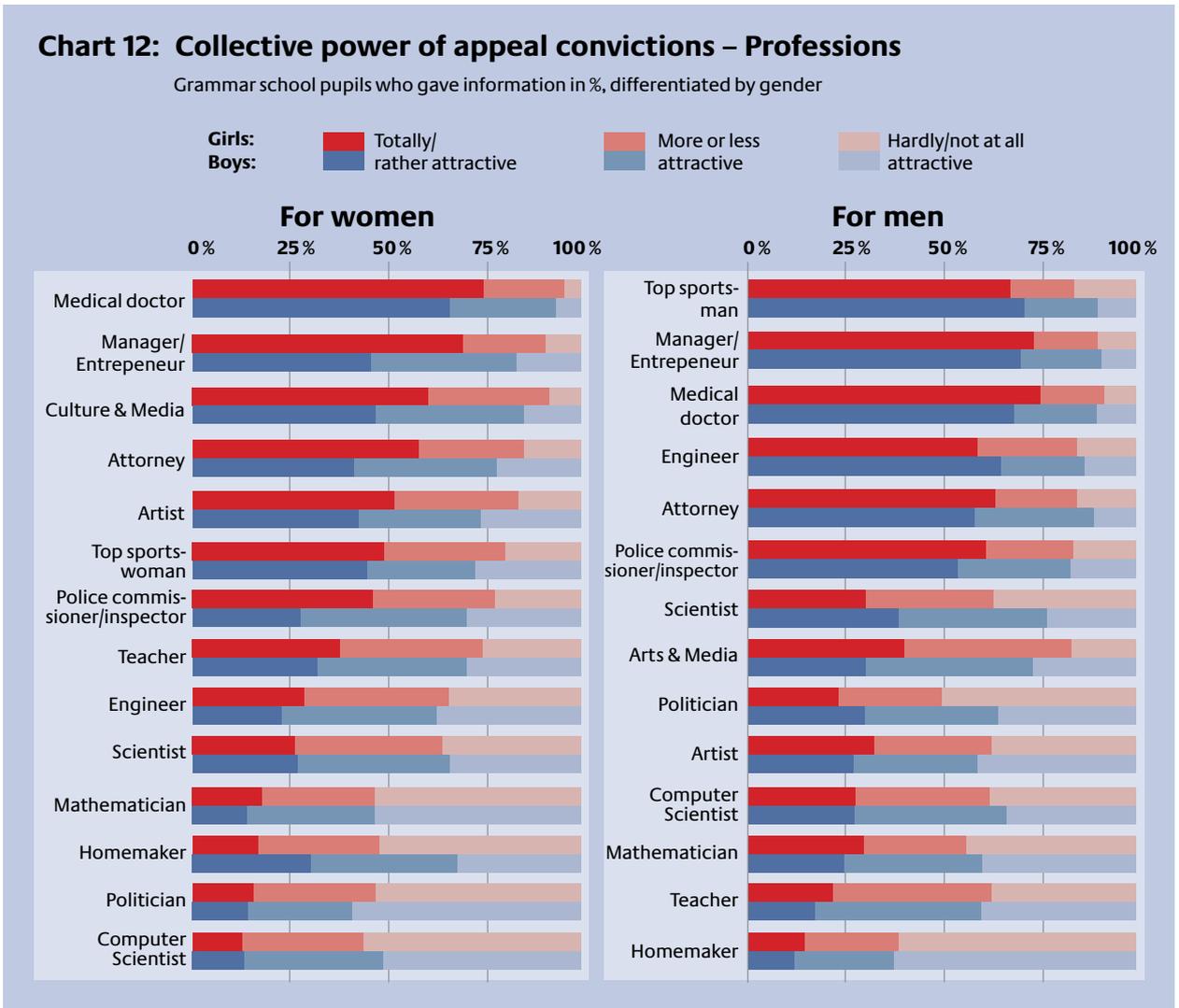
The opinion of the young women when it comes to the power of appeal of STEM professions, in contrast, turns out to be exceptionally sobering. Of the females surveyed only 29% perceive the profession of a woman in the role of an engineer and 23% a woman in the role of a scientist as having power of appeal totally or rather. In the case of women as mathematicians and information scientists, this share decreases to 18% and 13% respectively. Only women in the role of a politician or homemaker had a similar share of those surveyed who perceived these professions as rather or totally having power of appeal for women. Even teaching as a profession for women was evaluated as having power of appeal totally or rather by only 31% of females surveyed.

Even if the male and female grammar school pupils gave the same ranking of professions that had particular power of appeal for them for women, young males clearly evaluate their having power of appeal totally or rather with a smaller share than women themselves. What is particularly notable is the share of male and female grammar school pupils who perceive women who are not in professions or women as homemakers as having power of appeal totally or rather. With 30%, this share is decidedly bigger than the share that considers STEM professions as having power of appeal for women totally or rather. The engineering profession is regarded as having power of appeal totally or rather

Chart 11: Collective power of appeal convictions – Characteristics/feature (N: w=641, m=514)

Grammar school pupils who gave information in %, differentiated by gender





for women by only 23%, with science taking 28% of the share. In the case of female mathematicians, politicians and computer scientists this share drops further to 13% to 14%.

The verdict on the perceived power of appeal of STEM professions turns out to be ambivalent for men also

Men provide a different ranking than women regarding the perceived power of appeal of professions for men. Top ranking in this instance from the perspective of young males and females are the professions of top sportsman, manager/entrepreneur and medical doctor. Although these professions command an equal share of around 70% by the

grammar school pupils as having power of appeal totally or rather, from the perspective of the women the profession of medical doctor is the frontrunner by far with 75% and on the same ranking as the case with women, followed closely by the profession manager/entrepreneur (70%). With a majority of 65% as having power of appeal totally or rather for men is how the male grammar school pupils also perceive the profession of engineering, with the profession of attorney commanding a 58% share and the profession of police commissioner/inspector taking 54%. An even higher share of the female grammar school pupils evaluate the professions of attorney and police commissioner/inspector for men as having power to appeal totally or rather and also as clearly having more power of appeal when exercised by men than women. In contrast to

this, 59% fewer women evaluate the engineering profession as having more power of appeal totally or rather when men exercise them. If the engineering profession represents the group having the most power of appeal totally or rather by both males and females surveyed, the reverse is true for the science profession. In this case the share of those who regard the profession as more or less attractive to hardly or not at all dominates. Only 36% of the young women and 39% of the young men consider the profession as having power to appeal totally or rather for men practising them.

The share of young men who perceive the mathematics and computer science STEM professions as having power of appeal totally or rather when exercised by men is even lower (25% and 27% respectively). From the perspective of the male grammar school pupils, the results for the power of appeal of mathematics and information science are similarly sobering. Cultural and media professions, as well as the professions of artist or politician are regarded very similarly when exercised by men (30% to 27%). It looks slightly better for the professions of mathematician and computer scientist. Only the teaching profession and the occupation of homemaker when practised by men were perceived as having power of appeal totally or rather with a lower share (17% and 12% respectively).

Careers have more power of appeal for men from the perspective of the young males – particularly traditionally male careers

Not only do male grammar school pupils rate the cultural regard that they have for women in STEM professions and male domains even lower than the young women themselves, but a large share of them are clearly still sceptical towards female gainful employment. Not only do they evaluate the non-involvement in gainful employment by females as having power of appeal totally or rather with a clearly higher share than the female grammar school pupils, they also perceive careers for women as having power of appeal totally or rather with a clearly lower share than young women. Over and above this, the vast majority of the professions listed here are perceived by them as having power of appeal totally or rather when exercised by men more than when exercised by women. Only the traditional female professions in culture, media

and art and the teaching profession are deemed by male students as having power of appeal totally or rather when exercised by women rather than men. These gender-typical differences are particularly pronounced in the perceived power of appeal of the engineering professions by the males surveyed. With a share of 70%, the males surveyed regard this profession as having power of appeal totally or rather when practised by men. Only a 30% share of women held this opinion. All the other STEM professions and the profession of politician are evaluated as having power of appeal totally or rather for men rather than women.

Not only do the females, with a noticeably higher share, evaluate professions for women as having power of appeal totally or rather, but this is the tendency in the case of men also. However, women evaluate women as commanding a greater share of the power of appeal totally or rather of traditional female professions like the media and culture, the arts and education than men. The females surveyed nevertheless clearly regard more professions for men and women as commanding the same power of appeal totally or rather. Solely the engineering profession, from the perspective of the young women, is seen as having a high power of appeal totally or rather for men only, while the young women surveyed are of the opinion that this profession for women is more or less attractive, or hardly or not at all.

Not only does a clear bias towards normative gender roles and skill attributes aligned with gender roles become evident, but what also becomes clear is that – aside from the engineering profession for men – the results of the perceived cultural regard for STEM skills and professions turn out to be negative, especially for women. The results show that the engineering profession not only clearly fits in better with the interests of the professional goals and self-efficacy beliefs of men than young women, but that this profession by all means promises a high power of appeal for young men – unlike for women.

Professions which dominate media events and are represented by women are clearly perceived as having greater power of appeal than STEM professions

Professions that dominate media events clearly fare better in comparison to STEM professions, if one ignores the strong representation of the politician in the journalistic programme areas. These professions constitute competitive sport, public order, safety and security and medicine. Thus the rankings on the power of appeal of professions outlined here display striking similarities to the results outlined above for the programme analysis of the representation of professional roles in fictional media. Evidently young women find a stronger power of appeal in those professions that also dominate fictional media formats and are also represented by women in leading parts. This is true for the profession of medical doctor, attorney and entrepreneur or manager, as well as traditional female professions in media, the arts, culture and design. Even the profession of police commissioner/inspector, which once was purely the domain of men, is perceived as having greater power of appeal for women than STEM professions and the traditionally female teaching profession, which is hardly presented in fictional formats and represented by women. Coinciding with this is the proof O'Bryant and Corder-Bolz were able to garner that traditional male-dominated professions were only evaluated as more interesting by girls when they had seen women on television that occupied these professions (compare Bryant & Corder-Bolz, 1994, 85-97). Griffin and his team also noticed this effect among girls from worse-off socio-economic backgrounds (compare Griffin et al (1978, 233-244)). In various countries it has already become clearly apparent that media can have a particularly strong influence on the development of the perception of professions when "real" role models are missing in the everyday reality of young people (Steinke 1998, 2005; Women at Work Commission 2006; Congressional Commission on the Advancement of Women and Minorities in Engineering and Technology Development 2000; Wasburn 2005/2007; Holliman et al 2006; Kitzinger et al 2007).

The fact that young women orientate themselves to role models in fictional formats in the career finding process is additionally outlined in the results that follow.

Status of fictional programmes in choosing a career

Sources of information for dream careers: Personal contact with working people is the most mentioned source for the discovery of dream careers

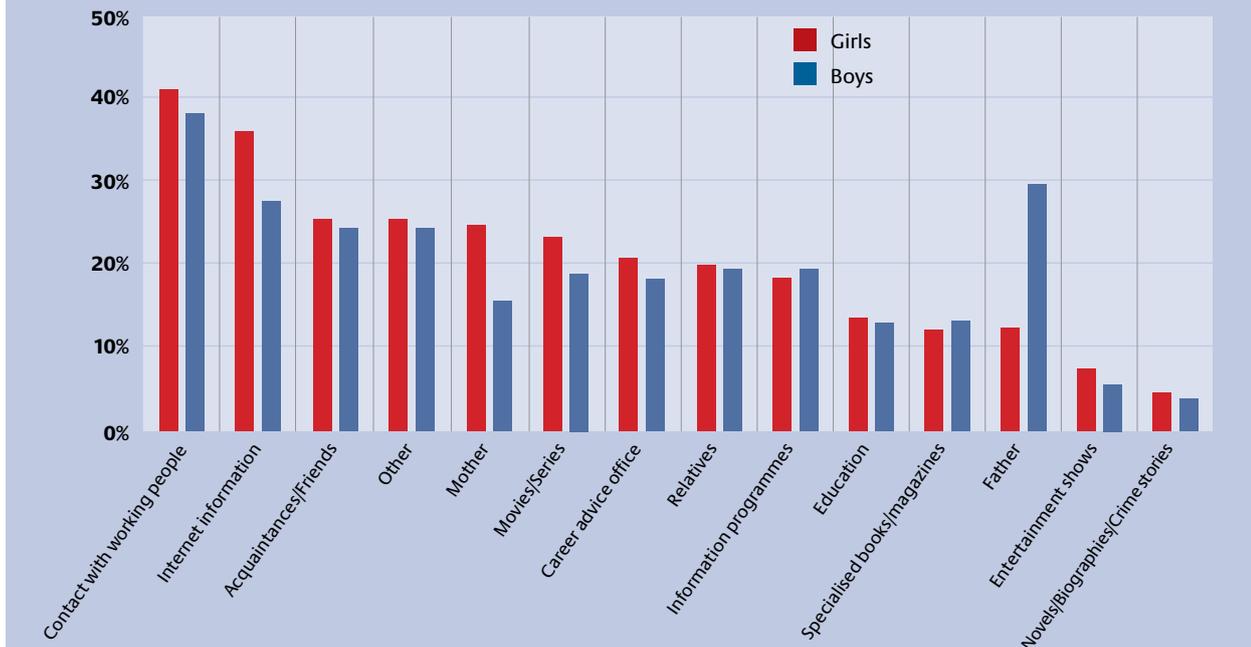
Asked whether they have one or more dream careers and how they became aware of them, 78% of the surveyed young people of all education sectors said they had one or more dream careers. The young people cite various sources of inspiration which clearly indicate a difference between the genders. Chart 13 gives an overview of the frequency with which young females and males mention the different sources for discovering their dream careers. The frequency ranking appears alongside the frequency with which young women cite the respective sources. Personal contact to working people is the same for young men and women and by far the most quoted source, cited by 42% of young women and 37% of young men.

Internet, friends, acquaintances and parents are important sources of inspiration – Boys use their fathers as an example – Girls their mothers

For young women information from the internet is the next most mentioned source (34%) followed by friends and acquaintances (25%) and other sources (especially individual experiences such as travel) and mothers (24%). In contrast, for young men fathers garner a higher ranking. Fathers are mentioned 29% of the time, higher than information from the internet, friends, relatives and miscellaneous sources. In the case of women fathers are mentioned only 13% of the time. Even though mothers are clearly the source of direction for more young women in finding their dream careers, they clearly also play a smaller role than fathers play for young men. In the reverse, mothers are mentioned as sources of inspiration for men in 15.6% of cases. The most frequently mentioned sources of information for young men after contact with working people and their own fathers are the internet (27%), and friends and relatives (22%).

Chart 13: Dream careers: What sparked interest?

Young persons with dream careers (77.9% of spot check), differentiated by gender; multiple mentions possible



Particularly women cite feature films and series as being sources of inspiration for dream careers more frequently than career counselling, documentaries, specialised books and lessons in class

The results show that for 23% of young women films and series are sources of inspiration for dream careers. These are cited more often than formal career counselling (21%), relatives (20%) and documentaries (17%). Young women give an even smaller share to lessons in school (13%) and specialised books and magazines (13%). Taking a back seat among young women – alongside fathers, mentioned already, are entertainment shows (7%), as well as novels, biographies, and crime stories and thrillers (5%). Eighteen percent of young men mention films and series and cite these, unlike the young women, as inspirational sources even though they command less of a share than documentaries (19%) and the same share as career counselling (18%). For young men films and series are mentioned more frequently than their mothers (15%), specialised books and magazines (14%) and lessons in class at school (13%). For men en-

tertainment shows (7%) and novels, biographies and crime stories and thrillers (5%) also take a back seat.

The results confirm not only the high-ranking status that personal career role models command when choosing careers, but also show that young people obviously orient themselves towards same sex role models they encounter not only in their personal surroundings but also in fictional surroundings. The results of the investigation confirm and coincide with the assertions by Bolz (2004, 54), Heine & Willich (2006, 59ff), and Keunecke, Graß & Ritz-Timme (2010) that media not only takes a key ranking when it comes to the career choice process, but that young people also use parasocial interaction-contacts to personalized profession-role-models in drama formats as a source for inspiration.

Young people attest to television series and feature films as having high career orientation content

The high career orientation content and rank commanded by fictional formats in the career choice process is also emphasised in the results outlined in the graphic that follows.

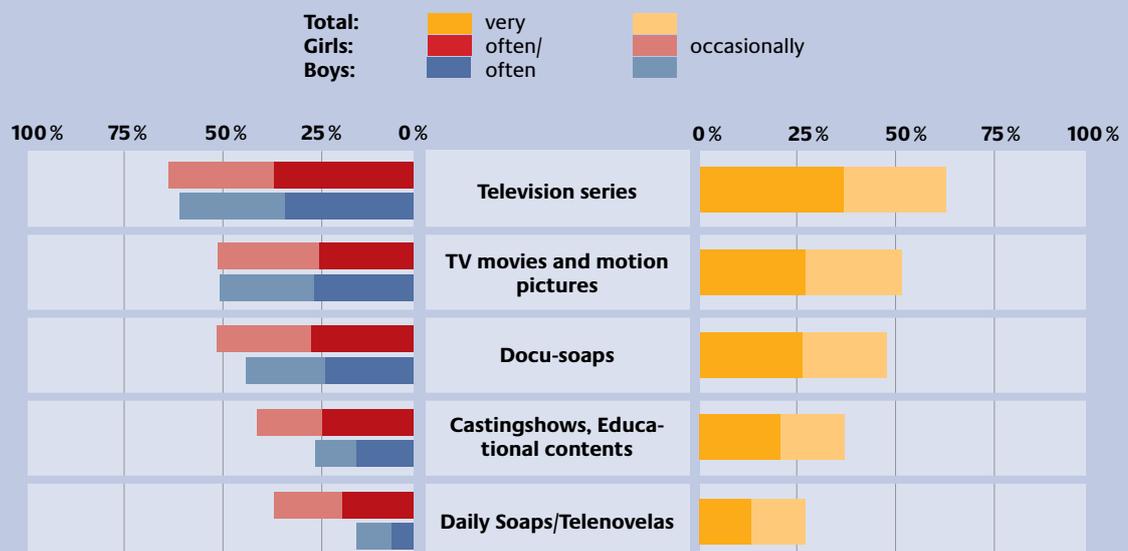
Asked whether they had ever learned anything interesting about a profession through fictional formats, young women and men give television series the biggest credit. Close to 40% of the surveyed young women and 35% of the surveyed young men mention having learned something interesting about professions from television series often to very often. A further 26% of the young women and 25% of the young men mention at least having learned something interesting about professions occasionally.

Only 22% of the young women and 26% of the young men indicate that they had never learned anything interesting about careers in series. Clearly fewer young women and men indicate having often or very often learned something interesting on professions via television, documentary soaps, and big screen films. Shares are nearly equal with young women and men (25% for women, 28% for men).

Casting shows by contrast are perceived far less as being a source of interesting career information by young men. Of young women, 24% state that they had learned something interesting about professions very often to often here, while in the case of young men this stood at only 15%. Coinciding with the results of the programme analysis on the dramaturgical ranking of professions dependent on broadcasting format and genre, young women and young men evaluate the career-related information content of daily soaps as the least. Barely 20% of the surveyed young women and only 6% of the men state having often or occasionally found something interesting about professions from soaps. The group of young women and young men surveyed who state that they have rarely to never learned something interesting about professions form the majority with 63% and 84.3% respectively.

Chart 14: Learned something interesting about careers in fictional formats

Young people who gave valid information in %, differentiated by gender (N=2457)



Potential fictional formats for STEM science communication and recruiting the next generation

The preceding results have shown that feature films and especially series from the viewpoint of young people not only are rich in content regarding the orientation towards professions but also have great potential to meet youth where they find themselves in great numbers and with great enjoyment across all classes of education.

Unlike use of the internet, which would normally presuppose an active and targeted study-direction and career-orientated information search, career orientation in fictional entertainment formats is an unintentional but welcome spin-off of fictional television entertainment. Fictional formats, according to Steinke and Potts & Potts, rather tend to shape career and gender-role perceptions by the way or unconsciously (compare Steinke 1997/1998; Potts & Potts 1994).

Not only can feature films and series carry young people off into STEM worlds (of work) that are normally closed to them in their real worlds as a rule, but also their parents, peers and teachers. Worlds that for the most part they hardly know anything about and especially in the case of women, would avoid rather than seek out.

It is precisely this fact that provides films and series with the opportunity to: (1) break through the selectiveness prevalent in the career information conduct of young people, (2) compensate for the far-reaching information deficits and uncertainties of opinion of young people outlined above with regard to STEM professions, (3) transform the perceived cultural regard of STEM skills and professions, and (4) transform the acceptance and the perceived power of appeal convictions when it comes to women in STEM professions.

When it comes to promoting the interest and motivation of young women and helping them realise their talents and values and igniting their desires for shaping our future in STEM professions for the common good and with a collective responsibility, it is not only up to the STEM results available here to show what opportunities STEM offers for the solution of global social, ecological and economic

problems, not leaving out risks, conflicts and ethical dimensions.

In the process, it is also important to make it known that engineering work today is a team effort and not lonely nerd and computer work. Setting the scene in feature films and series for women in STEM professions who naturally and successfully master conflicts and obstacles, and also enjoy high regard and recognition for this as women and who find promising solutions for the future in which career and family life are reconciled through partnerships, can make a considerable contribution to changing even normative career-based gender role expectations and the gender role skills ascribed to them.

Since the results presented show that for young women STEM self-efficacy and performance factors are based less on their actual performance level than on normative gender roles and the skills ascribed to these roles, media models are in a position to strengthen the confidence of young women in their existing STEM skills and aptitudes (and also the confidence of their parents, peers and teachers). They can thereby transform the perceived appeal that these skills and professions have for young women and men. Steinke pointed out that of central importance when it comes to the effectiveness of female role models in gender-typical professions is the frequency of perception. "Frequent exposure to role-models is important because existing stereotypical gender schemata have been in place for many years. These schemata are resistant to new and contradictory information" (Steinke 1998, 147).

Not only has this been proven by numerous relevant laboratory experiments, but it can also be documented by way of the above-mentioned example of the (television) police commissioner/inspector. Even if one cannot make any simple mono-causal connections here and even if there is a lack of appropriate investigations in Germany, one is nevertheless permitted to assume that the boom in female police commissioners/inspectors and police-women introduced on the television screen since the year 2000 have made a considerable contribution towards making this career field "socially acceptable" for young women in reality. In so doing, it changed on a broad basis perceptions regarding the suitability of these professions for female skills and to the female social character, thereby convincing not only young women but also their parents and

peers that the profession of police commissioner/inspector or police officer is also suited to women – contrary to prior professional and public opinions.

That media can arouse interest in fictional programme areas and in so doing also can influence study choice behaviour on a long-term basis is shown in the following contribution by Corinne Marrinan, writer/producer of the television series “CSI”, an American series that has also had exceptional success in Germany. This CSI effect exists not only in the USA but was also recently substantiated in view of the German situation (Keuneke, Graß & Ritz-Timme (2010)).

Science – Technology – Unusual Gender roles: Any ingredients for successful TV movies and series?

**Prof. Dr. Marion Esch,
Dr. Christoph Falkenroth**

Objectives of the survey

Why are STEM professions – Science, Technology, Engineering and Mathematics – virtually unrepresented in the fictional media of a hi-tech society like Germany, despite the social relevance of these professions and the strength of Germany’s research and development in these fields? What is the professional opinion of filmmakers about their creative leeway regarding more STEM professions and women in non-gender-typical STEM professions? In order to try to find some answers, a survey of filmmakers was conducted to remedy the shortage of information or research on this topic.

Unlike in the area of journalistic programmes, until now little research has gone into the editorial process and into insights in professional roles and responsibilities, as well as into insights in criteria for the selection and staging of topics, stories, settings, professional and gender roles and social settings. Because of this, we do not know the reasons for the proven lack of representation – on a large scale – of STEM and gender-untypical role models in fictional formats, or the quality objectives of the broadcasters.

An appraisal commissioned by the Friedrich Ebert Fellowship in 2007 regarding the discussion on quality consequently arrived at this conclusion: “Generally it is the case that information programmes are analysed from every angle by social science research when it comes to criteria of quality. This is less the case in fiction and entertainment (e.g. compare Breusing 1999, 94 -110). Here the criteria are not as strong. Normative criteria count to a much lesser extent; issues relating to the technical aspect and public acceptance feature far more prominently” (Kammann et al 2007).

Against this background the survey explores:

- Insights into professional role, responsibility, and understanding of quality (or aspects thereof) as far as screenwriters, producers and broadcasting station representatives are concerned
- The reasons for the narrow career spectrum and the non-representation of STEM and gender untypical professional role models in fictional television formats in Germany
- Measures that would be helpful for TV- and filmmakers with regard to greater equal opportunity for STEM in fictional television formats.

The exploratory-orientated study combines methodical qualitative interviews with editors responsible for the programmes of the five big German broadcasting stations, representatives of both station-dependent production companies and independent production companies and very successful screenwriters, with a semi-standardised written survey of professional screenwriters. A total of 25 interviews were conducted. The written survey approached 759 writers within this framework. 75 female and 81 male screenwriters answered the questionnaire in full. At 21% this is an unexpectedly high response rate for a written survey. Of those surveyed, 88% are older than 35, 90% of those questioned have been working as writers for more than three years, 76% are writers as their main profession and 91% have graduated from university. From this it emerges that the survey has reached the target group of professional writers extremely well.

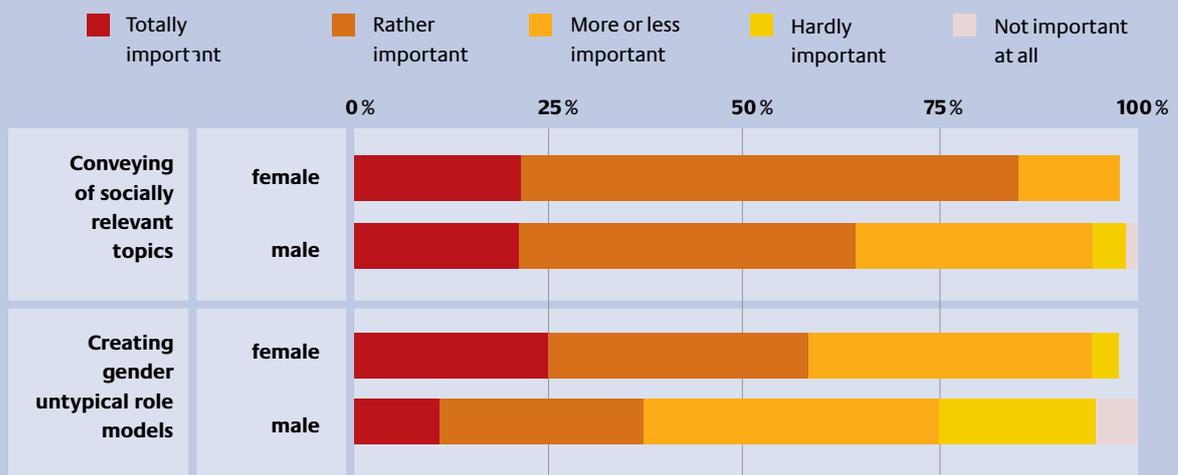
Filmmakers' insights into professional role and responsibility

Writers (of both genders) perceive the social influence that feature films and series can have to be high

Asked whether they agree with the assertion that feature films and series are suited to conveying important topics, the vast majority of those surveyed stated that they *rather agree* with this assertion or *totally agree*. The percentage of women who agreed with the assertion was 77%, compared to 68% of the men. Only 6.4% of those surveyed regard feature films as *hardly* suited or *not at all* suited to conveying important topics.

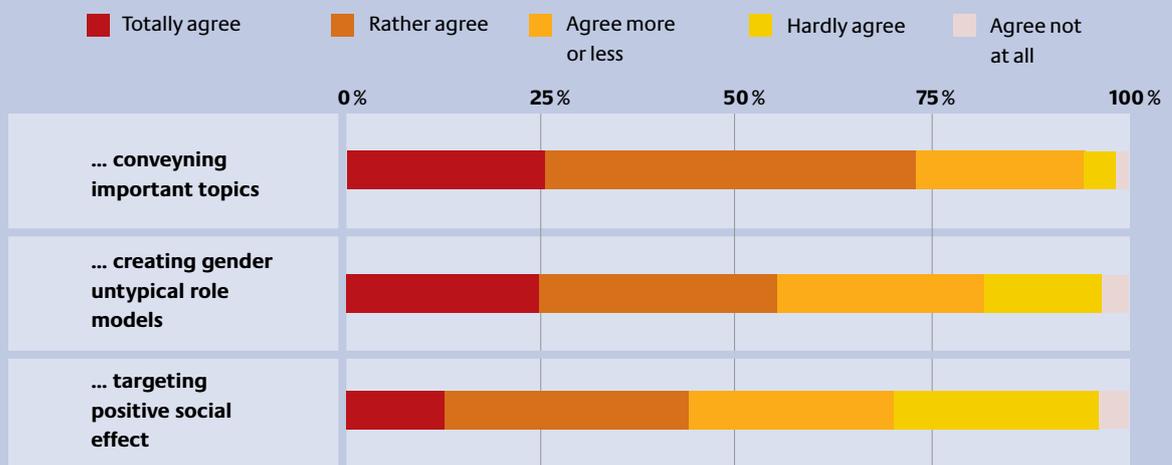
Chart 15: Personal insights into professional role and responsibility according to author's gender:

(N=154, data provided, missing values as a percentage of 100%: No data)



Author's insights into professional role and responsibility: Feature films and series are suitable for...

(N=154, data provided, missing values as a percentage of 100%: No data)



Noticeably fewer, but still a majority at 56%, said they *totally* or *rather* agreed with the assertion that feature films are suited to creating gender-untypical role models. In this instance also, with 60%, more women than men were inclined to agree with the assertion *rather* or *totally*. The statement that positive social effects could be achieved was agreed to significantly less, by 44.2%. The consensus in this regard also differed vastly between writers based on gender.

A very distinctive creative drive is evident among writers of both genders

Similarly, the answers to the question indicate how important it is to the surveyed writers to seize upon socially relevant topics and gender-untypical roles in their screenplays (see chart). The vast majority indicate that it is *totally important* to them or *rather important*. Here with 82% the percentage of women for whom it is *totally important* or *rather important* is noticeably higher than that of men with 64%.

The equal opportunity policy creative drive is less pronounced and where this drive exists it is more prevalent among female writers

By way of contrast the proportion of those for whom it is rather important or totally important to create gender-untypical roles is less by far: 47%. The number of women for whom this is totally important or rather important lies at 58%, while only 30% of males surveyed indicated that it was totally important or rather important to them to create gender untypical role models.

Editors and producers emphasise the recreational role that feature films and series play

Among the editors and executive producers who were surveyed, the desire and willingness to achieve pro-social effects was distinctly less pronounced than in the case of the writers. The majority here emphasise the recreational role played by fictional media.

“It has become a thing of the past that you would educate the population through television. The impetus that drives writers to write is not the notion of changing society, but to create something new” (quote from

a chief editor). Another programme departmental head states: *“When we tell a story, then we want to do something that will lend itself to escapism...”*

None of those surveyed specifically took into account the brief of broadcasters regulated by public law to educate. Nevertheless, the majority interviewed do occupy themselves with endorsing core social values and addressing relevant social topics. For all broadcasting station and production company representatives the main point was: *“The story has to be good.”*

Within the framework of the interviews, the introductory finding of Kammann et al was confirmed, i.e. that the quality and success of a series or feature film is measured in the first instance via technical dramaturgical criteria and ratings, and not via the attainment of pro-social objectives or educational effects. This is also the case when it comes to representatives of broadcasters regulated by public law. Here, in the knowledge that Germany’s society is made up of a disproportionate number of older people, bias towards ratings would invite one to align oneself with the assumed or also perhaps real taste of the 60 plus age group (female), which forms the majority of the core audience.

“Ratings seem to be the most reliable benchmark... one swears by them. And not surprisingly so, because for us it is in this that stability lies, solid figures, which represent millions, and behind these millions the fact that it is essentially about over sixties must simply disappear. That is something we obviously are in denial about.” (Programme Departmental Head)

Elsewhere, Martin Berthoud, a programme planner with German public-service television broadcaster ZDF has aptly formulated this as follows: *“For young people to come out on top without alienating the older folk does not work in a fragmented market.”* (Bartout 2008)

Writers appear to be very dissatisfied with the lack of a spirit of innovation displayed by broadcasting stations and executive producers and with the quality of feature films and series.

Evaluating work situation and work results

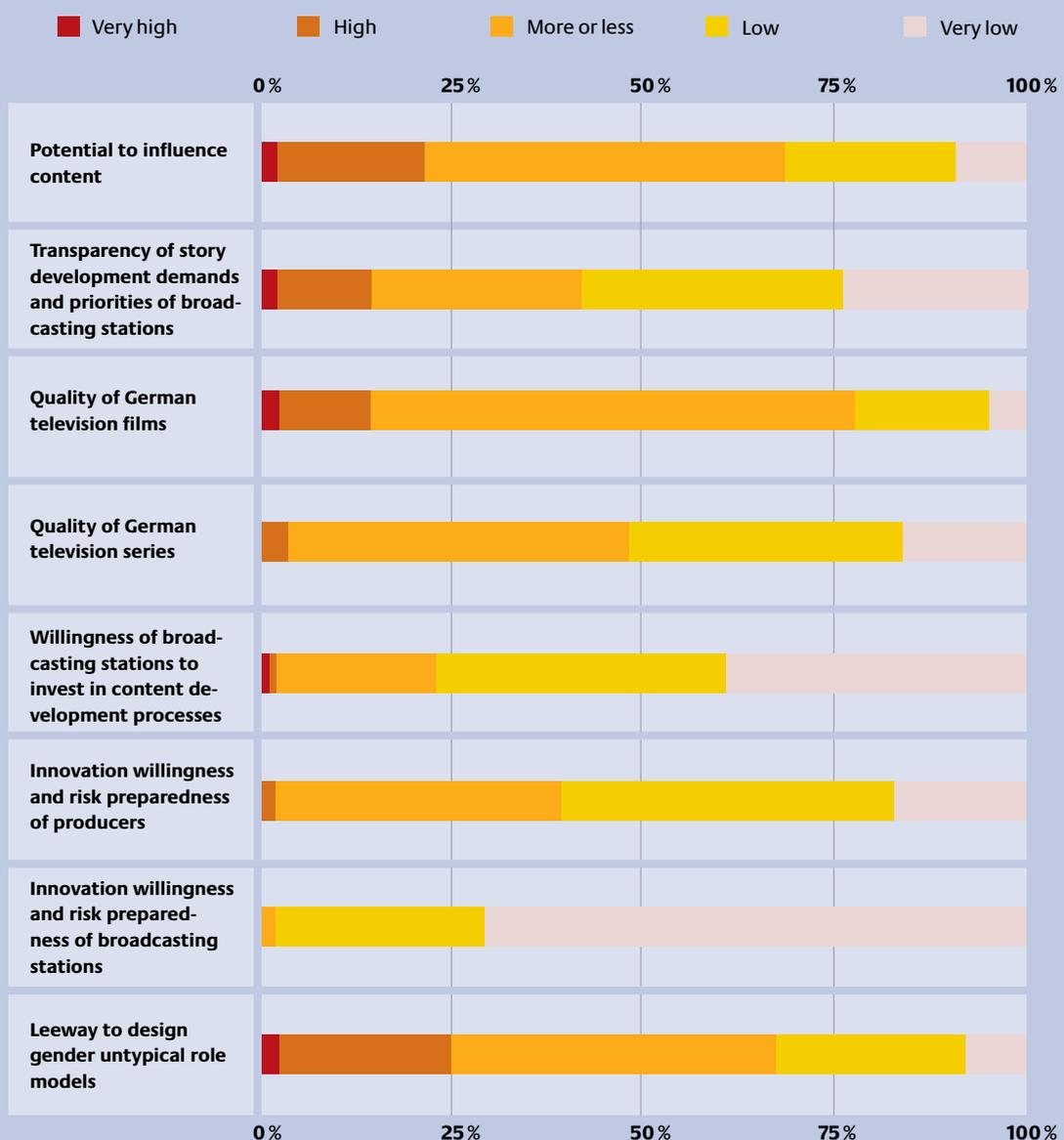
The spirit of innovation and quality – the appraisal by writers of broadcasting stations and producers is critical and they find they cannot relate to the stations' development priorities

The willingness of broadcasting stations to invest in content development, according to 75.6% of those surveyed, is *low to very low*, with 20.5% saying it is *more or less*. Only 0.6% are of the opinion that the willingness to invest is *high to very high*.

The verdict of the writers regarding the stations' willingness to innovate and take risks is even more sobering. These are deemed to be *low to very low* by 96.8% and *more or less* by 1.3% of those surveyed. Ap-

Chart 16: Appraisal of the work situation and results by authors

(N=154, valid data provided in percentages)



praisal of the production companies is to be slightly better. Among writers, 61% regard the production companies' willingness to innovate and take risks as *low* or *very low*, while just under a third of those surveyed regard the story development needs that the broadcasters express as hardly or barely understandable.

When asked about the extent to which they perceive the level of creative leeway they are given to create gender untypical role models, only 25% of the writers described this as *high* or *very high*.

Only 21% of those surveyed perceive the influence they have on content development to be *very high* to *high*. And 58% found broadcasting stations to have development requirements and priorities that are incomprehensible.

The quality of German television productions is likewise evaluated very critically. Just under 4% of writers are of the opinion that German television series are of *high quality* (*very high quality*: 0%). German television films hardly fare better in how they are evaluated: Only 14% regard them as *high quality* or *very high quality*.

Reasons for narrowed range of professions and the non-existence representationally of STEM and gender-untypical professional role models

What are the reasons for the far-reaching symbolic non-existence of STEM professions in fictional TV-formats?

The surveyed writers were asked to indicate the extent to which they agreed with a given set of answers.

Writers regard the restrictions imposed by broadcasting stations as key barriers

The vast majority of those who were questioned are of the opinion that the negligible interest or restrictions presented by broadcasting stations are responsible for the far-reaching symbolic non-existence of STEM professions in fictional TV-formats. 71.8% agreed *rather* or *totally*.

Less by far, yet still significant with 37.7% was the assertion that it would be too expensive to develop stories in these fields was a reason for under-representation. Only 32.1% agreed that audience interest in STEM in fictional formats is lacking. The biggest by far proportion – 50% of those surveyed – agreed *not at all* or *hardly*, with 16% agreeing *more or less*. 27% agreed that production costs that were too high was an important reason.

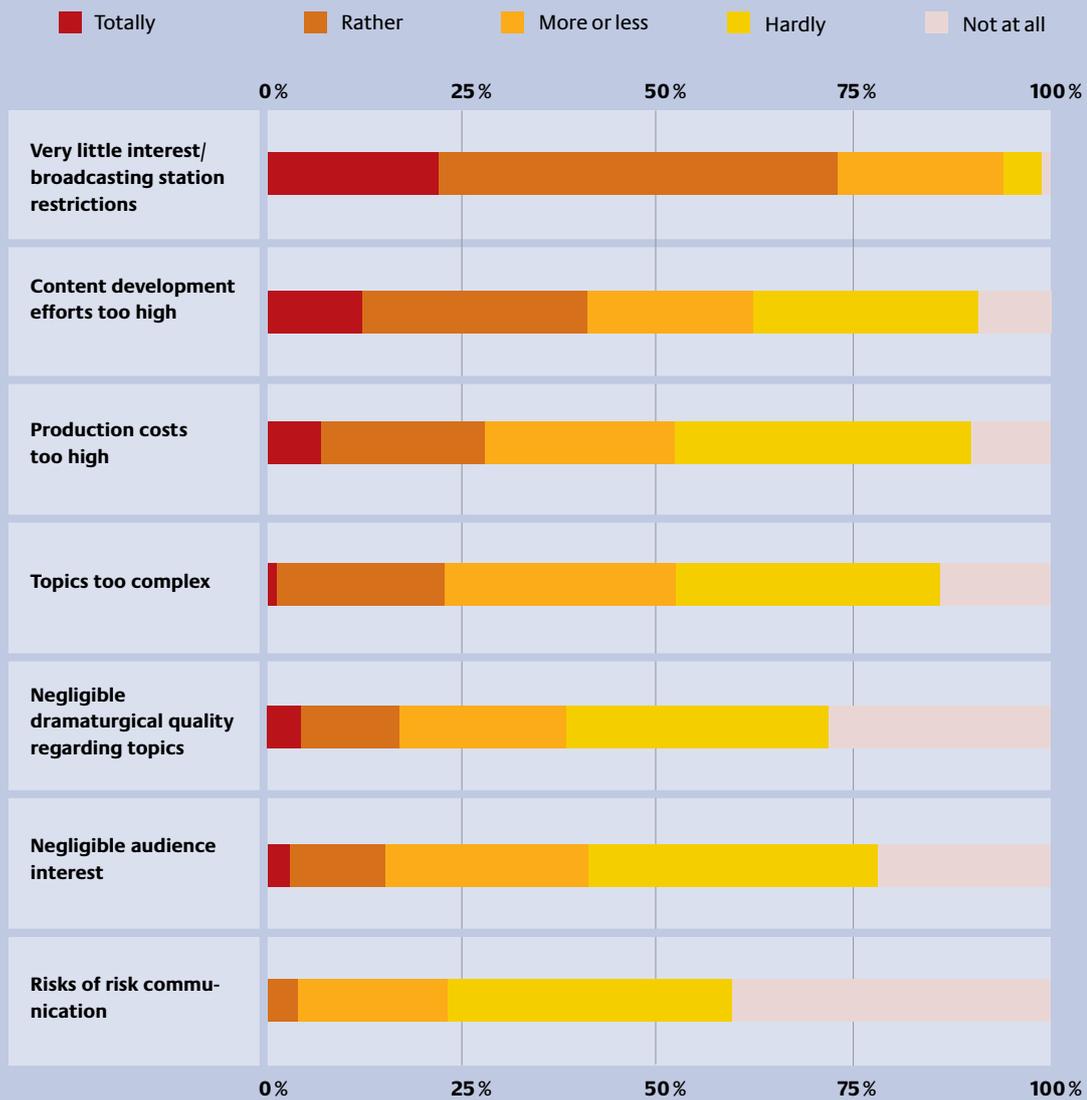
Only 23% were in *high* agreement or *very high* agreement that STEM topics being too complex is at fault. Even fewer, 16.7%, blamed the low quality of these topics. Also cited in this context was the risk of communicating STEM opportunities, as well as the difficulty of dealing with audience fears and hopes.

Restrictions in place in editorial desks and productions

The multitude of restrictions that writers participating in the written survey observed as being imposed on the STEM world and STEM professions by broadcasting stations were fully confirmed by interviews

Chart 17: Reasons for narrowed career spectrum and lack of representation of STEM and gender-untypical professional role models

(Agreement, N=154, valid data provided in percentages)



with representatives from the broadcasting stations or their own production companies. This is what the project developer in one of these production companies had to say: “There are of course certain professions in series formats such as *lawyers, foresters, clergymen, actors and doctors*. Obviously these are professions, each in their own right, that are considered as socially relevant or exemplary. These are ethical values that are deeply rooted in society and hence make for role models that one will gladly follow.”

When asked about the social value of STEM professions, those surveyed were not convinced. Not only did sceptical and cliché filled perceptions of STEM professions come to the fore among the editors surveyed, but also the conviction that STEM-related topics would attract negligible audience interest.

“Science and technology, these are words that tend to come across as emotionless... They also come across as emotionless for most viewers. I would not want to

make a television film on a scientific subject and have to explain how all this fits in, because that would not interest anybody, let alone me... Child poverty is a topic that touches me personally far more than the thought about some kind of shortfall when it comes to the sciences.” (Broadcasting station representative)

Another programme decision maker ascribed the strong under-representation of STEM content as the focal point to the demands it makes on audiences. *“When we tell a story, we also like to do something that allows for escapism... And given the nature of science and technology, you have to learn a bit and understand it. If one were to narrate it properly, the facts also have to be correct and that hurts a little. Perhaps that is too strong a word. Let’s say it requires a bit of effort.”*

Furthermore some of those surveyed expressed the view that young women, particularly, would not feel as though their needs were being met through STEM topics and female characters in STEM professions, and that high interest among a female audience could only be achieved through “love”.

“It is totally irrelevant what female character you have in mind, there has to be a big love story accompanying it. There has to be drama and tragedy to offset it.” (Editors)

One of the surveyed editors specifically confirmed that the interest that editorial desks show in including STEM topics in feature films and series is negligible. This editor also expressed the conviction that this had come about as a result of the high proportion of women in editor positions: *“It is precisely the avoidance of the sciences for example that accounts for the strong presence of women in these editing professions. What they are doing is to reproduce this phenomenon over and over again.”*

Reservations and only slight knowledge about the STEM world in German editorial departments is also shown by the following views of TV producers: *“Assuming that I were to consider a character, create a film concept and I were to go the broadcasting station and tell them that the new character is a biochemist, they would leave the room without saying a word because it is something they cannot conceptualise for themselves.”* (Daily Soap Producer)

“I bet if you were to discuss it with a chief editor, the first answer you would get is: “That is definitely not sexy.” (Writer/Producer)

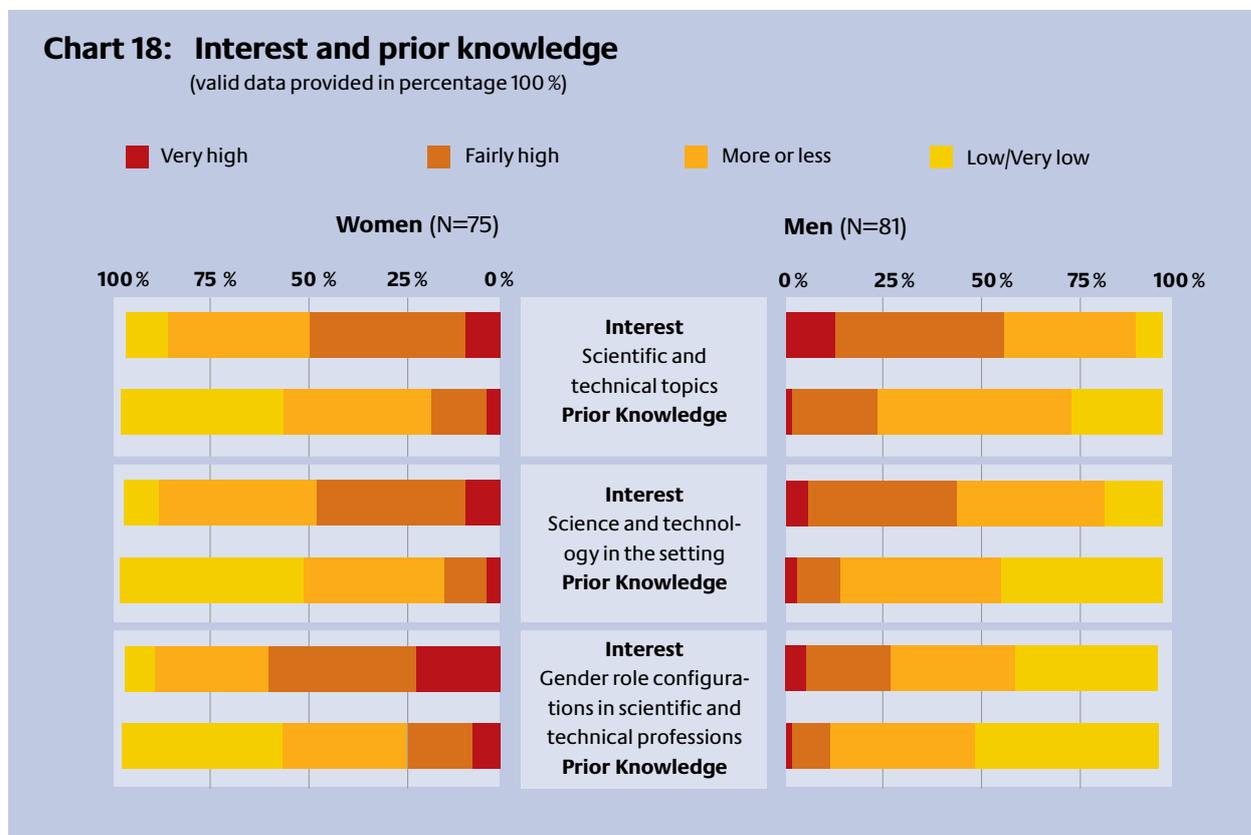
“If I were to visualise someone going to work, I would understand nothing of what he would be saying to someone else there or have any comprehension of what he was doing by stirring something in some or other container or the like. This really is not visually pleasing.” (Daily Soap Producer)

“The difficulty is: How do I present that? Watching engineers sitting in front of a computer is boring.” (Producer)

Negligible knowledge – yet definite high interest on the part of filmmakers

Even if some of those surveyed were sceptical not only about the social purpose that STEM professions served, but also about the attractiveness to the audience of STEM worlds and women in STEM professions, the narrowed and gender-specific structured career spectrum and the far-reaching lack of representation of the STEM world are not the result of a deliberate decision to undermine STEM topics, settings and professions. They are more likely to be the result of:

- Programming practice relying on resource conservation, which in the case of daily soaps and telenovelas, for example, is designed to use as few shooting locations as possible and to create as many places (such as restaurants and coffee shops) where people can meet.
- A bias towards that which is generally popular, familiar, can be easily presented and visualised.
- A focus on professional settings in which new cases can be processed constantly and provide good opportunities for serialisation (hospitals, police stations, courts, attorneys’ offices).
- The negligible STEM-related knowledge of the predominantly culturally and humanities trained and educated filmmakers, which to some extent comes along with cliché-like and stereotyped perceptions, among them the assumed lack of entertainment appeal for visual presentation and serialisability of STEM professions.



A vast majority of those surveyed showed great interest in getting to know more about the world of science and technology and on issues of equal opportunities in this area. This was not only the case for interviewed editors, programme decision makers and producers, but also for writers. Here too it can be observed that knowledge about STEM topics, settings and gender configurations is minimal among writers – yet their interest in them is high.

More than half (53.2%) of those surveyed professed a *fair to very high* interest in scientific and technological topics. Only 9.0% displayed *no or hardly* any interest. At the same time barely 22% estimate their prior knowledge as being *fairly high*.

Just under half (47%) of those surveyed were interested in science and technology as a setting. The proportion of those that have *hardly* any knowledge of this sector and who said they were interested in science and technology as a setting was almost as high (45%).

Those who professed to have an interest in gender role configurations in scientific and technical

professions amounted to 44%, while 45% had *hardly any or no* knowledge of these.

An interest in equal opportunity issues is clearly more pronounced among female writers

Even though interest in STEM topics is only slightly lower among women than men, and an interest in science as a setting is only slightly higher than that of their male counterparts, there is a significant difference in the interest that males and females surveyed display regarding gender configurations: 60% of female writers surveyed indicated their interest in gender configurations were *fairly* and *very high*, while only 27% of the male writers indicated that they were *fairly* or *very* interested. 25% of women and only 12% of men categorise it as *rather* or *fairly high*.

Helpful measures for more STEM and equal opportunities in fictional television formats

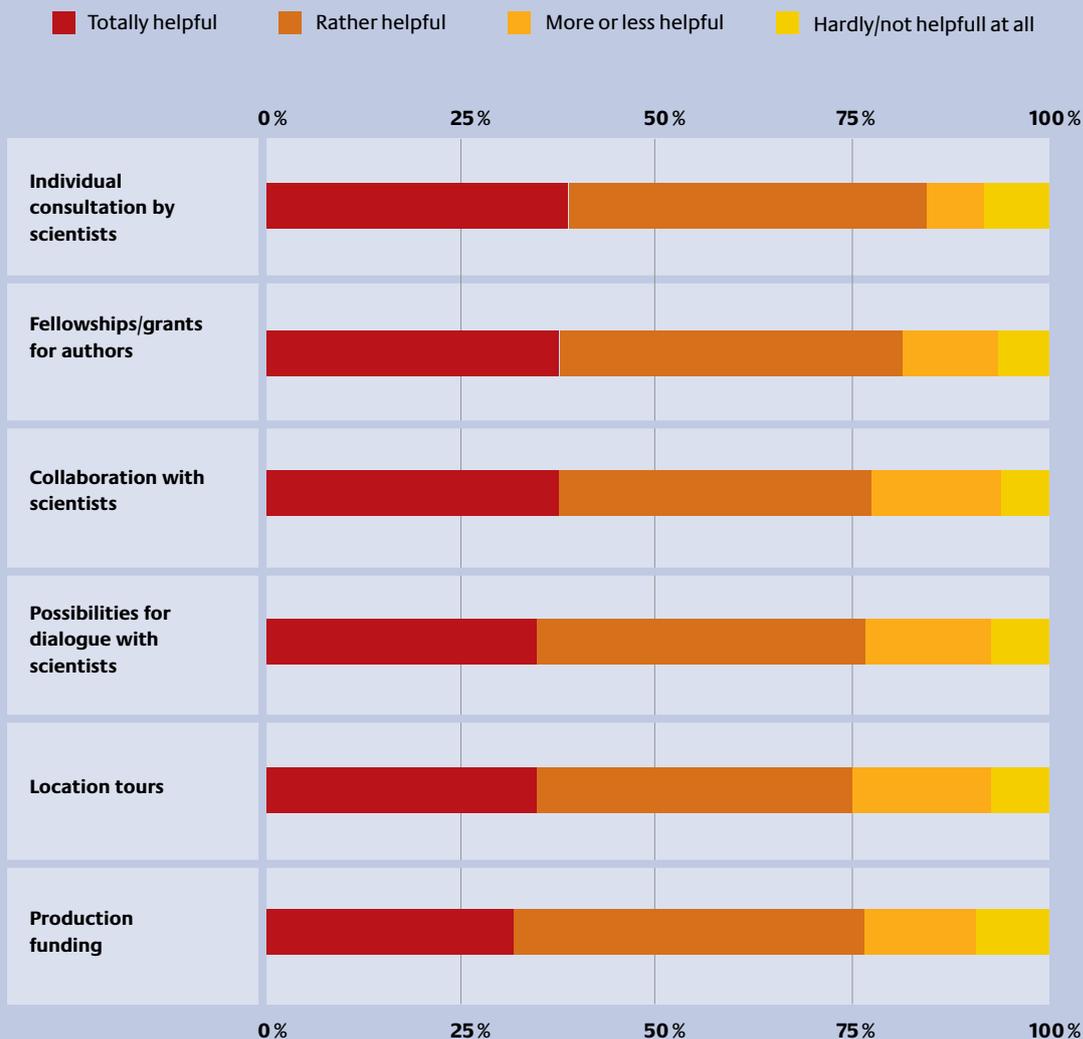
Dialogue and collaboration with scientists is highly desirable

Among the measures that writers consider to be helpful or exceptionally helpful in supporting the development of scientific and technical topics and

the creation of new female role models for television feature films, serials and series, are:

- A central office for individual consultation with scientists (85%)
- Fellowships/grants for writers to conduct research and develop content (81%)
- Collaboration with scientists in content development (77%)

Chart 19: Helpful measures for more STEM and equal opportunities in fictional television formats (N=155, valid data provided in percentage 100%)



- Production funding (76%)
- The possibility of dialogue with scientists on interesting research developments (76%)
- Tours of research institutions and companies (75%)
- Workshops and further education offers (55%)
- Review and discussion of best practice examples (52%).

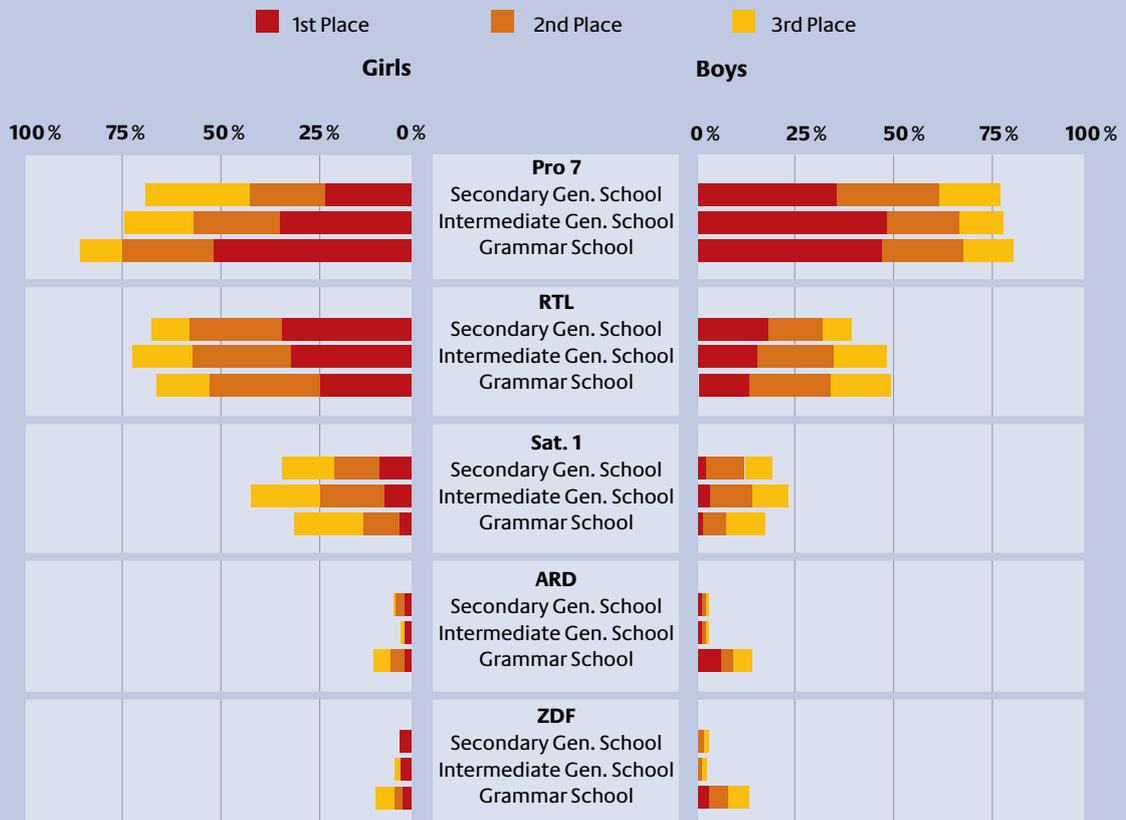
The survey results demand from the science organisations to give filmmakers access to dialogue with scientists, thereby putting them in a position to offer insights into the STEM world and reconsider the supposed lack of visual presentation attractiveness and serialisability of STEM professions.

What also becomes apparent from the survey results is that while journalistic programme areas are addressed by scientists and scientific organisations in a target-orientated manner, in Germany there are no structures for dialogue at the interface between science and fiction. The extent to which the scientific system is not transparent and the lack of relevant research access for writers and editors add to the difficulty.

Under these circumstances it is understandable that writers avoid science and technology; there is an abundance of other interesting stories and storyline contexts more easily accessible which have high audience appeal and are accepted by broadcasting stations. This underlines that targeted appeal and incentives have to be created to minimise the development risks facing writers, while broadcasting stations have to be motivated to im-

Chart 20: Favourite broadcasting stations: In Total and Top 3

(Data provided in percentage diff. according to gender and school section)



plement programme innovations through suitable measures.

The results of the survey also showed in this respect that as long as the quality of fictional programmes is primarily measured by audience ratings and since a large proportion of Germany's female audience is reached with film adaptations of the writer Rosamunde Pilcher, there is evidently no real incentive for the broadcasting stations to align themselves with the taste of the minority audience of young people and invest in programme innovations and educational quality of fictional programs.

With the missing reference to an educational brief in fictional programme areas regarding public broadcasters, what is also missing are systematic criteria and priorities for selecting topics, settings and professional or gender role models. This leaves the door wide open for a programme practice whereby a "good story" becomes the core selection criterion and the points of reference are personal taste preferences and the supposed tastes of a disproportionate number of older people who form the core audience.

Equally sobering as the writers' verdict on broadcasting stations' preparedness for innovation and on the quality of German series and feature films is the verdict of young people.

The chart shows that young people clearly prefer private stations over the broadcasters ARD and ZDF, which are regulated by public law. Asked their favourite three stations, Pro7 held a clear lead across the higher male and female educational levels. ARD and ZDF are far behind through all educational groups. Overthrowing traditional assumptions, which ascribe to broadcasters regulated by public law a high demand and quality level and relegate the private broadcasters to underdogs, the results of the youth viewing preferences show that in higher educational echelons – and in particular the echelons of higher educated women – the private station Pro 7 was vastly favoured by the audience. It is also by far the one that has the smallest proportion of fictional own productions and predominantly broadcasts successful American series and feature films.

STEM and Equal Opportunities – Valuable Ingredients for TV-Drama-Formats



CSI: Crime Scene Investigation – Science and Gender in a Fictional Crime Series Format

**Corinne Marrinan,
Writer/Producer, LA, USA**

A crime series that boosts the number of women graduates in any subject is rare. The television series “CSI: Crime Scene Investigation”, which first came on air in the USA on October 6, 2000 and is now the most successful forensic drama in the world, has brought about exactly that. Female specialists in forensic medicine take central stage in the show and young women have taken more interest in forensic studies as a result.

“If you are lucky enough to be able to tell your story to a wide audience, it is absolutely essential to keep your level of awareness high and not to lose it while you are working, even if your work is dominated by commercial interests... The fact that you attract the undivided attention of 30 million people each week gives you a lot of power. You must be aware of the power you have and act responsibly.”

Corinne Marrinan is aware of the implications her work as a writer of the most successful television series in the world bring with it; at the same time, she does not deny the fact that the positive CSI influence was at first an unintentional side effect. “As someone who has been there since the very beginning I am not going to pretend the series set out to discuss the issue of gender.”

The meticulous forensic research the series required is combined with the unusually strong presence of female forensic experts who “get their hands dirty, use their brains and put lots of criminals behind bars. The pilot episode featured the strong female characters created by Anthony E. Zuiker.” In some ways, this worked against the formula of the mainstream crime drama.

Until this series came along, forensic specialists were marginal characters who only showed up now and then to give the police inspector an analysis based on their menial duties. Seeing a female forensic specialist was even more rare, which mirrored

the real life jobs that were overwhelming performed by men. To build a whole series on the scientific machinations of these marginal figures and, and the same time, cast female police inspectors in leading roles certainly was unusual. “The general consensus was, nobody wants to see anything like that in television.” Equally unusual was the fact that in the beginning “CSI” revealed hardly any details about the private lives of its protagonists. The criminal case took centre stage and, save a few bits and pieces here and there, all private details were left out on purpose. After many setbacks, the American broadcaster CBS finally, not without some doubts, committed to produce “CSI” but broadcast the pilot episode in a less favourable time slot.

Despite all expectations, the audience responded so positively to the pilot that CBS executives assumed there was a mistake in the viewing figures. They were also surprised to learn that women between 25 and 45 showed high levels of interest in the series. Corinne Marrinan says: “And that is how the series found its audience. The characters of Sara Sidle and Catherine Willows were tremendously popular. Obviously they were ready to accept non-traditional roles for women in this very special profession.”



Corinne Marrinan worked for 10 years as Associate Producer and Writer for the successful American TV series CSI. She also produces documentary films. She won an Oscar for the film “A Note Of Triumph: The Golden Age Of Norman Corwin” in 2006.



From the outset the writers had access to professional advice and in the first season Elizabeth Devine, a former member of a real forensic team, was part of the development team. As part of their preparation most of the authors attended an autopsy so they could experience first-hand what actually happens there. Consultants from diverse backgrounds are always on hand to provide information about current developments in forensic research and technology. According to Marrinan, nearly all the technology shown in the programme really exists, “although there is no laboratory in the USA besides the one they probably have at the FBI in Quantico that is equipped with the kind of fancy technology you see in the CSI laboratory in Studio 24 at Universal Studios.”

Each episode attempts to depict the facts as accurately as possible. Inevitably there will be times when the plot veers from reality to enhance the drama, particularly when it comes to certain time frames. “Producing proof based on a DNA analysis can take weeks or even months in reality before

obtaining dependable results. Of course that won’t work for a 44-minute episode.” Such expediency in television sometimes can cause a “negative CSI effect,” for instance when “jury members in court cases expect the same kinds of technology and efficiency they have seen on television.”

For Marrinan, accurately presenting the profession is as important as developing the female characters in the series. She is convinced that “many young women are hungry for positive role models and they need these kinds of figures to guide them and to emulate in their own lives.” It is not about creating unrealistic superheroes because “characters without flaws or problems aren’t terribly interesting. The writers want to be able to show how vulnerable the female characters are without compromising their integrity.”

Particularly in this regard the creative writers relied heavily on Elizabeth Devine’s advice that is rooted in her personal experiences. This enabled them to equip the Sara Sidle character, the novice in

the CSI team, “with characteristic qualities and emotions that are typical for a rookie who has to find her feet in a profession that can be traumatic and very stressful.” The more seasoned member of the team, Catherine Willows, was also equipped with realistic characteristics. “A part of the real Elizabeth Devine is in each of those two fictional characters.”

When vulnerability is an issue with the female leading roles in the series, Marrinan says this is “almost always related to gender roles. The fact that topics like this are directly addressed helps the characters steer clear of stereotypical roles... Both Sarah and Catherine repeatedly make a conscious effort to stay off the beaten track. The same can be said of the actresses who play them, the authors who invented the characters, and the directors guiding them on the set.”

This departure from the traditional ideal that an investigator must remain unbiased and unemotional toward the victim is intentional and gives Marrinan cause to surmise: “If emotional compartmentalization is considered more of a thick skinned male trait, perhaps the fact that more and more women are pursuing careers in this field demonstrates that a little compassion can be just as useful as being emotionally detached.”

Aside from the gripping stories, the character ensemble in CSI figures prominently in the global success of the series. The effects of the show’s success are not only to be found in the development of two other spinoff series running at the same time, CSI Miami and CSI New York, all featuring prominent female characters. Another effect is the level of awareness in the public’s eye and in the minds of women in the USA of forensics as a specialized field. High schools have begun offering forensic courses with “frequent mock investigations led by local law enforcement” and American scout organisations are putting on “find the evidence” competitions.

The CSI effect has had a particularly noticeable impact on professional forensic medicine and its studies. According to Corinne Marrinan “forensic graduates in the USA are now 75% women. That is a growth of 64% since 2000. Women currently fill more than 60% of the jobs in forensic laboratories...

There must be a connection between what the girls and young women have seen in this series and their growing interest in a career in forensics.” She adds, jokingly, “Perhaps a few of them actually believe they will look fantastic once they’ve become forensic experts and show up on the scene of a crime wearing high heels and Prada with their hair and make-up looking fantastic after pulling double shifts – but most of them are aware that that is just Hollywood magic.”

Even though Corinne Marrinan admits most CSI murder victims are still “scantly clad attractive young women”, she still maintains “today we have seen that attractive female characters are much more than a decorative ingredient or the object of desire for a male leading role as has historically been the case in much of television, film and media.” She is convinced “the development of strong female characters in the fictional television series CSI has had a positive impact for female scientists in the real world. The future for female scientists has already begun in the fictional world of CSI.”

“The future for female scientists has already begun in the fictional world of CSI.”

The ‘Warped’ Mirror – Reality and Roles

In the eighties, one could have criticised every film, every panel discussion, every documentary and every entertainment show from a feminist perspective. As a television critic I too resorted to taking the occasional stab at someone or something, since I still ascribed to the mirror theory in those days, i.e. that as a consequence of reality being mirrored by a medium such as television, that medium cannot be blamed if women do not move up the ladder. After all it is not the responsibility of television to canvass for this.

Obviously I knew that this mirror theory should not be taken literally, but there was still something to it. Especially, to expect television to show women how they may potentially be in twenty years time, seemed inappropriate to me. However, by no means did this mean that I would sacrifice commenting on the portrayal of women as housewives in a series. What it did mean, however, was to sacrifice assigning to the media an avant-garde role in how they design parts for women.

This all changed when one day while shopping I came across a warped mirror. The lower half had a kind of triangular anomaly made of mirror glass worked into it. Instead of reflecting what was in front of the mirror, this warped area caused an optical deflection reflecting what was visible beside it and beneath it. To spell out the analogy for our purposes: It reflected the impending reality of the future or the already hidden reality of the past. In my attempt to describe the relationship between media and reality, this mirror seems to be far more suitable than a conventional one. In effect, media are able to look ahead, reanimate, leap through time, and they have the capability – in their area of optical deflection – to give rise to utopia. For this reason one can criticise them more harshly if they deny themselves this on an ongoing basis over long periods.

What we are talking about here is the capability that television producers have of developing material in which women prove themselves in new fields of activity. The so-called MINT subjects (Mathematics, Information Technology, Natural Science, Tech-

nology) and the career prospects that arise from them are considered far removed from women and hence this area also seldom becomes part of the ambit of female ambition. German television mirrors this state of affairs exactly and there is no optical deflection by a ‘warped’ mirror to reflect anything around it. In its series and feature films German television portrays women whose professions predominantly fall into the realm of gallery owners, designers, journalists etc. or who are in traditional female professions such as teaching, medicine or hospitality. Police inspectors are the exception.

If we look at reality in our world from a gender point of view, you will recognise in a simplified form that:

Hypothesis 1: Women are defined in terms of men;

Hypothesis 2: Men are defined in terms of the world.

Variation on Hypothesis 1: Women are additionally defined in terms of family and in a wider sense the banality associated with this, as well as in terms of growing worldliness in the past decades.

Variation on Hypothesis 2: In the world that defines men, found here at times are also women.



Barbara Sichtermann is a writer and publicist and works as a freelance author for television and various print media. She rose to fame as a television critic for the German nationwide weekly newspaper “Die Zeit”.

A simple interpretation reads as follows: The life topic for women is their man, i.e. love. The life topic for men is the outside world, i.e. competition with other men. The world also makes its appearance in the lives of women, in fact their lives are becoming increasingly worldly, yet they are still defined in terms of men as the focal point. Family increasingly forms part of the lives of men. However, for this they require the support of a woman. What does this scenario bode for television programmes that are fictional and designed to provide entertainment?

For television to become a reflection of the ‘warped’ mirror, wanting to show female roles with a promising future, it must not lose sight of the growing worldliness of female patterns of life and must relax its tendency to define them in terms of men. This does not auger well for soap operas such as the popular German “Anna und die Liebe” (Anna and Love) or “Hanna – folge deinem Herzen” (Hanna – follow your heart), or for films based on author Rosamunde Pilcher & Co’s novels, in which women often have great professions but do not find stimulation from their professional activities. By being defined in terms of a man and love, they come across as insipid and unadventurous. If all the love kitsch on television has to be condemned, this is nothing compared to those elaborate competition shows, where women as the carriers of sex appeal take centre stage until it is determined which one is the most beautiful. The most beautiful is not only the most beautiful, but she gets the prince. That is the point.

When shows like “Germany’s Next Top Model” are cast and staged, this is really an amplification of how women are defined in terms of men, but this does not become obvious in any ‘normal’ critique of them. In the final analysis, it is about male indulgence at the sight of the female beauty and about the man’s willingness to allow this indulgence to cost him something – be it a wedding vow. It is men, as assessors of this kind of erotic worth (which is the most interesting thing to them when it comes to women), who secretly direct many of these entertainment programmes, including those discussed by me in this conference, among them series, like “CSI”, for which I have a high regard.

If one is to escape from the trap in which women are defined in terms of a man, what also has to be addressed is the over-staged female sex appeal in television shows and series – which becomes especially



questionable when female availability becomes the pivotal point and key element, as is the case in casting shows. In the case of “CSI” it is still possible to turn a blind eye. In the case of the other shows mentioned, only with difficulty.

The absolutely anti-emancipative effect of the misleading love kitsch that is being dished up is closely related to the male figures to which the women are devoted. They are invariably clichés, faceless and distant from reality. The reason for this is the underlying grassroots lie: “The most important thing in a man’s life is the (“right”) woman.” In reality, the most important thing in a man’s life is other men, with whom he has to deal in his fight for status and survival. If he can accommodate a woman within this scenario – all the better for him! But she does not hold a central position. She sees things differently: A woman without a man is an unhappy woman. The screen romance feigns equality when it comes to life goals – this then leads to casualties when it comes to male figures, like the beau in the screen romance. Even better and more

expensive films leave you with the shallow feeling of a lack of truthfulness. When you come to think of it: Who would switch on, or even produce a series called “Carsten – follow your heart!” or “Erwin and his quest for love”? The absurdity of such titles makes it even more obvious how pathetic all this is.

When observing roles and reality and questions regarding the tailoring of women’s careers, it is helpful first to scout around the men’s career spectrum complementing this. A good example is Kathryn Bigelow’s Oscar-winning film “The Hurt Locker”. In a semi-documentary style the film shows a troop of American soldiers whose task it is to defuse bombs in Iraq. The protagonist, James, experiences every conceivable murderous horror. Nevertheless, after his term of service and a stay back home with wife and child, he returns to the site of his military service and to his comrades. Despite life threatening circumstances it is only here that he can be who he wants to be.

James knows all about explosives and electronics; in a nutshell he is a MINT man. Everything that MINT stands for and the conquest by women aspiring towards it, making them role models, has male connotations. The consequences of this fact are a far greater impediment to women in these disciplines and careers, than supposedly being intellectually challenged. This is in effect what the MINTIFF Conference is all about. Men like to be among one another in the context of most areas and they do not like it when women are present in their very own male domains on an equal footing. This is not true for all information technologists, engineers and bomb disposal experts, but as an undertone it is still widely the case. This gender aspect also has an effect on the creators of material from the editorial desk of a television station. Here the undertone is important and often asserts itself in a perfidious manner, without those involved even knowing that it is happening or how.

What is more, the MINT subjects are regarded as pedestrian. The American series “CSI” and “Crossing Jordan” have already come up with a solution to this. The idea was to tell a crime drama from the perspective of pathology and trace analysis. The

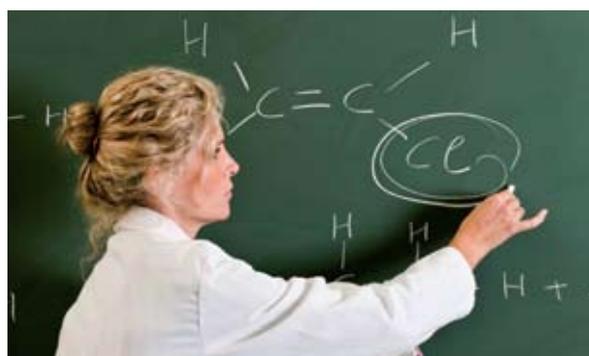
protagonists are kitted out with white coats and a pair of pincers. Everywhere there are women involved – competent, experienced and equal. This move – away from the street into the laboratory – was a stroke of genius. It brought MINT into a crime drama in the form of modern technology, and it steered away from women always being portrayed as the victim, and turned them into facilitators.

But for all that, it is the supposed dullness of these fields that is unequivocally preventing young girls from studying MINT subjects today. Taking this into account, the creative minds in editorial offices have a valid point when they decline material in which

“Who would switch on, or even produce a series called: “Carsten - follow your heart” or “Erwin and his quest for love”?”

the heroine is a mathematician. On these issues, television as a programme mirror operates as a conventional mirror. This being the case, it does not observe what is looming or what could soon be reality. What it would however discover in the optical deflection of the ‘warped’ area is that

young girls who are top achievers in mathematics, who develop computer programs, become physicists and last but not least, end up as Germany’s Chancellor – young girls who as far back as 150 years ago left their families to study the Science of Medicine. If this does not make for dramatic material, then what does?



These young girls are pitted against female viewers who would prefer to identify with a woman in a white coat rather than wearing a sexy outfit, and men who find women who are proficient at something more exciting than those who are simply flaunting something. The new profile that the ‘warped’ mirror’s optical deflection shows is the woman working with a microscope instead of serving an apple pie and she is equally fascinating, making us want to get to know her better, and in so doing still have a good time.

STEM and Equal Opportunities – Any ingredients for German TV Drama Formats?

A discussion with Christian Balz, Ivo-Alexander Beck, Orkun Ertener, Gebhard Henke and Hannah Hollinger.

What do filmmakers make of the education policy potential of television films and series and the capacity for innovation by German television? Why has the distinct German STEM culture – based on Mathematics, Information Technology, Natural Science, Technology – not been taken into consideration in fictional story telling in Germany until now? How are filmmakers evaluating the scope for more STEM and female role models in gender untypical professions?

In her introduction to the panel discussion, Barbara Sichtermann posed the question: What has happened to the hidden capacity for innovation, which among other things, can be used to introduce a STEM culture to television more extensively?

Gebhard Henke ascribes this indiscriminate criticism of the lack of capacity for innovation to broadcasters regulated by public law. Decisive questions for him are: “To what extent is the media responsible for escapism?” and “How do I come by quality films?”

For him STEM is an important topic but only one of many other important topics that are brought to his attention by a whole variety of social groupings. It is through outside stimuli of this nature, that interesting discussions and lines of thought emerge for him on topics that previously did not necessarily form part of his focus. At the same time he does tend to recognise the role and duty of the author: “At the end of the day we

“I am firmly of the opinion that bad films are instrumental in making people stupid and that good films accomplish something. If I did not believe in this, I would not be able to exercise my profession.”

Gebhard Henke

are only as good as the authors who write for us or provide us with ideas.”

Not allowing that which has been tried and tested to be rejected in favour of forced innovation is another aspect. It goes without saying that with the need among young people in Germany for formats such as “Verbotene Liebe”(Forbidden Love) or “Sturm der Liebe” (Storm of Love), “you have to deal with the idea of having to serve a mass audience” – without equating this with giving up the responsibility of independent thinking.

Behind all this Gebhard Henke feels he has a “mission” in the best possible sense of the word. “I am firmly of the opinion that poor films are instrumental in making people stupid and that good films accomplish something. If I did not believe in this, I would not be able to exercise my profession. However, unfortunately this is not something I can prove scientifically.”

Gebhard Henke believes that even without receiving a push from outside, science will still make its appearance in fictional films and innovative narration formats will come about. He gives as an example the powerful role that pathology plays in “Münster-Tatort” (Crime Scene Muenster). Pathology became an integral part of the series as a result of standard research into the field, which he regards as a successful example of the credo “more of the same, but different” in a format that has been in existence for 40 years. He doubts whether one would necessarily arrive at



Prof. Gebhard Henke is Head of the Programme Section for Television Films, Cinema and Series at the West German Broadcasting Corporation WDR, the coordinator of “Tatort” (Crime Scene) for broadcasting consortium ARD and a member of the Community Editorial team for ARD’s main evening series. Since 2001 he has been Professor for “Creative Production” at the Academy for Media Arts in Cologne.

something new solely through the discovery of new research methods or input from science. “Finding a topic is the easy part, telling a good story is the difficult part”. He concedes that “science need not be dull but can be immensely rich.” Yet complex and abstract STEM topics – much like economic crime – are very difficult to recount and therefore are rated to be more suited for reworking in fictional formats. However, the value that these topics add has to be justified for such topics to be covered in fictional

“When placing the female scientist in the foreground today... it has to be a female figure that fulfils the lead role, a part that is far more varied than the white coat she dons. Of course you can have the tight T-Shirt under the coat. This can be the case, but does not have to be the case.”

Hannah Hollinger

formats. Where this is not a given, his recommendation from a costs and quality perspective is that a documentary would perhaps be more suited to cover such topics. At the same time, for

Gebhard Henke the unique potential that fictional narration has, lies “in the fact that with fiction you can to a large extent also achieve the informing and enlightening of people, because now a topic can be treated in all its complexity within the context of a crime film or thriller, in a way that was not possible before, irrespective of whether you are dealing with a single film or a crime scene series.”

In this regard, the consortium of the Federal Republic of Germany’s broadcasting corporations regulated by public law, the ARD, is also striving toward portraying other gender role models according to Gebhard Henke and toward taking up equality issues: “The demands on women in society – the notion that you have to be beautiful, successful and raise children – these are some of the many topics that are staring us in the face. On their own they may not make for good stories, but to talk about them and to film them is what we are trying to do and are doing.”

When addressing the question of audience acceptance, Gebhard Henke explains that in the case of topics like this it is never simply about quotas. Yet quotas do in effect form a “currency” measure for

him, which by virtue of how firmly they are rooted in society must also be of relevance to broadcasters regulated by public law. He finds it regrettable on the one hand that viewing quotas for broadcasters regulated by public law are mainly targeted at older viewers. On the other hand, he points out that to a certain extent this coincides with demographic givens and also takes into account the rights that older target groups have by virtue of paying their licence fees. Having said this, he considers it a problem that broadcasters regulated by public law are “widening the generation gap in this way”.

For Hannah Hollinger stronger implementation of science in fictional formats is imperative, if only because hiding inside science are new topics and stories for which the film and television industry has an urgent need. STEM topics can definitely be carried by female figures in German television. In her opinion the female type as portrayed in “CSI” does not differ much from the female figures in her narrative. What is however important to her is that such characters are portrayed in all their facets, in keeping with the times and within the ambit of their femininity – and certainly not as a consequence of their male protagonists, but based on self-awareness, as an aesthetic expression of themselves. “When placing the female scientist in the foreground today... it has to be a female figure that fulfils the lead role, a part that is far more varied than the white coat she dons. Of course you can have the tight T-shirt under the coat. This can be the case, but does not have to be the case. The combination of the topic (also in the case of a STEM topic) and the personal development of women today has to be accurate.”



As a freelance screenwriter, **Hannah Hollinger** is primarily a television playwright. Previously she wrote concepts and screenplays for different series and adapted novels, among others by Friedrich Ani and Christine Grän. She is a recipient of the German Golden Camera Award, of the Bavarian Television prize among others.

For Hannah Hollinger it is therefore important to “let greater innovation lead the way in all areas”, also as regards the type of narration in the face of television as a medium, the transformation of which will not only be a thematic one in the future. Hence she regrets that “the survival of television is very volatile” if “no sooner than they have made their appearance, new, innovative and unusual formats are shelved.” As far as serial entertainment formats are concerned, she is of the opinion that “much can be improved and changed”. Having said that, she is of the opinion that the quality of German television plays is “extremely high”. She is categorically opposed to the outcome of the MINTiFF survey on equal opportunities in fiction formats with regards to Mathematics, Information Technology, Natural Science and Technology – in which those interviewed said German screenwriters and series are lacking in quality. For Hannah Hollinger it goes without saying that not all domestic productions are good, however: “Watching television in this day and age is a very different approach to the medium than 15 years ago, when you would simply switch on the set, and in many respects what you would get is quality, or to a certain extent this was deemed to be quality. Today you have to fight for it, but in the end you will also come across quality.”

Hannah Hollinger makes the point that she sees herself as very different from many of the sought-after screenplay writers, whose own sphere of influence is negligible when selecting and developing content. She herself has a “relative abundance in influencing forces” and ascribes this to her many years of experience. Also to her having “worked her way up” thus obtaining commensurate standing. She makes a distinction between pure entertainment, such as what the format series and daily soaps offer, leaving hardly any room for influenc-



Christian Balz headed the German Fiction Department at broadcaster ProSieben from 2004 to April 2010. He has been the Vice President of German Fiction there since May 2010.

ing options, and television plays, whose topics and characters give them high individual flexibility. To her mind, the options in each instance are dependent not on the respective broadcaster or production concerned, but on the personality of the author – and this will determine if the respective financial situation will allow for flexibility in negotiations. In summary what Hannah Hollinger says on the topic “More STEM on television” and regarding the ques-

“We also have to create a future for television and that means more than simply strengthening the topic of female roles and professions, but also finding new dramatic forms.”

Christian Balz

tion of female figures to fulfil this is: “We have to be open to finding and making space for innovation and we must take a stand on this. This is what we are striving towards.”

Christian Balz is also firmly of the opinion that screenwriters can have a powerful degree of influence on how certain content is approached, and that this differs vastly from person to person. He believes that you cannot “find a good author who writes something that contradicts what he or she believes in”. However: “Script-related work is always teamwork.” Being with ProSieben – a commercial cable and satellite station – he represents a broadcaster that does not receive license fees and as a shareholders’ company is subject to a lot of pressure regarding costs. He expressly states that the fight for role models and STEM themes is a high priority for him when it comes to his target group i.e. young people, among whom ProSieben is very popular. As proof of this, there are a whole variety of successful catastrophe films that he spearheads, which always have a scientific expert, either male or female, as a protagonist. Aside from the fact that he personally likes making films that take place in STEM-settings, the question that is key to him is: “What do young people want?” Based on this background, STEM for him – as for Gebhard Henke – is “perhaps a factor among many but not the decisive one”. Addressing and appealing to older audiences is not Christian Balz’s key concern, since the target group that ProSieben wants to reach lies between the age of “14 to 29 and at the very most 39”. Older viewers



Ivo-Alexander Beck was Executive Partner of the Janus Film GmbH company from 2003 to 2009. He has been CEO and principle shareholder of Ninety-Minute Film GmbH in Berlin since 2009.

are only reached “if by switching over to our station this gives them the sense of feeling young again with us”.

In any discussion on new topics Christian Balz says one cannot forget that television is a visual medium. Visual appeal must not only be taken into account when choosing a topic but also when casting. In this respect, the outer appearance

of female characters is an important criterion for a ProSieben film but definitely not the main one. “A new actress whose only asset is her outer beauty will fizzle out quickly”, is the opinion of Christian Balz, which is why those who make it through to the end in the ProSieben show “Germany’s Next Top Model” only have a chance of getting into fictional productions if they pass the test in pure acting castings. In his opinion, it is likewise impossible today to create a fictional format in which the female protagonists have no facets to them and in a very one-sided portrayal are “completely subject to the whims of a men’s world”. An example: the daily soap “Verliebt in Berlin” (In love in/with Berlin) achieved success in the instant in which the protagonist began to work at her career self confidently.

Even from a producer’s perspective, special significance is ascribed to the drafting of coherent and consistent characters and content, according to Ivo-Alexander Beck. However at the same time he laments the fact that: “Working carefully, which is the prerequisite for a good film, is increasingly taking a back seat.” With this statement he affirms the overwhelming view of screenwriters who had been interviewed, that in Germany far too little is invested in developing content for film and television – notwithstanding the fact that he as a producer, as far as he is concerned “invests relatively substantial sums of money”. He ascribes the reason for the lack of investments experienced by many of his producer

colleagues and by the station to the fact that in the television business in the past few years, progression from concept to end product has speeded up considerably and, accordingly, production pressure is high. Because of this, there is no time for the careful development of content – barring some exceptions. At the same time there is a lack of money, since the stations now pay approximately 20 per cent less for a single film than several years ago. Savings are inevitable and “developing content has become an all-time favourite area for cost savings”, more often than not because “many producers are convinced they are better at it anyway”.

The case Ivo-Alexander Beck makes in this connection is unambiguous: “One ought to spend far more. One ought to say that ten per cent of turnover should be retained for content development.” The possible topics that one could be developing are very diverse and as far as he is concerned: “Making a STEM film as an end in itself does not make any sense. However, if one were to come across a good and exciting topic, nothing would speak against casting the heroine as an engineer or the like.” It is private stations that cast a predominance of female figures in fictional formats according to Ivo-Alexander Beck. He suspects that the reason is that women who constitute more than 60 per cent of the audi-

“In principle we should become bolder and more innovative. Television has in reality ceased to be the innovative medium that it once was, and if we do not rekindle this, the viewers will also keep away.”

Ivo Alexander Beck

ence, do not want to see any “dumb blondes”. Female figures in his films are women who “stand their ground as it were, who are not mere objects, but who work their

way, want to free themselves of their dilemma. The women whom we design together with our authors (of both genders) are emancipated women.”

Ivo-Alexander Beck’s conclusion, also taking into account the issue of STEM topics and contemporary female figures, is, “In principle we should become bolder and more innovative. Television has in reality ceased to be the innovative medium that it once was, and if we do not rekindle this, the viewers will

also keep away” – with the consequences that go hand in hand with this.

Orkun Ertener does not believe that there are decision-makers in the stations who deliberately want to perpetuate female role clichés. He believes “that we all try to use certain slots to convey a specific story to a specific viewer – same, but different.” In so far as this is concerned, the crime series “CSI” – as an example of the successful integration of female protagonists – also does justice to the “requirements of television” in terms of suspense. These specific requirements are important, irrespective of the topics to be dealt with. One of the key issues for Orkun Ertener: “Do we have television, and television regulated by public law for that matter, which will try various things in very different ways and on a regular basis? Or are we limiting ourselves?”

When it comes to trying new things Orkun Ertener warns against overloading discussions with too many different topics i.e. STEM-related, the portrayal of women and television requirements. He sees the danger of fuelling unrealistic expectations. Only unrealistic female figures will emerge from this. Which raises the question for him: “Do we in Germany rely on a tradition whereby everything is told realistically, as is the case in the United States?”



Since 1994 **Orkun Ertener** works as freelance writer, scriptwriter and as creative producer. He writes movies, serials and series for TV and teaches at different German filmschools. He was awarded the “Civis Media Price” and the “Grimme Award”

What has become successful in Germany and to what extent is our content based on reality?” He doubts that editorial teams really think of things like positive role models, and surmises that it is more about what holds the promise of success. In his opinion there is a need for discussion on finding concrete ways to increase the prevalence of STEM on television quite independently of the topic of women. Underlying this is the courage to take a risk and finance

it: “In things of this nature you also have to make allowances for failure, i.e. every innovation is linked to the possibility of failure and this means that

you have to introduce risk capital.”

“In things of this nature you also have to make allowances for failure i.e. every innovation is linked to the possibility of failure and this means that you have to introduce risk capital.”

Orkun Ertener

Soaps, Telenovelas and Serials as a Stimulus for Social Change



The Telenovela – A Motor for Social Change

The Telenovela as a daily television format has been a staple of all Latin American television programmes since the end of the 1950s, especially in Mexico and Brazil. The influence they have on society became obvious early on as they dealt with issues such as health education, the emancipation of women, adult education and birth control. At first the effects were an accidental by-product; then Miguel Sabido developed a substantial entertainment education theory, which he soon put into practice.

At the end of the 1960s Miguel Sabido was already a successful director, author and producer in Mexico when he decided to implement an unusual idea: He wanted to change the way people were given messages using existing entertainment formats in radio, television and the print media. The rationale came from the realisation that “popular forms of communication like cartoons, television or radio shows have incredible reach.” It seemed logical to him to integrate important messages into the plots of these entertainment formats.



Miguel Sabido is an author, director, researcher and founding president of the Mexican Institute for Communication Studies. He is considered the father of the Entertainment-Education concept.

It all started with comics that were printed every week in a tabloid that were infused with information on the work of the national “Institute for Social Security” (Instituto Mexicano de Seguro Social). The result: “After only three issues, a survey revealed that readers’ confidence in the services the institute provides grew dramatically.”

This result encouraged Sabido to propose the production of a telenovela that would aim to reinforce “pride in the motherland” as a social value. The first Mexican historical telenovela was then created in 1967 with the premiere of “La Tormenta” (“The Storm”).

In the following period Miguel Sabido further refined his theory. In 1974 he collaborated with the famous screenwriter Celia Alcántara (“Simplemente Maria”) to create the telenovela “Ven conmigo” (“Come with Me”). This was the very first commercial telenovela that squarely addressed a social problem – adult education – and its positive impact. “Ven conmigo” ran for 8 months and had a respectable average audience share of 32%. Consequently, more than half a million adults registered for the “National Adult Education Programme” that the Mexican Education Ministry had initiated.

Validated by this repeated success, Miguel Sabido expanded his theoretical base to include Albert Bandura’s theory of social learning and then turned to one of Mexico’s most pressing problems at the time: overpopulation. Three telenovelas dealing with the topic were developed and broadcast in back-to-back: “Acompáñame” (Come with me), “Vamos Juntos” (“Let’s go together”) and “Caminemos” (“Come along with me”).

“According to PCI documentation,” says Sabido, “these telenovelas were the decisive factor behind the development the UN would later call the “Mexican demographic miracle” when the increase in population dropped from 3.7% to 2.4%. This happened exactly in the same five-year period that the telenovelas were on air”.

This positive experience convinced Miguel Sabido that “the telenovela isn’t just entertainment. It is something that can support social change. It is just so natural. Just think of advertisements that

aim solely to encourage the audience to behave in a particular way: “Learn to drink cola”, or “Learn how to use this detergent”. And the audience learns how to do it.”

It was no great leap from here to arrive at the question: “If the audience learns a certain behaviour from advertising where role models bid them to follow suit, why should they stop doing that while watching a telenovela as long as this also uses role models the audience can identify with?”

This question marks the beginnings of what Patrick Coleman and Everett Rogers would later call ‘Entertainment-Education’, a short way of saying what was originally described as ‘the proven benefit to society mass media provides’.

That this benefit is proven is a key issue for Miguel Sabido because these productions were only made in commercial Mexican television on the condition that they could keep the ratings these time slots were accustomed to getting and that they could verifiably produce the desired social change by putting an intellectual message in dramatic wrapping and repeating it every day for a period of 6 or 7 months. “This reinforced message,” says Miguel Sabido, “gives the audience a gentle way to learn socially beneficial behaviour.”

Proceeding from the hypothesis that “it is possible for a target group to enrol in an adult education programme that we presented in a telenovela”, Miguel Sabido developed his own theoretical basis that itself unites four theories:

- Albert Bandura’s ‘Theory of Social Learning’. “It provides the steps a person takes while learning based on the representative experience of another person.”
- Wilbur Schramm’s communications theory in combination with Sabido’s own ‘double communication cycle’ model. “This lets us determine who is the transmitter and who is the receiver, which medium is used and which

tonality is the most useful to ensure the highest levels of communication with the audience.”

- Miguel Sabido’s own ‘tone theory’. “This enables one to transform the ‘intellectual tone’ of a message into an ‘emotional tone’.”
- A list of physiological archetypes derived from Sabido’s tonality theory. “It makes it possible for us to develop telenovela characters based on those members of the target group we expect to learn a socially beneficial behaviour from.”

Based on the theories outlined here characters are created as a first step in developing a telenovela. Strands of the telenovela’s plot are then tailored to these characters where the message can be trans-

mitted. “It is extremely important,” says Miguel Sabido “that this really takes place in the third strand of the plot so that it doesn’t interfere with the popular telenovela format. We are not talking about the first or the second strand of the plot here.” In addition, it is absolutely essential for

“telenovelas like this to be conceived, written and produced as a 100% commercial product so that they will get the highest viewing rates to have maximum effect. The telenovela can’t be boring or come off as instructive or judgmental.”

Miguel Sabido recommends working with tailored test arrangements from the very beginning so that the effect of the E-E strategy can be validated. “The tests should contrast viewers and non-viewers. They should also compare test subjects who had already espoused the desired social value to those who have yet to embrace these values.”

According to Miguel Sabido the existence of a sufficient infrastructure is crucial for achieving a sustained effect or real social change. This means that if you seek to improve adult education rates in a certain broadcast area you have to make sure that the actual programmes exist where prospective candidates can enrol. The reason for this is simple: “If this infrastructure doesn’t exist, the effect could be the exact opposite of what you wanted to achieve in the first place. The result would be counterpro-

“If the audience learns during commercials depicting identification role models why are they going to stop learning during the plots of the telenovelas?”

ductive and in the worst case the audience may even become immune to the message. “

Miguel Sabido’s method has three fundamental elements:

- Communications theorists and scientists develop an adequate strategy.
- Professional radio and television producers create a successful format for the audience.
- Researchers validate the results both qualitatively and quantitatively.

“If just one of these elements is missing,” says Miguel Sabido “my Entertainment-Education method will be incomplete. If there is no hypothesis to prove, we can’t know what we want to achieve with the audience; if the production is not professional, we risk a total flop. And if the results are not validated scientifically, we won’t find out whether we have reached our goal or not.”

The fact that telenovelas are an unmistakable engine for social change is clear to Miguel Sabido due to the way “they naturally attract a mass audience and are so popular and, most of all due to the fact that they are a familiar format, a part of everyday life.” His final argument is rather concise: “We can’t simply label the telenova as a shallow show, instead we have to understand that it is the best format to reach a wide television audience that is in need of radical social change more than ever before.”

Role Models for the Future? – The Effects of Daily Soaps on the Lives of Young Girls

The “International Centre for the Study of Youth and Educational Television” (IZI) forms part of broadcasters regulated by public law. Its brief is to promote quality in children’s, youth and educational television through research, documentation, publications and events and to contribute to dialogue on the educational mandate. Its studies focus on the effect of different aspects of television on children and the youth.

In her talk, Maya Götz combined the results and insights from a number of studies conducted by IZI, among others, during 2001 and 2010.

In so doing, what could clearly be deduced at first glance from the study “How daily soaps affect the daily lives of children and the youth” was that daily series played a central role in daily life. This was especially the case for many young girls who were introduced to formats like these primarily by their parents and apparently by their peer groups later on.

According to Maya Götz, young girls “make a concerted effort to find television characters they can identify with.” For this reason they often develop “a strong emotional bond that adults find it difficult to relate to.”

Young girls see in daily soaps a format they can relate to for a number of reasons. While as a rule there is a preponderance of male heroes in other fictional formats worldwide, daily soaps feature a balanced gender relationship. Closer analyses indicate that female characters even tend to have a larger share of speaking parts and definitive moments in the plot. “For young girls this offers a window to their future existence as women, and that is exactly what they are looking for.”

What is more, daily soaps are invariably about love, about complications, and great expectations of meeting the right person who will “take me as I am.” Hence they are about focal topics for young girls. These topics are “conveyed via relationships” and time after time are highlighted from different angles – a storytelling technique which is spot on

because, according Maya Götz, “the strength of female socialising lies in the different perspectives from which thought processes take place. Young girls are taught this right from the start – and it is precisely this that also takes place in daily series.”

What is also important is that in the daily soaps many things are expressed and emotions and thoughts are often verbalised. In this way, things that are complex can be made comprehensible, “which can be very attractive to young girls during puberty, a time when so much is incomprehensible to them. The daily series is in effect a type of socialising programme and is also understood as such by the young girls. Although they understand that what they are seeing on television is only an enacted reality, they get the feeling that something is being explained to them and that this is happening consciously.”

Maya Götz regards daily series as being so effective because they move the viewer deeply on an emotional level. “In the daily soap it is never purely a common cold, at the very least it has to be cancer. Harmony is only that brief moment between two disasters. At least partially this is also consistent with the world these young girls live in and the feelings that go with it.”



Dr. Maya Götz is Head of the International Centre for the Study of Youth (IZI) at Bayerischen Rundfunk (Bavarian Broadcasting) and of the PRIX JEUNESSE INTERNATIONALE. Her key focus area is research into children and youth in the context of television.

A very good example is the German series “Verliebt in Berlin” (In Love in Berlin), which became one of the most popular daily soaps of its day (2005 to 2007). Maya Götz ascribes this to Lisa, the protagonist of the series. She symbolises “the typical experience women have” of not being adequate, not getting recognition, not being appreciated for their inner beauty. Yet Lisa puts up a fight, does not give up and strives toward making her big dream a reality. All this connects her with her young female viewers.

“A very good series becomes a symbolic rendition of situations, experiences and wishes that typify life. Decisive in this is not the motive, for instance love, but the core that lies beneath this and the depth it is made up of. The motive behind how this is implemented is left to the decision-makers. It can be love or the advertising agency or topics falling under what are defined as the MINT category of subjects in Germany – mathematics, information, science and technology.”

In view of the changes taking place in television programmes, a notable aspect of which has been the boom in talent search shows, Maya Götz asks whether these findings are still valid in today’s situation.

In reality the picture, based on a recent study that specially deals with reality show formats qualitatively and quantitatively on a representative level, is very different. Even though daily soaps and telenovela are still consumed by young female viewers, it is no longer the number one film format among 12 to 17 year old girls, as was the case ten years ago with the daily soap “Gute Zeiten, Schlechte Zeiten” (Good times – Bad times). The first 50 hits that currently come up exclusively for young female viewers are the reality formats “Germany’s Next Top Model” and “Deutschland sucht den Superstar” (the German franchise of American Idol).

This led Maya Götz to question whether there are dimensions to this that have gone unnoticed until now and what is it anyway that makes a reality show successful. She is of the opinion that the success of these formats can be ascribed to “a shift in values among society as a whole” toward a more conserva-



tive basic attitude. The underlying cause is “fear of the future. The big fear of not being able to get a job. Fear of not being able to uphold one’s status. In this regard reality shows are educational. If you had to ask what guiding principles the youth take with them from these shows as it were, it would be: How to take criticism! You have to fight for your goals! You have to be ambitious!”

For young girls “Germany’s Next Top Model” is fascinating. Aside from the aesthetic enjoyment and the emphasis on the importance of beauty, the deciding factor is the same as is the case with daily soaps: Reality shows offer young girls characters they can connect with and use as a barometer for how they see their positioning in society, and where admiration and boundaries play a role. The minds of female viewers are confronted with borderline areas and situations which they can deal with as though they were directly involved themselves. “Young girls take with them certain forms of self-portrayal from “Germany’s Next Top Model”. How the female body is viewed is professionalized. It is the view from the perspective of the fashion industry”.

According to Maya Götz, when dealing with that which is seen – also in the case of daily soaps – “identity work” takes place that is carried through in how

“If anything ‘Open the mind’ means:
‘Open up the gender blindness!’”

communication with the outside world takes place, say in mother-daughter dialogue. This dialogue is a decisive element, because it opens up a “symbolic space” that makes it possible to talk about one’s own problems indirectly.

In the circle of friends, the number one topic of discussion is what had been viewed: 75 % admitted they had discussed the previous day’s broadcast in the schoolyard. “Germany’s Next Top Model” is emulated in the school yard and at children’s birthday parties and last but not least triggers the desire to become a model some day: “63 % of the 9- to- 11-year-old girls said they could see themselves doing modelling as a career.”

On the topic of professions, Maya Götz refers to the limited scope that is still found in daily soaps. “The reality in the daily series are limited to the culinary industry, journalism, foodstuffs, fashion, health, consumer goods, erotica and advertising. There is no evidence of MINT.”

Very little has changed in the course of the history of daily soaps. For Maya Götz the reason for this lies in the television business often making its decision based on assumptions that determine how and why something works, and more specifically “what is right, important and good.” However these assumptions are not based on reality but on “inner images,” which often stem from the realm of television itself, which is why they have proved themselves as being effective.

An example of such an inner image is the widespread perception among children, youth and adults that in a traditional church wedding in Germany the bride is led down the aisle by her father. In reality, in contrast to what happens in Anglo-Saxon countries, in Germany the groom has been walking down the aisle alongside his future wife for centuries. The image of the father walking his daughter down the aisle stems from countless Hollywood films.

The effect these powerful inner images have and the fact that film makers are often not aware of them, is that when it comes to judging new ideas for content material, the familiar tends to take precedence over the new. That is why so little change takes place. If television viewing is created on the basis of what has worked well up until now, then

these images that work will be reproduced over and over again. And the greater the production pressure, the more the image scope is narrowed down to what has already been proven.” For this reason the female protagonists of the daily soaps and telenovelas are markedly similar apart from a few exceptions.

When it comes to ideas for material, Maya Götz says gender images also come into play. Every executive producer whether male or female is inclined to let his or her own images of men and women flow into his or her work and because of this, the tendency is inclined to be towards stereotypes. To undo this is difficult because these pictures are deep rooted. However: “They can be expanded, but this expansion has to come from outside. Both television producers and executive producers are interested. They want to bind viewers. With this interest they can reach them.”

German Soaps and Series: Caught Between Responsibility, Escapism and Production Constrains

A discussion with Bernhard Gleim, Monika Schmid, Marcus Seibert, Barbara Thielen and Rainer Wemcken

To what extent do filmmakers think about their social responsibility when they develop and produce content which will potentially reach an audience of millions of people? Is any thought given in advance to how the lead characters are presented and their function as role models or to any unintended adverse reaction the choice of topics may illicit?

Rainer Wemcken, the producer of a substantial number of German daily soaps, is a self-confessed proponent of social responsibility as a filmmaker. "With us it is consistently the case of wanting to convey certain values." He regards 'daily' dealing



Rainer Wemcken is CEO of Grundy UFA TV Produktions GmbH and in his capacity as Producer is responsible for the daily soaps 'Gute Zeiten – Schlechte Zeiten' (Good Times – Bad Times), 'Unter Uns' (Among Us), 'Verbotene Liebe' (Forbidden Love) and 'Alles was zählt' (All that counts), as well as the establishment of the telenovela genre in Germany.

with topics such as tolerance of same gender orientation or overcoming drug abuse as the background to his credo of telling a story as "value orientated" as possible. For him there are no topics or occupational images that have to be declined per se. The visuals must however be correct, the scenes depicted cannot afford to be boring for the audience, and the realistic presentation of workplaces and occupational

images becomes a yardstick. It is far more difficult to present a scientific profession in an interesting manner than that of an attorney or service provider, and there is a shortage in what authors are able to offer in this regard.

It becomes imperative to Marcus Seibert, especially as the author of 'Lindenstrasse' (Linden Street) that he tells "stories that are exacting when it comes to social responsibility". This is the hallmark that the series has been based on from the start and which has made it a success for 25 years. At times the series' fans, with whom the production team keeps in close contact, have criticised it for dealing with too many social problems, although on the other hand there is the expectation



Marcus Seibert studied Philosophy, the History of Art and Germanics and works primarily as a screenwriter for weekly and daily series formats. He has been a member of the 'Lindenstrasse' (Linden Street) team of authors since 2006.

"Research costs a lot of time in the preparatory stages of a series and is not something that remuneration is provided for in Germany."

Marcus Seibert

that these problems are indeed covered. When it comes to daily soaps, says Marcus Seibert, at

least what lies at their base is the idea that dealing with a socially relevant topic should play a role. The difference between these formats and 'Lindenstrasse' however is that the latter has the express desire to include complex topics in the storyline. That is supported on the part of its broadcaster, WDR, and by the production. For Marcus Seibert, integrating STEM topics – Mathematics, Information Technology, Natural Science and Technology – into fictional

formats is contingent on proper consultation. This allows him the opportunity to engage with “characters with flaws” in as yet uncharted terrain. In this respect, he really welcomes the MINTiFF project – based on equal opportunities in fiction formats with regards to Mathematics, Information Technology, Natural Science and Technology – and the measures associated with it. However, the fact that authors’

“How do we affect our consumers? We see them, we speak to them directly. What do they have to say about it? What does my mother have to say about it? I like engaging my mother in conversation on it and do not hesitate to recommend this to those working in this field. A direct conversation can pay off equally well as conducting some kind of test.”

Monika Schmid

research “is simply not something that is paid for in Germany” poses a problem, as does the perception that STEM topics are too problematic and too difficult for stations and production houses.

Taking an interest in role models and the light in which women are portrayed by public service German television broadcaster ZDF is her “daily bread” says Monika Schmid. For her the concepts “gender blindness” and “preconceptions” typify the “basic core” of the problem of “women in STEM professions.” She states that she is still up against a largely



Monika Schmid is an editor and author. She has been Editor-In-Chief of Entertainment for public broadcaster ZDF since 2009 on its Telenovela Editorial Team.

traditional female image that her authors (of both genders) come up with and finds it difficult to break up this image that “indulges in the Lady Diana syndrome with the woman looking up to the husband.”

It was while working on the adaptation of the film ‘Lena – Liebe meines Lebens’ (Lena the Love of My Life), an adaptation of an Argentinean

format, that the controversy regarding the traditional Argentinean image of a woman became pronounced – among others in the context of the question: “What constitutes a macho man here in Germany?”

The original was largely upheld, in that there were no women in STEM professions or the like: “It turns out that the heroine is a window cleaner. It is obviously a great way to get started in the working world and you obviously do not find this in Ger-

many. She quickly becomes a lady companion, but not for long before she becomes a singer and makes a music career for herself.” Even so, Monika Schmid sees options for portraying women in “related” professions here “provided that authors are given the opportunity to do the research because obviously that would mean extra time and expense.” For this reason she thanks the MINTiFF initiative for the research support it provides.

It is self-evident for Monika Schmid that decisions and conceptualisations are all tainted with subjectivity by those involved in the development process. “You cannot pull the wool over our eyes. Of course there is no objectivity in this area, be it in the writing, adapting or evaluation thereof.” Contact with her audience, as well as conversations in her private life, for example with her mother, are therefore “as good a test as any” for Monika Schmid.

In answer to the question whether social responsibility forms part of the equation in the conceptualisation of German commercial television station RTL’s prime time series, Barbara Thielen replies that it goes without saying that some thought is given to what occupational groups should be represented. As far as she is concerned there is no difference between private and public television stations in this



Barbara Thielen is the Business Unit Manager of commercial television station RTL’s Fiction Department and a member of the film subsidy section of German film foundation NRW, Bavarian television film fund FFF and the German Federal Film Board, the FFA.

regard. Any thoughts one may have regarding STEM professions in fictional formats cannot overlook the fact that: “You have to be able to reach the viewer somehow. This means that in the first instance I have to package the whole thing attractively... You also need good ratings for this otherwise you would not be able to establish an occupational image.” For Barbara Thielen the combination of the tried and tested and new productions in which STEM professions can also be incorporated with ease is important. What is of decisive significance to her in this is the entertainment aspect. She does not hold up much hope for a topic that does not take this consideration into account. Also important is: “How do I tell the story? And what kind of hero will I use to tell it?” Fictional exaggeration irrespective of the profession portrayed is indispensable to her, “because in the real world even a crime officer will not find a body every week.” It is a given for Barbara Thielen “that you will always carry your own experience base around with you” when content and characters are evaluated and developed. Even so, when it comes to characters as diverse as fighting monks and female doctors, she maintains that: “It is the format that shapes the characters. By the same token the demands made on the characters will have an effect on how a crime story or medical plot is told.” She wholeheartedly



Dr. Bernhard Gleim is Head of the Series Editorial Team with German public broadcaster NDR in Hamburg, one of the Executive Producers of the ARD early evening programme (community editorial teams of ARD), as well as a member of the steering committee of the German Federal Film Board, the FFA.

welcomes the expansion of the fictional topics spectrum through the MINTiFF science events, not to mention the fact that one of these events has led to the concrete development of content at RTL.

For Bernhard Gleim by tradition social responsibility is a cause for concern for broadcasters regulated by public law: “You have to have a clear understanding of the programme and the requirements that satisfy it.”

While for argument’s sake ‘Lindenstrasse’ considers “problems as forming part of normality” and hence because of this a “normalisation process” takes place, the daily soap ‘Verbotene Liebe’ (Forbidden Love) is about “identity images” and “questions of identity formation.” Only by taking into account these different bases can the filmmakers of productions contemplate how gender stereotypes can be done away with or how different variants can be

“In our programme with ARD – the consortium of the Federal Republic of Germany’s broadcasting corporations regulated by public law – we have two separate film worlds: On the one hand, a realistic German film relating to the present, e.g. ‘Tatort’ (Crime Scene), on the other we have one designed for an older target audience, in the final analysis with formats designed to bring relief and relaxation in the form of sentimental films in idealised regional settings.”

Bernhard Gleim

introduced. “What is decisive for me is the complexity of the narrative. We could step this up! One example would be the quality of our dialogue. Quality television is the responsibility of broadcasters regulated by public law and I could also exercise a lot of self-

criticism in this regard. I tend to become suspicious when the focus is on attaining the goals envisaged for society via well-intentioned programmes specially tailored towards this. I personally have strong misgivings about this: I believe this is hardly likely to succeed.”

Bernhard Gleim envisages the integration of more topics from the STEM ambit in fictional formats through designing more complex and diverse characters and realms of experience in which technology and science play a large role. He warns against “outside solutions” such as establishing scientific-technical settings, which as it were then merely serve as an accessory, but add nothing to the topic in real terms. As far as he is concerned it comes down to “creating spaces with our authors in which there is room for imagination, and where, for example, the realities of scientific life, our dependency on science, or the opportunities science opens up for us play a stronger role”.

On the Way to STEM-Entertainment Education Excellence – Best Practices



The Alfred P. Sloan Foundation – Building Bridges Between Culture and Science

Established in 1934 in New York, the Alfred P. Sloan Foundation has become one of the most important foundations in the United States. The foundation currently has a working capital totaling 1.7 billion dollars and primary programme areas and priorities for funding in science, technology, engineering, the maths, education, research and economic performance. The “Public Understanding of Science and Technology” programme aims to fund cultural projects in the entertainment field that are suited for raising the American public’s awareness and understanding of science and technology.

The Alfred P. Sloan Foundation is setting standards in fundamental research and beyond: The foundation is operating a state-of-the-art telescope in New Mexico for its Sloan Digital Sky Survey programme. The ambitious Census of Marine Life project engages 2,500 scientists from 80 countries in an attempt to produce a comprehensive catalogue of all life forms in the world’s oceans. The Sloan Foundation also awards several scholarships to scientists. A total of 38 Sloan Fellows have been awarded the Nobel Prize in the course of their careers.

The Sloan programme entitled “Public Understanding of Science and Technology” is unique in that it aims to build bridges between culture and the sciences by addressing a wide range of cultural and scientific fields. According to Doron Weber the goal is to “create a common language and to ensure representatives of both disciplines have improved mutual understanding.” The project should help the cultural community to “have an improved understanding of the science and technology that increasingly inundates our daily lives.” It also aims to depict the “benefits and the challenges associated with these scientific and technological endeavours and to provide insights into the challenges the scientists working in these fields face.”

Typical of the funding approach the Sloan Foundation takes – unlike that taken in this country – is the fact that it goes beyond traditional journalistic media and educational programmes to include en-

tertainment media, literature, theatre, film, opera and the new media.

Doron Weber believes it is important to extend beyond film and television into other cultural offerings as they can reinforce each other quite well. Consequentially, the “Public Understanding of Science and Technology” programme engages heavily in literature, radio, public and private television, film, theatre, opera and the new media. With “The Sloan Technology Book Series” the foundation boasts its own series of books. The foundation also finances broadcast programmes in domestic and international radio. It is among the largest supporters and funders of public television in the USA and is the biggest single funder of Wikipedia. The foundation commissions several theatre pieces each year and funds their production as well. Doron Weber is not content to have the manuscripts screened, he reads every one that has been submitted himself so that he can take an informed decision. Even various “scientific” operas (“Dr. Atomic”, “Kepler”, “Tesla” among others) have been funded.

Doron Weber considers Facebook, YouTube and Twitter to be crucial instruments of the new media: “If you are interested in reaching people you have to consider using all of these media even if you are working for television... many people use different media simultaneously which amplifies their effect.”



Doron Weber is Vice President Programs at the Alfred P. Sloan Foundation in New York and runs the programs for the Public Understanding of Science and Technology.



All of the cultural areas cited here come together to create a single, integrated whole, a “cultural matrix” in which everyone is embedded. This makes it important to draw the attention of creative artists, whether they are writers, screenplay writers or dramatists, librettists or even cartoonists to the MINT subjects. In the end this creates a “kind of pipeline that provides a constant flow of material and topics” for the artists.

It is interesting to observe how diverse cultural areas often influence each other. “Once one of these scientific topics or a character from this field finds its way into a dramatic setting, meaning it is presented in a recognisable media, the likelihood is much higher that that it will turn up in other forms and become an integral part of our language, of our imagination and our general understanding of the world.” This is what happened with the book “A Beautiful Mind” about John Nash written by Sylvia Nasser. After the book was published Ron Howard made a very successful film with the same title and the Sloan Foundation produced a documentary film about John Nash.

“I give entertainment a very, very high value. I think it’s an enormous tool.”

The film then in turn ensured the book was read by wider audience.

The Sloan Foundation concentrates its film activities at the six largest film schools in the USA (American Film Institute, Carnegie Mellon School of Drama, Columbia University School of the Arts, NYU Tish School of the Arts, UCLA School Theatre, Film, and Television, USC School of Cinema Arts) and also supports three film festivals (Hamp- tons, Tribeca and Sundance).

Working with the film schools and the programmes tailored to their specific needs is very important to Doron Weber with regards to the future because “a large percentage of the people that will go on to work in the film and television industry attend these schools. The idea was to familiarise these filmmakers with the topics we promote as early as possible in their careers.”

The “cash awards” provided by the Sloan Foundation are some of the biggest on offer and are an essential element of this particular programme.

This is accompanied by meetings that take place at least once a year where the film students meet the scientists and engineers to discuss their work. One of the reasons this is so important is the simple reality that the authors can't work on topics they don't know about and that they hardly have any opportunities to come into contact with scientists and engineers.

“Science mentors” provide an expert assessment of the materials and ideas to see whether they are relevant or scientifically accurate or even plausible. Doron Weber says, however, it is important to point out that the filmmakers make the final decision to what extent they follow the advice of their mentors “because we try to make good films, and as such, they have to work... We have to encourage the filmmakers to use the material we have to offer them – like the raw material from the MINT subjects. But they have to use their own methods. You can't tell them what to do... We have to help the film industry to do better what they already do, we have to bring them into contact with more scientists and engineers.” Both sides have to gain trust for each other: “When working with people from the entertainment industry, you have to let them do what they do best once you are convinced that they understand your mission and your interests.”

The foundation organises a “film school summit” every three years to promote an exchange of ideas. Since these schools are in tough competition with each other this is one of the rare opportunities to establish new networks amongst themselves that can be very important for getting those much sought after top jobs in Hollywood later on. Some 50 short films the film students have created so far with the foundation's help can be viewed online at the “Museum of the Moving Image” (<http://scienceandfilm.org>). This website has become an important marketplace with agents and production companies using it to find the best talents among the up-and-coming filmmakers.

Collaboration with the film festivals – the Tribeca Festival has been supported by the Sloan Foundation since the festival was created – includes seminars and podium discussions with famous filmmakers and scientists. The foundation is also involved in organising script competitions as well as screenplay development.

The awarding of the 20,000 dollar Alfred P. Sloan Prize for the best feature film dealing with science and technology has been part of the Sundance Film Festival since 2001. A similar prize for 25,000 is awarded at the Hamptons International Film Festival. Both well-known filmmakers such as Werner Herzog or Darren Aronofsky and completely unknown newcomers have been prizewinners. The hope is that one day they will join the big leagues.

Doron Weber never tires of emphasising that dealing with scientific topics like the MINT professions in no way presents a limitation. On the contrary: “When artists research these topics, extraordinary opportunities are opened up to them that they had never dreamed of... there is no end to the number of stories that can be found here.”

Hollywood Health & Society – A Project of the Norman Lear Center in Los Angeles

The Norman Lear Center, established in Los Angeles in 2000 as a research and innovation center, is part of the USC Annenberg School for Communication & Journalism at the University of Southern California. The center's mission is to study and shape the impact of media and entertainment on society. It conceives of entertainment not just as leisure activity, but as the way that messages grab and hold attention. It studies entertainment not just as a sector of the economy, but as a driving force – perhaps the driving force – of daily life.

News, politics, education, religion, commerce, the arts: according to Martin Kaplan, today there is scarcely a domain of human existence unaffected by the battle for eyeballs, the imperative to amuse, the need to stimulate and titillate, to tell us stories, to play with us. The stakes for society, he says, are enormous.

The Lear Center pursues its mission via more than a dozen different projects. One of them, for example, examines the impact of digital technology and intellectual property protection law on the creative process, in sectors ranging from music, film and television, to the fashion industry, to scientific research. Another project attempts to improve the quality of political coverage on local TV news, which Americans say is their number one source of information about politics and public affairs, but whose content is designed to entertain audiences, not to inform citizens.

The impact of entertainment on public health is a particular focus of the Center's work. Prime time entertainment series on television constitute a kind of unofficial curriculum in the U.S. According to one study, six out ten Americans regularly watch prime time television. Sixty per cent of this group in turn claimed to learn new things about health from television. Thirty per cent of this group claimed that this had led to a change in their own behaviour.

It is these facts that led to the establishment of one of the Lear Center's first programs, called Hol-

lywood, Health & Society. It provides entertainment industry professionals with accurate and timely information for health storylines. Funded by federal agencies such as the Center for Disease Control and Prevention and the National Institutes of Health, as well as by private sponsors such as the California Endowment and The Bill & Melinda Gates Foundation, Hollywood, Health & Society recognizes the profound impact that entertainment media have on individual knowledge and behavior.

The program supplies writers and producers with accurate health information through individual consultations, tip sheets, group briefings, a technical assistance hotline, panel discussions at the Writers Guild of America, West, a quarterly newsletter and Web links to health information and public service announcements. The program also conducts extensive evaluations on the content and impact of television storylines, and it administers the annual Sentinel for Health Awards for best practices in daytime and primetime television.

In contrast to other groups in Hollywood that work with television shows in the area of public health, Hollywood Health & Society is comprehensive. Instead of focusing on single issues such as kidney disease, cancer or diabetes, it deals with well over one hundred public health topics. Furthermore



Dr. Martin Kaplan is the founding director of the Norman Lear Center and holder of the Entertainment, Media & Society research professorship with the USC Annenberg School for Communication & Journalism in Los Angeles.

the project is not an advocacy group with a particular agenda. In much the same way as the Science and Entertainment Exchange, Hollywood Health & Society regards itself as a resource. The project offers expert information on public health issues, but it leaves to the writers the decision of how to use the information, if at all.

The program enjoys a close collaboration with the Writers Guild of America (WGA), to which all working Hollywood writers and producers in prime time television belong. The co-chair of the program's Advisory Board is the president of the WGA, and on the board – alongside academics and public health experts – sit television network executives, writers and producers. Hollywood Health & Society conducts outreach not only to the industry's creative community, but also to the public, particularly through the Internet. Characteristic of its approach is the quantitative measurement of the impact of health storylines on audiences; these findings are published in peer-reviewed academic journals and featured at public health professional association meetings.

There are six ways that the program attempts to achieve its outreach goals.

1. Hollywood Health & Society offers advice and information free of charge via medical experts with whom the project establishes contact upon request. Only after prior coaching on how to deal with television professionals are the experts absorbed into an extensive database. Among the television productions that have been worked with are “Grey’s Anatomy”, “House”, “Law and Order – Special Victims Unit”, “CSI”, and “One Life to Live”.
2. For select relevant health topics to which the attention of authors and other film professionals should be drawn, panel discussions take place regularly at the WGA. Top health experts are featured speakers, as well as patients, their families, and policy makers.
3. The Hollywood Health & Society website (www.learcenter.org/html/projects/?cm=hhs) is up to date, very informative and has been actively visited by the industry for years.

“We are an especially friendly – and a little bit aggressive – resource trying to make it effortless for writers to create accurate storylines.”

4. An integral part of the website are the more than 120 tip sheets, which make medical information accessible to writers. The accuracy of this information is checked by the Centers for Disease Control and Prevention.
5. As an addition to the advice sheets, the newsletter “Real to Real” is sent to 700 active authors four times a year, reaching most of those working for television in Hollywood.
6. Hollywood Health & Society gives out a number of awards under the title “Sentinel for Health Awards” for storylines of television productions which stand out for their correct and accurate portrayal.

Martin Kaplan further explained in so how far Hollywood Health & Society also reaches society beyond the entertainment industry. This also takes place via trans-media.

1. With the broadcasting of episodes that are based on storylines that Hollywood Health & Society also worked on, an audience of millions is reached on a regular basis. This being the case, some 12.5 million viewers watched the episodes of “Grey’s Anatomy” in which the topic of kidney transplants and organ donations played a crucial role.
2. Since every station maintains its own fan websites, Hollywood Health & Society integrates WebLinks into these sites that will take you to applicable information providers. Close collaboration with the stations concerned and the production houses ensures that the information that is supplied is accurate.
3. Where it lends itself to it, Hollywood Health & Society places informative clips, which refer to telephone hotlines and weblinks on the subject covered. In this way for instance, in the case



kers, the protagonist of the series “Law & Order: SVU”, spoke on global health issues.

Great importance is attached to research and the evaluation of the practical measures applied, according to Martin Kaplan. Here Hollywood, Health & Society makes a distinction between two areas: On the one hand, content analysis and viewer demographics, within the framework of which the composition of the audience and what is generally broadcast, is examined. On the other, “audience impact” is used to evaluate the effect the action had on the audience. What is measured here for example is internet traffic, calls to hotlines, improvement of knowledge bases, and changes to people’s attitudes and behaviour. Additionally what is also analysed is what health issues played a role in American prime time television and what their percentage allocation was.

Of particular importance to Martin Kaplan is that the results of research activities and evaluations are publicised regularly in different specialist magazines and at specialist talks – this also being a fact that sets apart Hollywood Health & Society from other projects.

of one episode of the Series “90210”, industry professionals provided advice on the subject of “manic depressive illnesses among youth” being covered, and directly after transmission an appropriate clip was sent. This clip was accommodated both on the series’ official fan website, as well as on the Advice Center’s website. Evaluation of the internet statistics later on would conclusively prove that the number of visitors to the Advice Center’s website showed a marked increase after the clip was broadcast.

4. Hollywood Health & Society has had some success in using social networks and viral messages, where episodes are discussed by younger audiences. Here too links are integrated to informative websites or hotlines.
5. Hollywood Health & Society is likewise able to reach political decision makers, particularly within the framework of collaboration with the Gates Foundation. According to Martin Kaplan, an example of this was a meeting held at the Washington Library of Congress titled “Global Health in Lights” at which, among other spea-

“Science Meets Hollywood” – The Science & Entertainment Exchange in Los Angeles

With its Science & Entertainment Exchange programme, the National Academy of Sciences – one of the American government’s most important advisory councils on scientific issues – is fostering relations between Hollywood entertainment professionals, top scientists and engineers, among others. The objective is to relate the current topical interest in science to creative and dedicated stories on the subject for film and television. In his talk, Sean Gesell gives an account of the Exchange from an insider’s perspective.

Many film plots, not only in Hollywood, thrive on their protagonists and antagonists and the fight between good and evil. In the process, it is not uncommon for scientists, technicians and engineers to play a leading role – either as heroes or villains.

Sean Gesell put this into perspective in a brief overview to introduce his talk: Scientists as villains go back to the early days of film. Already way back in 1927 you would encounter Rotwang, the maniac inventor from “Metropolis”, while the emergence of Dr. Henry “Frankenstein” from the film with the same name came about a short time later. Other examples are Dr. No in “James Bond 007 – Dr. No”, Peter Seller in “Dr. Strangelove” or Dr. Octopus in “Spider-Man 2” – to mention but a few.

They are juxtaposed by heroes and heroines, e.g. Ellen Ripley in “Alien”, Dr. Henry Jones in the “Indiana Jones” films, the oil drilling engineer Harry Stamper in “Armageddon”, Tony Stark in “Iron Man” and last but not least Dr. Grace Augustine in “Avatar”.

According to Gesell, despite the fact that scientists, technicians and engineers are sometimes portrayed in a positive light in films or on television, as a rule when interviewed the American public spontaneously comes up with the image of the “mad professor” or “crazy scientist”. Obviously, one reason for this could be the audience’s love of suspense and danger, and it is very easy for film makers to invent mad scientists, who either practise gory science or who want to implement good science for

gory purposes. To change this, it would be up to the entertainment industry to take up the challenge of making scientists as heroes or heroines more glamorous than ever before.

Scientists tend to think that people in the entertainment industry don’t portray scientific occurrences more accurately, because the industry is interested only in money, Sean Gesell says. “But this is a mistaken impression, even though it is important to make money. A majority of film makers in the Hollywood film industry feel they have a responsibility towards society and they are as interested in a scientific portrayal as are scientists themselves.” However, a correct portrayal is dependent on correct information.

It was reflections like this, among others, that were responsible for the establishment of the Science & Entertainment Exchange in Los Angeles. Instrumental co-initiators were Janet and Jerry Zucker, who for personal reasons became involved in the possibilities stem cell research had to offer and who campaigned for this issue politically and financially, almost exclusively for many years. With Sean Gesell as an intermediary, it became possible for Ralph Cicerone, the President of the National



Sean Gesell is the Vice President of Zucker Productions in Los Angeles and a member of the Advisory Board of the Science & Entertainment Exchange programme. As entertainment advisor of the National Academy of Sciences, he played a vital role in the founding of that programme.



Academy of Sciences and the Zuckers to meet. With this, the foundation was laid for the Science & Entertainment Exchange.

In 2007, the Academy decided to react to the notion that science in the United States had been shown hostility for a long time now. At the same time, it had become apparent that the number of young graduates – especially women – had increasingly decreased in the field of science. Thus it was in the interests of the National Academy of Sciences to convey the message that science definitely makes a difference, and to do it as effectively as possible by giving it extensive publicity.

In their involvement with stem cell technology, Janet and Jerry Zucker were able to show how one could communicate positive messages across party lines successfully. The Academy was in search of influential parties in Hollywood and proposed a collaborative effort. Its stated aim: To establish a positive portrayal of science to inspire Hollywood’s movers and shakers thematically.

In a very short space of time, it was possible to obtain support from a whole range of influential names, among them Hollywood legends such as Dustin Hoffman, Lawrence Kasdan (the author of “Star Wars” and “Indiana Jones” among others),

Seth McFarlane (creator of “Family Guy”) and others, who became members of the Advisory Board of the Science and Entertainment Exchange together with experts from science and the media. For Sean Gesell, not only was and still is this Council an integral part of the development of the initiative itself, but also meant the emergence of programmes and real dialogue with the scientific community.

From the outset it was not about scientists presenting talks to authors and directors. The intention was for an exchange to be fostered whereby film makers would be supplied with correct information which they would then be able to process creatively, without being subjected to “scientific handcuffs.”

This concept was presented to the general public within the framework of a symposium attended by 350 guests. Not only were prominent representatives of the entertainment industry present, but also renowned scientists such as V.S. Ramachandran (Director of the “Centre for Brain and Cognition” at the University of California), molecular biologist Bonnie Bassler, Craig Venter (Human Genome Project), Steve Chu (United States Secretary of Energy), among others.

The Science & Entertainment Exchange works with all the big filmmaker guilds (Writers’ Guild,

Directors' Guild, and Producers' Guild) and considers itself a resource for the Hollywood entertainment industry. On enquiry, contact is made with precisely the experts needed, without any cost. Not only established and prominent film makers can make use of this service, it is also at the disposal of anyone, regardless of the stage of development of their project. These can be film or television projects – the scope currently stretches from films such as “Tron Legacy” to blockbuster television series such as “Fringe” or “Lost”.

According to Sean Gesell, analogous to “Method Acting” there should also be “Method Directing” or “Method Production Designing”, since creatives in this industry, much like actors/actresses, strive towards immersing themselves in the world of their creation. The type of exchange made possible via the Science & Entertainment Exchange is also cultural. The inspiration is mutual since scientists can be as creative as film makers. Evidence of this is found in real inventions that were inspired by films, i.e. medical nanobots.

“Truth
is stranger
than fiction”

For Sean Gesell it is no coincidence that many scientists are huge science fiction fans, because even in a fictional world you have to operate within a given set of scientifically correct rules. For a film maker the story together with its inherent logic is the most important thing. It is only natural to want to amalgamate consistent and positive science. It need not always involve the main plot. The series “Big Bang Theory” is about imaginative characters and funny stories – the fact that it is also about science and scientists may well be incidental. Having said that, for Sean Gesell there are many stories in which science may play a role, but which is simply forgotten by the audience, as in the case of the story of a racing driver in which the protagonist obsesses about the physics of aerodynamics and centrifugal force throughout. Film makers have to find the fine line that will allow them to incorporate science into a story to constitute an integral part of the whole and portray it accordingly.

Not only does the Science & Entertainment Exchange facilitate consultations and contacts – e.g. as in the case of “Tron Legacy”, “Watchmen”, “Iron Man 2”, “Thor” or “Green Lantern” – but gatherings are also held privately, hosted by members of the

Advisory Board. These meetings foster productive dialogue between the science and film industries in a manner hitherto unknown to Hollywood. Screenings also form part of the programme, at which the scientific aspects of the respective topic are discussed in a completely different manner – as in the case of the film “Survival of the Dead” by George Romero and the subject of “zombieism”.

Sean Gesell concludes that it is not only the scientific community’s interest in the Science & Entertainment Exchange that is exceptionally strong, but also the Hollywood entertainment industry’s commitment to the Exchange. Many film makers involve themselves passionately as messengers and they know it makes sense to turn to real life sources

if they want to tell captivating stories. Science categorically has to be one of these sources – and often proves the age-old adage that “truth is stranger than fiction.”

“Entertainment Education” – The Dutch Approach

The “Centrum Media & Gezondheid” in Gouda is the leading Entertainment-Education Institute in the Netherlands. The institute specializes in the strategic use of cross media formats for social change. It develops media projects based on research, policy and practice to contribute to positive social development with a primary focus on health and the quality of life. Particular importance is attached to applying the theories that are developed to the real world and evaluating the processes because by doing so new theoretical assumptions emerge that can be scrutinised.

Martine Bouman first came across the idea of entertainment-education towards the end of the 1980s when her work at the “Netherlands Heart Foundation” brought her into contact with EndeMol Productions, the largest TV production company in the Netherlands. Her first meeting with producers and scriptwriters was awkward for both sides, coming from completely different professional backgrounds: on the one side there was the educated scientist who was accustomed to a rational and logical approach to projects and on the other the creative television professionals who



Dr. Martine Bouman is founder and director of the Center for Media & Health and Associate Professor of the Faculty of Behavioural Sciences of the University of Twente in the Netherlands.

are inspired by intuition, spontaneity and emotions in their work.

“This was,” says Martine Bouman “my introduction to some subtleties and the way one must find a balance between the left side of the brain that is more responsible for cognition, linearity, for facts and figures, and the right side of the brain that deals more with intuition and creativity. [...] I am convinced that in order to work in the field of entertainment-education you have to be someone who can easily switch between the two hemispheres of the brain.” Ideally, there will be someone on these kinds of projects who is “at ease in this intersection and understands both worlds as this can be real asset in such collaborations.”

With the exception of very few publications by Everett Rogers and Arvind Singhal there was virtually no information on entertainment-education at the time and all of the examples in these works came from non-western countries. It soon dawned upon Martine Bouman that it would be impossible to apply these basic concepts in the western world without making some changes. Critical issues were “How does our media-saturated culture deal with such topics? What can we show on television that has any relevance to our culture, to our values and to the way people live their lives here?” Unlike the “collective society” in the non-western world where television programs are watched together, in the western world a very strong individualistic media consumption is prevalent which “generates a different way of exchanging ideas and information.”

In subsequent years Martine Bouman immersed herself into the entertainment-education topic and worked on the implementation of several Dutch television and internet projects dealing with health care and prevention that targeted primarily youth and young adults.

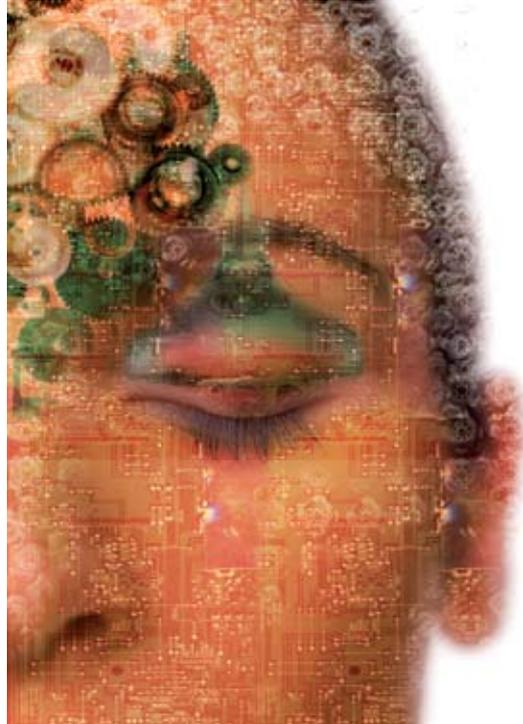
“Costa”, a very successful television series about a group of young people, was just one of the projects. The series was a spin-off of a successful feature film with the same name. It struck Martine Bouman and the Netherlands STD Foundation that the sexual relations of the protagonists figure was prominent in this film but the topic of “safer sex” was not mentioned at all. Bouman provided advice to the

authors of the “Costa” series. Storylines were created that dealt with such topics as condoms, explaining that using them is not a taboo and that talking about them is completely normal – this had a role modelling effect as the “liking heuristic” model was used in casting attractive and famous actors for the parts. As more storylines were created it became obvious that the topic of “safer sex” wasn’t just a fringe phenomenon as it became a central theme that enriched the story and made it even more exciting.

The TV series “Buskruit” was created as part of the Dutch “Prima Donna” multimedia project that aimed to address the issue of how to encourage girls and young women to pursue technical degrees. Martine Bouman cooperated with a diverse set of stakeholders on this project as it was important to create a programme for young people made by young people – in this case students at the film academy. The result proved that “it is absolutely not boring to work in a technical environment or pursue a technical career, that social skills and teamwork are necessary in these fields as well and that you can develop things that benefit society.”

The fictional entertainment-education series “Sound” was an internet-only production created in 2008. The webisodes (9) were part of a cross-media health campaign on the prevention of noise induced hearing loss – a problem that affects nearly 20,000 young Dutch people every year who frequently visit discotheques and dance events. In order to reach young people who, according to Martine Bouman, “are not spontaneously interested in this topic and don’t want to deal with it either” a format using famous actors was developed. Two weeks before the initial launch of the series a trailer of “Sound” was put on YouTube. This created a buzz on blogs and social communities. This series aimed to reinforce positive behaviour without addressing it directly – the series simply shows how normal it is for cool young people to use earplugs while clubbing (disco, concert) (You can watch the series online at www.sound-soap.nl)

Martine Bouman has used her experience with this and other production and state-funded research projects such as “Health on Screen” to analyze and describe the crucial success factors for entertainment-education collaborations: “It is extremely important to be sincere about investing in our partners. In this case investing means creat-



ing common ground, a sort of common chemistry. [...] What we need is a common frame of reference.” This frame of reference includes items like language use for some words may have different connotations. For instance, the term education is quite a turn-off for screenwriters when it is used without a comprehensive explanation of the entertainment-education concept. Authors consider themselves storytellers and not educators. The notion of incorporating socially relevant topics in fictional television is not a problem at all as it already part and parcel of the way of thinking of most authors, They are open for an entertainment-education collaboration as long as it does not interfere with their creative freedom.

While working on “Health on Screen” Martine Bouman understood that screenwriters were already using some theoretical approaches similar to those formulated in health communication without being aware of the theories they were based on. It was not difficult to win them for the idea of entertainment-education because their work revealed it was already being done. There did, however, turn out to be differences in approach and methods for dealing with certain topics. As a scientist Martine Bouman tended at first to say “Don’t exaggerate! Don’t overdo it!”, but soon realised it is “simply bor-

ing from an author’s perspective to convey factual information on health prevention or similar topics. This kind of information must be dramatised.”

For Bouman, “capacity building” is just as important as working on concrete projects with filmmakers. This means “making information available and disseminating it to a larger audience so that a common knowledge base is created.” This is done with the help of events like the annual “Day of the Soap” that brings together experts and guests from the Netherlands and abroad to exchange ideas on new ways of storytelling. The CMG is also developing entertainment-education teaching modules and programmes for various universities, colleges and postgraduates that aim to train young professionals from the scientific community and the film industry on how to work together on future common projects.” Investments are being made in the curricula of media and communications studies as well as screenplay studies in order

“It is important to invest in capacity building and to create a body of knowledge”

to have access to professionally trained experts in these key areas that are important for entertainment-education.

All of the measures, processes and the resultant outcomes are evaluated and subjected to research with the objective of developing new theories and intervention strategies. Martine Bouman believes it is essential to be “innovative and creative, to be able to test the limits. You have to be prepared to take a risk and not wait for someone else to come up with an idea, you should try to create your own entertainment-education formats. A whole new world is opening up now with the new media and new technologies. It used to be you had to wait for a broadcaster’s approval or the right broadcasting slot, but today you can create and show your own fictional format online. Access to this medium is open and free. We live in a society that gives us innumerable opportunities. I believe this will be a great challenge for entertainment-education.”

From Stereotypes to Types – Researching Media Literacy and Improving Media Practices

Elizabeth Whitelegg, Richard Holliman and Jennifer Carr worked on a project at the Open University in the UK that investigated children’s television programmes featuring science. They asked whether the scientific content influenced the children’s understanding and impressions of science, technology, engineering and mathematics, and to what extent children could contribute to creating television programmes of this kind – in particular to the scientific elements of the programmes.

Elizabeth Whitelegg has been involved for several years in research projects revolving around the issues gender and science. She participated in a project commissioned by the UK Institute of Physics that aimed to shed light on why so few girls go on to study physics and why they lost interest in this subject after school. She and her colleague Patricia Murphy came to the conclusion that: “the girls have a hard time seeing themselves pursuing an academic life in physics. Their self-efficacy and trust in their own capabilities with regard to physics drops in the teenage years.” Both factors, especially self-esteem, are crucial in the process of identity shaping, which

explains why school girls in particular show little interest in pursuing a scientific career.

After investigating the factors influencing their interest in MINT professions that come from the school environment it appeared natural to have a closer look at the influences that pupils are exposed to outside of the classroom. In 2005 Elizabeth Whitelegg started work with Richard Holliman and Jennifer Carr on the “(In)visible Witnesses” project. This was financed by the “UK Resources Centre for Woman in Science, Engineering and Technology.” The title of the project was chosen intentionally after the successful BBC television series “Silent Witness” triggered a jump in the number of female students enrolling in the forensic sciences.

In the project’s initial “content phase” children’s television programmes were investigated. Instances were recorded and analysed when stereotypes of scientists and girls in the MINT fields were shown. Depictions that went beyond stereotypes were also documented.

The second phase consisted of a reception study that involved the active participation of children between the ages of 10 and 16. The objective was to investigate their media literacy, proceeding from the question of how children interpret and contex-



Liz Whitelegg is a senior lecturer in Science Education at the Open University. Her research investigates the participation of young people, particularly girls, in science inside and out of school.



Dr. Richard Holliman is a Senior Lecturer in Science Communication at the Open University. He conducts research on how the sciences are depicted in various media and genres.



tualise the depictions of MINT subjects in television. According to Elizabeth Whitelegg media literacy is “at the end of the day just as important as reading and writing was many years ago.” In the reception study children were confronted with a variety of tasks, including some creative tasks that extended from simply filling out a standardised questionnaire to visualising personal impressions by drawing scientists, discussion about certain television content all the way to creating their own television programme where they had to put some thought to their target group. At the end the participants were asked to write down how they would imagine themselves if they pursued a MINT career, where they would position themselves within the scientific world.

The results of the investigation showed:

- Children between ten and sixteen are very media literate.
- They understand the difference between public and private broadcasters.
- They are aware of the fact that television programmes have some educational elements.
- They want television programmes to be entertaining; at the same time they believe they should also have an educational function.

“You lose nothing by leaving the stereotypes behind. You actually add value by doing it.”

- They understand that television programming must be tailored to age groups.
- They are aware of the opportunities that interactive and multi-platform programmes offer.

Elizabeth Whitelegg is convinced that the creative approach they selected for the investigation afforded them greater insights than would have otherwise been possible. “In this way we can assist children to get information through television about MINT subjects we consider useful for them to have access to.”

In the (In)visible Witnesses project Richard Holliman had a closer look at the question to what degree children and young people can make valuable contributions to developing characters for television programmes dealing with science issues. His considerations were partly informed by the work of sociologists like Stuart Hall who investigated the topic of race and ethnicity in television where he discovered strong tendencies towards stereotyping. Richard Holliman applied Hall’s approach of “transforming stereotypes into characters” in his work on “gender roles” and “gender and science”.

While a stereotype reduces a figure to a small number of basic and simplified character-

istics – and in a closed typology at that – according to Richard Holliman, “dramatic characters give you the possibility to work with an open typology. That allows us then to imagine completely different things. Fictional characters open up possibilities. They can be positioned freely in an open typology.”

Amazingly, Margaret Mead and Rhoda Métraux already identified the “stereotype of a scientist” back in 1957. This identification has not lost its validity if you look at animated cartoons. This is the decisive point for Richard Holliman: “We are able to break down a list of characteristics for different types of people.” We have to clarify a few things in the process:

- Which external characteristics – both positive and negative – can be used to codify a person as a scientist (e.g., balding, beard, glasses, lab coat etc.)?

- Which character traits – both positive and negative – are used in this codification? (e.g., intelligent, patient, open-minded, but also underestimated, overworked, lonely etc.)?
- Which locations best depict a scientific workplace? (The classic image of a secret underground laboratory)
- Which kind of experiment is shown using what kind of equipment?
- How many attributes does it take to recognise a character on the screen as a scientist?

According to Richard Holliman “not so many attributes are needed before an audience figures out the television programme is about science”. *Nina and the Neurons*, a BBC television programme targeting the under fives, provides an example. Here, children can call in or write an email asking questions about science. Children accompany the host Nina in conducting experiments in the studio. She is assisted by five “neurons” that represent the five senses. The only indication that this is some sort of classic science show is the white lab coat adorned with a few props that Nina wears.

The slapstick comedy sketch show for pre-school kids called *Gigglebiz* provides a counter-example. Professor Muddles is one of the characters in this show. He is clumsy, has tousled hair and bungles things up – a classic stereotype of a scientist from the 1950s.

Lisa from *The Simpsons* cartoon series is a more recent example of a sensation for an older target group. “Lisa Simpson,” says Richard Holliman “doesn’t look like a scientist, she doesn’t have a single one of the usual characteristics associated with scientists. But if you look closely at her character traits—intelligence, honesty, curiosity—she is a perfect representative for the sciences. There are many storylines in the show that revolve around science with her in the limelight.”

According to Richard Holliman this is exactly the point: “We are surrounded by so much science, we don’t need someone standing around in a white coat telling us it is about science.” At the same time, John Frink jr. is a character that represents the classic stereotype of a scientist from the 1950s. “He

wears thick glasses, has tousled hair, wears a white lab coat, is totally muddled and, of course, he makes a mess of most things – a classic depiction.”

It make sense to “use as few of these codes as possible so these kinds of characters have a bigger effect on children... nothing is lost if you leave the stereotypes behind. Quite the opposite is true. The characters become more valuable and the audience can relate.”

If the objective is to create more interesting and less stereotypical depictions of scientists in children’s television, Richard Holliman has some clear advice: “I believe scriptwriters would do well to integrate children into the development process – especially in animations and cartoons where we found a lot of negative depictions. They have a lot of interesting material to contribute, are full of great ideas and are very creative.”

Entertainment Education – An Instrument of Social Change

One of the questions Arvind Singhal asks himself with regard to Entertainment-Education is: “What does it take to make a dream come true?” What he means is the dream of creating a more positive society by changing existing social norms. Entertainment- Education is an instrument for building bridges and overcoming barriers that change of this magnitude will necessitate.

With a wink Arvind Singhal characterises his contribution to the field of Entertainment-Education as an “internal monologue, dialogue or triologue”, but he does not conceal his true concern. Beginning with the unusual question, “How high is the social value of a dream?” he covers ground extending from Ronald Reagan and Michail Gorbachev to Martin Luther King, Abraham Lincoln, Nelson Mandela, Mother Teresa and Mahatma Gandhi. They all shared the desire and vision to improve social conditions and this links all these historical figures with those people who are also looking for opportunities to initiate and support social change. The value of Entertainment-Education to society is based on this ambition and can be found in a wide variety of contexts.

As a result of his childhood experiences in which his grandfather played a prominent role, there is no doubt in Arvind Singhal’s mind that learning can take place everywhere in everyday circumstances in an entertaining way – regardless of whether the Pythagorean theorem becomes self evident by demonstrating how a sandwich is cut, whether the hexagonal form of a pencil makes it easier to grip and more difficult to roll off, or breaking off pieces of chocolate from a chocolate bar is coincidentally used to explain the calculation of surface area and volume.

The social psychologist Professor Albert Bandura began to provide the scientific underpinnings of the Entertainment-Education concept in the early-1960s at Stanford University with his famous Bobo doll experiments. For Arvind Singhal this may be “perhaps the most significant experiment ever conducted” in this field of mass-mediated E-E.

Bandura presented preschool children with a real situation where a person behaved aggressively with person-sized rubber dolls (so-called Bobo dolls). When confronted with the same dolls after this demonstration, the children imitated exactly the same aggressive behaviour the model had exhibited – apparently they had learned new behaviour from an unknown role model. In the second stage of the experiment Albert Bandura exposed a different group of children to the same sort of aggression towards a Bobo doll, but this time only in a film. Again the children exhibited exactly the same kind of behaviour towards the dolls although they had only seen the role model in the film.

The findings of this experiment are still valid today: Learning new behaviours from role models transpires whether the role model is real or is depicted in media. In this regard Arvind Singhal speaks of the “power of the conveyed role model function that manifests itself in the display of new behaviours.”

Albert Bandura’s research was driven by the question of whether and how children learn aggressive behaviour from what they see on television. According to Arvind Singhal, Dr. Miguel Sabido of Televisa, the Mexican private television network, provided the crucial next step with regard to the



Dr. Arvind Singhal works as a professor of Communication and head of research at the “Sam Donaldson Center for Communication Studies” at the University Texas in El Paso. The respected expert in Entertainment-Education is publisher and co-author of ten books on the subject.



development of the Entertainment-Education concept. “Sabido’s brilliance can be found in the question: If children can learn aggressive behaviour from television, couldn’t we also show exemplary behaviour, pro-social behaviour for instance, that would encourage viewers to do things like enrol in an adult education programme?”

Sabido translated the learnings from Bandura’s Bobo doll experiment by producing long-running, entertaining telenovelas which portrayed new models of desired behaviors on part of audiences. For Arvind Singhal this did nothing less than tear down the wall between entertainment and education. In her dissertation on entertainment-education, Dr Martine Bouman would later refer to this bridging of the divide between scientists and the creative industry by saying: “It removed the barrier between turtles and peacocks.”

In 1999, Arvind Singhal and Martine Bouman served, along with others, as advisors to the Soul City Institute of Health and Development Communication in South Africa that was employing E-E to address the problem of domestic violence. To address this problem it was necessary to model new social norms with respect to addressing the aggressive behaviour of men, the helplessness of women

who were the victims, and of neighbors who by virtue of not interfering served as silent colluders.

The makers of the extremely popular prime time South African television series, *Soul City*, inserted a plot strand to take on this issue. The storyline portrayed how Thabang, the husband of the leading female character Matlakala repeatedly abuses his wife, each time more severely. As dictated by prevailing social attitudes this took place behind closed doors and Matlakala was helpless – afraid to ask for help.

In one particular episode, the scriptwriters had her neighbours denounce her husband’s behaviour by standing in front of their house banging on pots and pans to get him to stop. Such behavior was not part of the repertoire of audience members in real-life. However, through televised modeling of how neighbors could take collective action, it showed a new way to confront an old problem. Second, the collective action showed there is safety in numbers and that in a group you can do things you otherwise wouldn’t manage alone – in this case the power of the community to break oppressive norms and establish new ones.

This was the first time that this kind of “modeled” behaviour was shown to the South African public in an engaging, melodramatic plot. It wasn’t long before South African newspapers were reporting incidents in which communities imitated what they had seen in Soul City and were able to prevent real cases of domestic violence. It was a break from existing social norms that had an extremely positive effect.

“If you’re trying to change social norms you’ve got to show collective modeling. You’ve got to show that the community models those norms.”

Arvind Singhal is thoroughly convinced that this type of “modelling positive behaviour” has incredible potential to initiate social change. At the same time, this “power of the fictional role model” provides the impetus to ask questions such as: “What does it take to make a dream come true?” What would it take to model new realities about the desirability of pursuing STEM education in Germany so that the tide could be turned?



“Cause Entertainment” – Media Investments for Social Change

“Cause Entertainment” is a brand new media investment company that was established in India’s Mumbai by Vicky Dhir and Aditya Mehta. The two former London investment bankers plan on investing primarily in film production and distribution, television production, home entertainment, new media and events. They not only seek to offer solid investment opportunities, but wish to finance exclusively media projects that have the potential to influence social change in a positive way.

For Vicky Dhir and Aditya Mehta the motivating force behind establishing “Cause Entertainment” was the notion that it must be possible to create a balance between commercial success and socially responsible behaviour. They have positioned their investment company in the mass media communication sector where they seek to finance the production of entertainment formats such as feature and television films as well as television series that offer the prospect of reaching a broad audience. “Cause Entertainment” will also invest in home entertainment and new media and in major events.

According to Aditya Mehta what makes the company special is the fact that they scrutinise the substance of each investment in advance: “We basically

finance only projects with social relevance that have some kind of social message, that provide an opportunity to usher in or promote societal change.”

Two advisory boards of experts accompany the selection process. The creative advisory board boasts creative personalities such as actresses, directors, producers and authors from the American and Indian film industries while the corporate advisory board is filled with decision-makers predominantly hailing from the Indian entertainment, financial and insurance sectors. Professor Arvind Singhal, a scientist with a solid entertainment-education background, is also a board member.

Aditya Mehta points out how important it is not to limit the contribution made by the representatives from the creative industries in the process: “We pretty much give the creative people free rein. It’s completely up to them how they want to approach a film, a television series or any project in general. In this regard they are completely free. The only stipulation we have – for example with a film – is that it must carry a message and be in a position to influence society in a positive manner.”

An important part of every project is a “transmedial distribution platform” that ensures that any given message is well established on the regional level, spread throughout various media such as television, radio and theatre and can reach a larger, even



Vicky Dhir is CEO and co-founder of the company “Cause Entertainment” in Mumbai.



Aditya Mehta is CFO and co-founder of the company “Cause Entertainment”



an international audience, to elicit change—in the best case, even on a global scale. Dhir thinks raising awareness is only the first step in social change. “Entertainment can create an emotional connection and help raise awareness. This is what really allows the audience to get involved. Practical action has to be part of the formula.”

A film about the life of the Indian mathematician and national hero Srinivasa Ramanujan is one of Cause Entertainment’s first projects. This production is also being supported by the Sloan Foundation. Ramanujan, a man from a simple background, without any education, was discov-

“In our opinion, change is not just awareness. It starts with awareness but what it needs in addition to that is action.”

ered at the beginning of the 20th century and invited to Cambridge where he was able to develop his genius. According to Vicky Dhir, Ramanujan is more than just an excellent example of how a sci-

ence like mathematics can serve to overcome all social and cultural barriers. “Ramanujan offers a great opportunity to present an icon with the aim of inspiring young people.” The film will be promoted by a

marketing campaign that asks “Where is the next Ramanujan?” Ideally the film will be followed by a television series, radio shows and buttressed with additional programmes using new media.

The MINTiFF Network: New partners in the Dialogue with Science

The funding of quality fictional programmes

In Germany the media have established independent and editorial offices to monitor journalistic programming for the monitoring of the world of science, as well as having come up with a growing number of entertaining programmes. Especially young viewers feel that these programmes address them. In the course of this development, scientific journalism has become an independent profession, with a growing number and variety of university as well as non-university training and further education offers. Fellowships and awards for special achievements are proving to have great appeal here.

However, when it comes to fictional programming no specialised editorial offices and resource structures, or training and further education options for authors, producers and editors have been established up until now for the observation of the world of science and technology. Unlike the situation in scientific journalism, there is also a lack of

communication structures and dialogue cultures in this regard. Therefore, for prospective filmmakers educated and trained in the humanities, cultural sciences and the arts, the natural sciences and technology orientated science systems come across as confusing and non-transparent. It is understandable that because of this authors (irrespective of gender) would tend to avoid science and technology and turn to other topics. Topics that are more accessible to them and for which successful cinematic examples already exist and which hold the promise of greater acceptance on the part of the broadcasting station.

Against this background, the MINTiFF Network – which seeks to establish equal opportunities in fiction formats with regards to Mathematics, Information Technology, Natural Science and Technology – has come into being at the Technical University of Berlin together with the Fraunhofer Institute, also with the support of the Helmholtz Association of German Research Centres and the Max Planck Institute, as well as the German Federal Ministry of Education and Research (BMBF) and the European Social Fund (ESF).



From left to right: Jonas Baur, Ivo-Alexander Beck, Carl-Christian Demke, Sarah Schnier, Lorenz Stassen, Caroline Labusch, Iris Uhlenbruch, Silke Morgenroth, Dr. Christoph Braß, Bettina Börgerding, Michael Heinze, Andreas Gässler, Moritz Grenzebach, Dr. Marion Esch (Prof.), Peter Engelmann.

Based on the aforementioned results – which emerged from a survey of filmmakers regarding the kind of measures that need to be instituted for greater prevalence of STEM and equal opportunities in fictional television formats – the MINTiFF Network has come up with three schemes to assist filmmakers: A MINTiFF Advisory Centre; an events series called “Science Meets Fiction”; and the MINTiFF Ideas Competitions concept for experienced screenwriters and content development teams. Until now the MINTiFF Network schemes have reached more than 300 participants from the film and television sector, with a unanimously positive response. This is what one of the participating producers had to say: “The programme of the dedicated MINTiFF team, with its firm experience base in the film industry, is ‘designed to arouse enthusiasm’ and delivers one excellent programme after another, thereby ensuring that renowned authors, editors-in-chief and producers turn up time and again, despite chronic time constraints and having to travel long distances at times.”

Taking as a vantage point the acknowledgement that outstanding and well researched content is a prerequisite for excellent feature films and series, a total of eight fellowships were awarded between 2009 and 2010, with prize money to the value of 10 000 Euros each within the framework of the MINTiFF Ideas Competitions. Through these fellowships ambitious projects for German television films and series are funded in the early phases of content development. The projects in question all provided a new perspective on the social role played by Mathematics, Information Technology, Natural Science and Technology, by creating characters that fall outside the ambit of traditional science and gender clichés.

An integral part of the fellowships is specialist advice by equality experts and scientists (both irrespective of gender) on the appropriate areas of expertise, as well as job shadowing in relevant scientific organisations. The participating screenplay authors and/or content development teams will be able to obtain a comprehensive picture of the specialist topic, a prerequisite for developing quality treatments and screenplays.

With German public broadcaster WDR’s ‘Tatort’ (Crime Scene) episode called “Auskreuzung” (Cross-Pollination) (Screenplay: Karl-Heinz Käfer) the first television series whose content development was funded by a MINTiFF Fellowship could already be

showcased within the framework of MINTiFF Conference 2010.

Purpose of the fellowships from the perspective of the MINTiFF Fellows

“The project was a great experience and very encouraging. Without the fellowship we would not have been in a position to develop our seemingly small story on the topic of inoculation. Content of this nature can only work with solid facts as its basis, also because, quite surprisingly, there is a whole range of opposing emotions connected to this topic. The scientific technical support was perfect, everywhere we went we were greeted with open arms and we have the MINTiFF Team and the fellowship to thank for the decisive support for a screenplay that public broadcaster ARD (the consortium of the Federal Republic of Germany’s broadcasting corporations regulated by public law) is expected to bring to fruition.”

Fred Breinersdorfer/Katja Roeder (Author).
Screenplay project: “Masernparty” (Measles Party)

“The MINTiFF Fellowship brought a whole lot with it for me. My subject advisor was Dr. Roland Lauster, a Professor with the Institute for Medicinal Biotechnology at the Technical University of Berlin. Not only was he able to explain to me as a layman the intricacies of biology and and to provide me with concrete explanations for my questions but most of all he quickly understood what my story was about and got involved in the fictional aspect. Through him some very new dimensions came about, which had not even occurred to me up until then. We still remain in touch and our collaboration is ongoing.”

Lorenz Stassen (Author). Screenplay Project:
“Chromosom 19” (Chromosome 19)

“Working together with hydrologist Dr. Sergiy Vorogushyn of the German Research Centre for Geosciences (GFZ) meant consolidation as far as our content was concerned on the one hand. On the other, the MINTiFF Fellowship made it possible to work out a detailed treatment. This increases the

possibility of being able to sell the project, which is normally a very tedious process. Through the MINTiFF Fellowship a foundation has been set that we would not ordinarily have had access to without this support.”

Carl-Christian Demke (Author). Screenplay Project: “Zwei Grad Plus” (Two Degrees Plus)

“Working together with Dr. Vorogushyn was very rewarding. Not only were we given the opportunity of having our research checked and verified, but our consultant was very proactive, acquiring materials for us and putting these at our disposal. The work reached a great level of maturity thanks to this collaboration.”

Sarah Schnier (Author). Screenplay Project: “Zwei Grad Plus” (Two Degrees Plus)

“It goes without saying that a MINTiFF Fellowship comes as a welcome relief, because this means that authors are in a position to work on one piece of content on an ongoing basis for a whole month. Usually content development cannot be paid for in the way that has now become possible with the Fellowship. This means you get better and more intensive collaboration and much higher quality.”

Ivo-Alexander Beck (Producer). Screenplay Project: “Zwei Grad Plus” (Two Degrees Plus)

“Our involvement has been the offences that are being committed against the environment. Our contact person in doing the necessary research was Doris Böhme from the Environmental Research Centre of the Helmholtz Association of German Research Centres. She acted as the go-between to different scientists and became our ‘switchboard’ as it were, when it came to deciding which discipline our questions fell under in each case. She completely understood what we needed and ‘translated’ subject-specific explanations for us where necessary. Doris Böhme was always someone whom we could approach. She would read through and check everything. Her helpfulness was always well beyond the call of duty.”

Silke Morgenroth/Caroline Labusch (Author). Series Project: “Kommissarin Grün” (Inspector Green)

“Without MINTiFF, in-depth research would not have been possible. I am convinced that will become obvious from the concept at the end of the day and that is also what will help sell it.”

Jonas Baur (Author/Producer). Series Project: “Kommissarin Grün” (Inspector Green)

“Within the framework of my MINTiFF Fellowship, Andreas Schütz gained access for me to some of the most fascinating showcases of manned space flight in Germany, such as the German Aerospace Centre (DLR), the Columbus Control Centre in Oberpfaffenhofen and Astrium Bremen. Through him I also gained access to top DLR researchers such as Professor Gerzer whose speciality is Aerospace Medicine, as well as to Flight Director Thomas Uhlig. Additionally, to this day Andreas Schütz has been assisting me with subject-specific advice with his understanding of and insight into a screenplay author. Through the MINTiFF staff and the great and very capable support beyond the material side of things especially when it came to content, I was able to make progress for my project “Flight Director” all the way to the screenplay version and also achieve a fundamental quality boost for my project, which would not have been possible otherwise: The autodidactic study of subject-specific sentences and access to specialised literature found in internet publications showed me how indispensable direct contact to researchers in this technical scientific sector really is. Without it, authors can easily fall into the trap of making unsubstantiated assumptions. The MINTiFF Fellowship made it possible to set the foundation for an exciting project, which does in fact represent the modern-day reality of its chosen subject.”

Peter Engelmann (Author). Screenplay Project: “Flight Director”

“The MINTiFF Fellowship opened doors for me that normally remain closed to a screenwriter. Working together with Dr. Schraudner, who accompanied the project right from the start, was also particularly helpful. Her relentless patience and sense of humour made it possible to represent biology correctly in the context of dramaturgy.”

Karl-Heinz Käfer (Author). Screenplay: “‘Tatort’ Auskreuzung” (‘Crime Scene’. “Cross Pollution”)

“Thanks to the MINTiFF Fellowship, not only was it possible for us to work our content for “Frau & Mann” (Woman & Man) into a detailed treatment, but to substantiate it scientifically also. MINTiFF facilitated contact with Dr. Ina Schieferdecker – a professor who heads the FOKUS competency centre “Modelling and Testing for Systems and Service Solutions” under the auspices of the Fraunhofer Institute FOKUS. This contact proved to be crucial in giving us decisive insights into the scope of work of an Information Technologist, which would give us decisive points of reference. Our encounter with Dr. Sandro Gaycken from the Chaos Computer Club also inspired us. It contributed towards our being able to buffer and substantiate the conflict between our two protagonists from a content point of view. In the course of our research the focal point of this conflict would increasingly be “safety on the net”. In summary it can be said that the encounters and the discussions on the topic of Information Technology and women in STEM professions contributed vastly towards further thought being given on further projects like this and especially also to rethink the female roles in our other projects.”

Bettina Börgerding/Iris Uhlenbruch (Author).
Screenplay Project: “Frau und Mann” (Woman and Man)

“The Head of the Working Group Astrobiology of the German Aerospace Centre (DLR), Dr. Rettberg, has unequivocally extended the horizon of our story. Thanks to her advice together with the assistance of doctoral candidate Anja Bauermeister we found solutions that would otherwise be unimaginable to an author. The MINTiFF Fellowship not only gave us the opportunity to compile a detailed treatment, but also opened the doors for us to one of the most exciting areas of science.”

Michael Heinze/Andreas Gäbler (Authors).
Screenplay Project “Die 6. Kuppel” (The Sixth Dome)

Public Value – Will E-E be a key?



Broadcasting Regulated by Public Law – Public Value and Quality Fictional Television

Broadcasting councils are intensively involved in issues pertaining to quality and “added value for society.” Within the consortium of the Federal Republic of Germany’s broadcasting corporations regulated by public law, the ARD, they act as “representatives for the general public in the respective broadcasting corporations” and it is their task, among other things, to advise the directorships on programming. As the highest authority they oversee adherence to mandates of broadcasting institutions regulated by public law on the basis of the Federal Republic of Germany’s Treaty on Broadcasting.

In her capacity as Chairperson of the Broadcasting Council for WDR – the German federal state of North-Rhine Westphalia’s public broadcasting corporation – Ruth Hieronymi opens her talk by giving assurances that as far as she is concerned a conscious effort is being made for everyone to have their say. Especially with regard to those working within the framework of the MINTiFF Conference – a conference on gender equality in fiction formats when it comes to mathematics, information, science and technology – whose responsibility it is to oversee programme makers under public law. Her rhetorical question: “Who knows about the existence of broadcasting councils anyway” raises the question of the extent to which their function is actually noticed by the general public.

Overseeing programming does not mean designing the programme or taking responsibility for it. Broadcasting freedom offsets this and is protected and strengthened on an ongoing basis by the principle of programming autonomy and a strong broadcasting charter. “The broadcasting councils only have a relatively minor role to play in this,” maintains Ruth Hieronymi “but one that needs to be used to the full potential.” According to the Federal Republic of Germany’s Treaty on Broadcasting and the media laws of Germany’s federal states, they have the responsibility of “looking after both aspects, namely the interests of the general public and as mediators with the general public for broadcast-

ers regulated by public law.” Broadcasting councils are the “public broadcaster’s attorney!”

One of Ruth Hieronymi’s declared objectives reads as follows: “We want to promote public value in respect of broadcasting regulated by public law.” The focus of the MINTiFF Conference and the Conference of the Chairpersons of ARD, which she also chairs, therefore lie close to her heart. She concedes: “There are many excellent examples of broadcasting in Germany regulated by public law, in which public value is achieved and promoted.” Yet there is still a lot that remains to be done.

Central to this is the concept of quality, whose definition often falls short of the objective according to Ruth Hieronymi: “As a rule in Germany the concept of quality is synonymous with high culture. However, for broadcasters regulated by public law this is inadequate. Broadcasters regulated by public law and public value are required to make a contribution to free, liberal and democratic opinion forming from the entire population – not only from parents. This is a central responsibility.” To meet this challenge it has to be guaranteed that “a cross section of the population in sufficient numbers appreciates what is on offer by broadcasters regulated



Ruth Hieronymi is the Chairperson of the Broadcasting Council for WDR, as well as of the Conference of Chairpersons of ARD. From 1985 to 1999 she was a member of the Legislative Assembly of the state of North Rhine-Westphalia and from 1999 to 2009, among other things, a member of The Committee on Culture of the European Parliament with media policy as the focal point.



by public law.” For Ruth Hieronymi this poses a difficult balancing act between quality and quotas, but: “This does not have to be a contradiction in terms.” The question of how this can succeed, how one is to define quality in any event, is what has to be addressed first.

Ruth Hieronymi is unequivocally in favour of intended and unintended socialisation and educational effects as the criteria according to which the quality of fictional and non-fictional television is to be monitored and evaluated. For her this is “a decisive issue that committees and programme commissions should be intensively preoccupied with – an issue that programme makers are also afflicted with from time to time.”

Unfortunately the educational potential in fictional entertainment is not used enough. Ruth Hieronymi in her defence to “protect the integrity and legitimate rights” of programme makers, attests that without a doubt it is their every intention to use education potential more in fictional entertainment, but it is a difficult task. To cope with this, other new and innovative ways have to be found to establish connections between programme makers, screenplay writers and those areas of reality that the broadcasters present to the general public through

“It is not easy to implement the changes deemed necessary by the Conference of the Chairpersons.”

fictional programmes. In this regard new media also plays a role and is not to be underestimated, because the traditional communications tools and collaboration structures are no longer sufficient. Having said this, Ruth Hieronymi cautions: “New media are a necessary addition, but not a replacement for traditional forms of mass communication

for the foreseeable future!” This is also the rationale behind the dedication to public law in the area of tele-media.

Ruth Hieronymi’s answer to the question of whether in the systematic implementation of entertainment education strategies, she sees a possibility of highlighting the public value of entertainment, is an unequivocal “yes”. Her answer is also in the affirmative on whether opportunities would arise from this of winning over a youthful audience and of reaching echelons of society that are far removed from education.

In this regard she refers to the broadcasting corporations rbb, SWR and WDR. In view of public value and quality television these broadcasting corporations introduced quality control, which led to very distinct results. Within a framework of this multiple-step controlling process, internal and external experts, as well as ordinary television viewers, are invited to examine the programmes critically.

Panels made up of approximately 100 viewers are selected as representative of the viewer, at times target group specific, and they evaluate programmes directly after they have been broadcast based on a predetermined list of criteria. This can lead to valuable insights, be it a shift in concentration and interest related to the type of visual structuring or the type of presentation of certain formats. After appropriate analysis and subsequent optimisation of even already existing formats, it has been demonstrably proven that coverage and acceptance has increased, which is indicative of the practicality of these approaches.

Over and above this, the results reveal that whether young people show an interest in certain topics presented by broadcasters regulated by public law to a large extent hinges on the type of presentation. Ruth Hieronymi says there is definitely a good chance of winning back young people to television regulated by public law, if their attitude to life is taken into account in how content is presented. She regards this as an achievable challenge for authors and programme makers.

She sees the biggest need for development in the field of impact research. In the opinion of Ruth Hieronymi, questions of “How will something be received?”, “What do we need to do to reach young people?” or “What effect do some topics have and what are their side effects?” can be adequately answered by neither programme makers nor by screenplay authors. In her view it is here that science is challenged to make a long overdue contribution.

For Ruth Hieronymi, the fact that German MINT culture and non-stereotypical role models find hardly any representation worth mentioning in fictional television, even though their strong social relevance is beyond debate, has been lamented over for decades. According to her, the shortfalls in these two areas are becoming increasingly exacerbated and are adding up in the effect they are having. A countermeasure that makes sense to her is creating a greater awareness of the problem, as it has been done in a commendable manner via the MINTiFF Conference.

As a broadcasting councillor, Ruth Hieronymi says she wants to support efforts in this direction on an ongoing basis. With the help of broadcasting

councils, she is offering outright support to bring the discussion necessary for this to more committees of broadcasting corporations regulated by public law.

Many of the goals of the existing programme guidelines of broadcasting corporations, on which the broadcasting boards give advice, coincide with the goals of MINTiFF. For this reason, the analyses and proposals which have emerged from the MINTiFF Conference are an important contribution to providing a broader basis for the guidelines and objectives of broadcasting regulated by public law and to support their effectiveness in society.

Prompting Challenge and Reflection – ORF and Public Value

The Austrian national public service broadcaster ORF has been running its own public value Competence Centre in Vienna since 2007. It was established, among other reasons, in response to the BBC report “Building Public Value: Renewing the BBC for a Digital World” and the subsequent open dialogue on media policy in Europe, which for the first time addressed the relationship between broadcasters regulated by public law and society. Ever since, the ORF Public Value Competence Centre has also been asking the question: What does a broadcaster regulated by public law have to do with societal needs and what makes ORF a meaningful societal institution?

“Entertainment that takes a stand” is the catchphrase that defines the topic of Klaus Unterberger’s talk. He bases this catchphrase on an excerpt from the ORF film “Die Mutprobe” (“Test of Courage”), a co-production with German public broadcaster WDR. It “treats an exceptionally difficult topic fictionally for a wider audience” and in so doing, makes public value discernible; in other words a media relations exercise oriented towards the common good.

Of fundamental importance to Klaus Unterberger is whether one should be talking about public value at all: Fundamentally, entertainment can be regarded as neither non-political, nor purely a pastime, or of lesser significance than news broadcasts per se. “Entertainment is decisive in the construction of allegories, world views and identities and our realm of experience. Entertainment on television is also a cultural asset for regional and cultural identity.”

For this reason it goes without saying that entertainment ranks among the requirement specifications of communications regulated by public law and must not be dealt with in a way that prioritises it as a commercial medium. To communicate this fact publicly in a successful manner would be a considerable task even for the broadcasters themselves,

since society is not made aware of this on a obligatory basis.

When it comes to entertainment, it is particularly the formats closely associated with commercial business models, the “silly and vulgar,” that have not died out. It is therefore a question of the significance of media quality for the common good. In this context, public value is the final line of resistance, a Renaissance among society.

Concurrent with the media crisis, what is becoming momentous according to Klaus Unterberger is public value: “In other words, media offers that are valuable and beneficial to society are achievable and producible and should not be a playground for a new Europe-wide regulation bureaucracy in the interests of protecting markets. The competency of media professionals themselves is a decisive prerequisite of their work, as are resources, opportunities and scope for development.”

Klaus Unterberger therefore defines public value as “the fervent reminder that creative spirit and media quality orientated towards the common good will not come about through the surveyor’s office or the prospect of returns, but by virtue of the competency of those that practise it with creative loyalty.”



Dr. Klaus Unterberger is Head of the ORF Public Value Competence Centre in Vienna. In this capacity he is responsible for quality control measures, as well as external and internal communications on issues pertaining to competencies under public law.

This should not only be to the benefit of the viewer but to society as a whole.

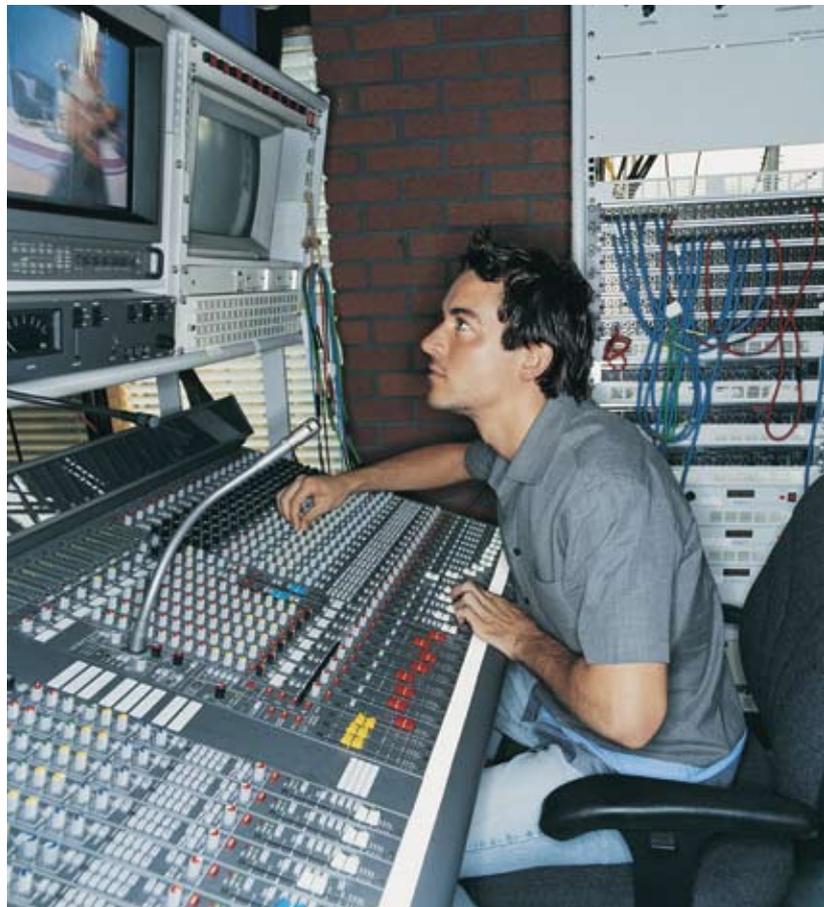
ORF's organisational Declaration of Commitment to Quality Control comprises a whole range of concrete contents and service categories in connection with media work for the common good. For example: variety, orientation, integration, citizen-driven, cultural brief and value creation.

To show in concrete terms how ORF fulfils its contract under public law regulations, ORF has been issuing an extensive annual report with the title "Value versus Fee" since 2009, which is subdivided into five sections on quality and 18 services categories, gives information on programme content and also documents the "Value and purpose" of ORF's programme offer. This report is also available online (at: <http://zukunft.orf.at>) and is hence available to the general public and experts alike.

What is particularly important to Klaus Unterberger here are the competencies of decision-makers, because "Public value is not some kind of decree, philosophy, embellishment or marketing trick. We want to put the focus on the competencies of ORF's staff in a very conscious move." The ORF website zukunft.orf.at showcases a whole range of staff from all sectors of the broadcaster. They get the opportunity to take a stance on the original quality of their work and in so doing address the issues that distinguish ORF from commercial broadcasters.

Examples of programmes aimed at explaining are also presented. According to Klaus Unterberger, this is about socially relevant content like documentaries, entertainment programmes, youth broadcasts, as well as about formats in which Austrian history and identity can be treated fictionally and communicated to a wide audience. Excellent examples of public value are Austrian films, for example, and the children's programme produced in-house, not to mention cultural programmes such as "faust. geballt" – a live pre-event to the stage production of historic playwright Goethe's Faust – or broadcasts with cultural relevance.

The spectrum of information is further enhanced on the ORF website zukunft.orf.at, which via "figures, dates and facts" documents the whole ambit of ORF's media offer on television, radio and online.



Forming part of this are its own film series devoted exclusively to European films, charity drives in the area of humanitarian broadcasting, and ORF's special topics, which address relevant social challenges in the form of information and entertainment.

When it comes to transparency, what is important to Klaus Unterberger over and above this is the informational content of the category "Science and Expertise". Here relevant principles and information are presented, such as guidelines on the protection of the youth or ORF's organisational Declarations of Commitment.

Various documentary videos with interviews on ORF topics will include open dialogue to coincide with "agenda setting under public law" so as to show "that perspectives are open to development and that open dialogue with society is being sought."

Last but not least, the focus is also on giving fictional productions an intrinsic "Austrian value",

which Klaus Unterberger regards as a crucial element defining quality and an important point when it comes to loyalty. “If our productions were geared towards purely commercial considerations, we would no longer be able to afford our own Austrian productions. The fact that we are still doing it is part of our Declaration of Commitment.”

Since collaboration with the Austrian film industry is of great importance, especially in respect to public value, ORF annually spends 95 million Euros on this. Evidence of the success of this collaboration can be seen in successful Austrian productions for the big screen, as well as in discerning television productions such as „Der Aufschneider“ (The Show-Off), which is a spoof of the American medical series “Dr. House” with Josef Hader playing the role of a quirky pathologist.

For Unterberger, institutions regulated by public law have to argue the plausibility of public value as the characteristic that distinguishes them from commercial media. The objective is “ultimately making available to those who finance the work of ORF, in other words those paying the fees, convincing reasons to make possible media work useful to society. Commercial business models will not replace the public mandate”.

Within the framework of ORF quality assurance further measures are pursued “to bring the creative spirit and critical reflections into the corporation.” Among these are discussions with the general public and experts, cooperations, symposiums and events. In the series “TEXTE - öffentlich-rechtliche Qualität im Diskurs” (TEXTS – open dialogue on quality under public law), as is the case in the “ORF DialogForum” (in ORF’s special interest channel TW1) experts hold discussions to make public value a subject for society. Developments announced by “ORF Qualitätsprofilen” (Quality Profiles) on the individual programme categories serve to clarify which criteria are to be applied in concrete terms to produce original quality regulated by public law.

Also with regard to the numerous critical reflection processes in public awareness, i.e. questions

pertaining to legitimacy and financing of the broadcaster regulated by public law, for Klaus Unterberger the lesson is clear: “Open dialogue pays off.”

Three statements summarise his answer to the question: “What can and should one do to bring together public value and entertainment?”

First: “Insistent resistance! The quality debate in the face of the media commercialisation offensive has to be conducted with one’s sights on the interests of the common good and last but not least with passion.”

Second: “Increase pressure and form quality alliances to draw attention to the value of media away from speculative and noticeable levelling.”

And third: “Take the bull by the horns and ‘sharpen the senses’ for what is possible; freely quoting

Austrian writer Robert Musil: “Think like a man of action and act like a man of thought.”

“Entertainment that takes a stand is a challenge for media regulated by public law. The question is: What will serve the interests of society?”

Equal opportunities as quality criteria – A social science perspective

Before she released the “First data report on the equality of men and women in the German Federal Republic” Waltraud Cornelißen was involved in the media research industry, where she dealt specifically with the role the media plays in social change processes and transformation in gender relations.

Relations between men and women in society within the scope of “Real Life” is what Waltraud Cornelißen is currently devoting her attention to. It is from this vantage point that she draws a comparison with gender relations as shown on television.

Starting with the question: “What indicators are used within the scope of Real Life to address gender inequalities?” Waltraud Cornelißen points out that in her opinion “sex counting”, i.e. purely counting gender constellations, is not the answer. It is, however, a first step in examining how the media presents men and women. Knowledge of the ratios in which men and women are shown on television can be valuable for making a “diagnosis,” but is not the “approach that should be taken to remedy it.” In the final analysis, to know how one can improve

equality in what media offer, you have to examine the complex processes on how these media offers are received.

Social reporting offers a catalogue of criteria for equality within society, which is being fine tuned on a regular basis. The factors critically examined include educational qualifications and successes, specific gender-based segregation in educational processes, labour force participation in the area of gainful employment, and horizontal and vertical gender segregation.

Data checks done at various career points determine early dream careers young girls and boys aspire to, advanced course choices, education and training choices, the desire to study, job training, study quotas and choice of subjects enrolled for. These reveal that the technical sector is seldom frequented by young girls and women. In a survey conducted in 2001, young girls in grades 4 to 7 were asked: “What career can you see yourself in?” The answer that came up the most was “doctor, teacher and social worker” while the preferences of young boys were “police, military and football professional.” Waltraud Cornelißen is convinced that the media plays a decisive role in such gender specific dreams for the future.

The latest report on the status of women in Austria, “Österreichischen Frauenbericht 2010,” shows in an analysis of study qualifications that young women and men in Austria determine their choice of career in a very gender-specific orientation. Even though 55% of graduates in Austria are female, they represent only 20% of the technical sector. An analysis of the gainful employment sector comes up with a similar result: Even though, for example, in 2008 45% of scientists in Austria were female, women only represented 12% of the physics, mathematics and science sectors. For Waltraud Cornelißen this is indicative of a strong need to reverse the situation in this sector and she surmises that: “The media can become instrumental in opening prospects for women.”

In general the number of female academic graduates has strongly increased in the past few decades. These women are also noticeably more prominent in the job market than 20 years ago. In academic professions the number of women



Private Lecturer **Dr. Waltraud Cornelißen** has been the Head of Research on Politics, Media and Society at the Institute on Women and Society in Hanover since 1987; since 2007 Head of the Research Group Gender and Life Planning; and since 2009 a scientific advisor in the Family and Family Policy Department of the German Youth Institute, a registered organisation.



increased by 84 % from 1991 to 2008, while job losses occurred in sectors with lesser qualifications, with men being affected more seriously than women. According to Waltraud Cornelißen the media should take this transformation into account with a commensurate presence of these women in the media. Despite this increased proportion of academics, in reality women are still underrepresented in management positions. Taking the 50 most prominent DAX companies in Europe as an example, German women make up 13% in this regard, hence only ranking midfield. Norway with a corresponding female proportion of 43% shows that things can be different. In Norway this was achieved with a quota system. However, for the restoration of more comprehensive equal opportunities, the media image is not unimportant. Ultimately its effect is an end-result in which there is interplay between the media's presentation of gender and the experiences of the individual, as well as reader, listener and viewer habits.

Waltraud Cornelißen concludes from this that it is not sufficient to examine the gender proportion

in media representations. In her opinion media research has to get to the bottom of the complex interplay between real and media experiences. This will allow her to determine how media trends can play a supporting role or become an obstacle.

For her the current situation is characterised by persistence of old perceptions and change at the same time. Although children will often replicate traditional gender specific roles and professional life is still permeated by horizontal and vertical gender

segregation, when it comes to education girls and young women are moving forward. There are many factors that have brought about this discrepancy. Media image has to be one of these factors.

“The trend towards greater participation of men and women in all walks of life is still reflected in a very incomplete manner by the media.”

Waltraud Cornelißen is convinced that bringing more computer scientists onto the television screen will not serve much of a purpose, as these would not necessarily become role models. “The unbiased integration of such images cannot be counted on. That is to say images and stories are mediated by one's own experiences and attitudes. Whether characters are accepted as role models is the decisive factor.

Therefore the context and characterisation of these people in fictional broadcasts and in the storylines and talks broadcast is of great importance. Even the ending of stories can be decisive in determining whether television characters can be accepted as role models.

The United Nations' "International Women's Year" in 1975 marked the launch of gender research. With it came the first study on the image of women on television. Way back then it was already obvious: The more serious the line of business, the less frequently women would appear as actors in society. In short: "Men act. Women make an appearance on the scene." Well into the nineties woman acted in main roles less frequently in fictional television formats and in other entertainment formats were integrated mostly as assistants, at best. In the daily soaps and advertising things were a little different, based on the concept that female consumers needed role models.

Waltraud Cornelißen is of the opinion that in fictional broadcasts there is a prevalence of hierarchical presentations of men and women in a stereotypical action framework, for example the frequent depiction of a boss with his secretary. Even though this tendency seems to have eased off somewhat today, what has "the media is still lagging behind the progress of the past 20 years." Therefore you will still frequently come across "stereotyping of the characterisation of men and women and their relationship with one another e.g. in the dominance of erotic and romantic relationships, even though in reality labour relations are gaining in impetus."

Even in talk shows a gender hierarchy can be identified among the guests if one examines factors such as allotted time to speak, interruptions, or the broaching of subjects that will bring female guests to the studio. "The scope within which female issues are dealt with is minimal, the way in which women may be affected by specific measures or political developments is hardly brought up as a topic. Maintaining gender equality when it comes to guests has to be upheld, and an egalitarian approach on playing level in game shows must be maintained."

Waltraud Cornelißen makes a case for a stronger female influence in the choices made when selecting points of view and topics: "More women should be working in many media positions, because the

way in which "those down there" are portrayed is more likely to be noticed by women than by men – and the way in which women and girls are portrayed is noticed by them in any event."

What is essential is a critical examination of how roles are divided and the behaviour of characters in fictional television formats. If women were to exert influence on equal terms to this end, they could make an important contribution to the conceptualisation of broadcasts as well – and last but not least also through female authors.

In conclusion Waltraud Cornelißen has a number of suggestions that in her opinion could have a positive effect on the creation of equal opportunity in society:

- Alongside the traditional social constellations show more atypical ones
- Present characters rich in variety
- Expose the problem of the subordination and marginalisation of competent female figures
- Less frequently allow for television characters that are atypical for their gender to be portrayed as people who are not personable, unsuccessful or unhappy
- Show men as movers and shakers less frequently
- Do not always portray fathers as silly, so as to spare them an active role as fathers, but also show them as being responsible parents
- It should be standard practice for women not to be portrayed in a one-sided manner and exclusively as objects of sexual pleasure!

Evaluating Quality of Fictional TV-Entertainment

A discussion with Uli Aselmann, Bettina Buchler, Peter Henning and Brigitta Manthey

Key to the disputes that arise regarding film and television is the concept of quality. However what is considered as high quality or inferior can be very different depending on the stance of those commenting on the subject. What are the criteria and dimensions of quality relevant for decision makers in the area of development, production and selection of fictional content? To what extent do aspects such as (unintentional) adverse reactions, responsibility to the community or generally the dissemination of relevant messages play a role?

For producer Uli Aselmann – who is also on the Award Committee as a member of the German Federal Film Board (FFA) – the fact that the films that this committee has funded so far have stood out



Uli Aselmann is an Executive Partner and a Producer with the company “die film GmbH” in Munich, Acting CEO of the Alliance of German Producers for Film & Television and a Member of the Executive Committee of the German Federal Film Fund, the FFA.

with a high viewership “while being thoroughly sophisticated at the same time” is a seal of approval for their quality. ‘Männerherzen’ (Hearts of Men), a film with “very comical aspects, which also has something to say from a content point of view and therefore has a lot of substance to it,” represents a successful example for him in this regard. He says a lot also hinges on the choice and quality of a screenplay and “on the vision that producers and

filmmakers bring to the table.” From his perspective, the issue of achieving something or transforming something takes a back seat when it comes to FFA decisions. In his capacity as producer, it is of paramount importance to Uli Aselmann to convey contemporary role models or relevant scientific and technological correlations to the viewer, because his

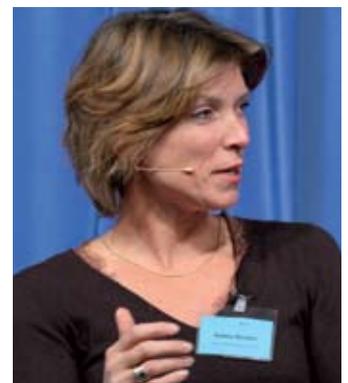
“When I started working as a producer I indeed thought I wanted to change the world with films. That was a very important idea for me... This has changed a little bit over time because a change of the world can happen very subtle too, I think.”

Uli Aselmann

films “always need a topic and there has to be a political aspect to them. They have to be suitable for the masses but should also convey something.” He states that discussions

with editorial teams on content and screenplay have become more difficult to “the market especially in the realm of television having becoming much narrower” due to constant cutbacks and to the way in which fictional productions are packaged.

Bettina Buchler also emphasises the fact that in her work content and the message that a film conveys are key dimensions. Important issues include: “What is the topic, what is its private and social relevance? Is the content plausible? Could it perhaps even be instrumental in opening doors to new worlds?” Films submitted by production houses or rental companies are given ratings by the German Film and Media Evaluation Board, the FBW, only if they are sophisticated in terms of content



Bettina Buchler is Director of the German Film and Media Evaluation Board, the FBW, which is the institution responsible for rating the outstanding films across the whole of Germany.

and the film style: “For argument’s sake, made well with a political message and if they break down viewpoints and opinions in a subtle manner.” When evaluation takes place, the quality of dramaturgical as well as technical aspects plays a key role (directing, lighting, camera, staging among others). The influence that the FBW juries exercise on films and topics that are deemed particularly relevant lies in

“The topic of a film, the question: how relevant is this topic for society or in private life is absolutely an essential criterion.”

Bettina Buchler

FBW’s media work and by collaborating with cinemas that are hosting the films which meet its approval and which it will “specifi-

cally recommend to create appeal among as large an audience as possible”.

Brigitta Manthey states that the goals MINTiFF – the mouthpiece on equal opportunities in fiction formats with regards to Mathematics, Information Technology, Natural Science and Technology – sets itself in representing especially Natural Science and Technology do not play a role per se when it comes to funding decisions by the Berlin-Brandenburg Media Board. Yet film content does exist that has been funded in which

STEM subjects such as molecular biology and nuclear physics played a role. She is of the opinion that ‘education’ is not necessarily a category suited to the big screen first and foremost. In principle a film can only convey content via the protagonist. The Media Board does not control the topics set, and within the context of funding decisions “the response is to the existence of creative potential.”



Brigitta Manthey is with the company Medienboard Berlin-Brandenburg GmbH, where her ambit of responsibilities includes content and project development, production funding, funding for children’s films and the editorial office.

However, this does not mean that the approach MINTiFF is taking should be excluded from discussions during future funding sessions, which would allow it to enter into the equation when it comes to decision making.

For Peter Henning criteria such as whether a script is “well written and has good language usage” play a key role in his work on the jury of the German Screenplay Prize in which exclusively authors are represented and honoured. For him, in general any jury system poses the problem of its “decision-making process being very individualistic.” More often than not, a prior discussion on what criteria are to be applied does not take place, which is why content is rejected because, for instance, the responsible editor has no idea of how to tackle a “science” topic. As far as Peter Henning is concerned, programme decisions at stations have become abstract – they are no longer open

to scrutiny by a “discursive approach,” which would to a large extent be free from the personal sensitivities of the decision makers. He makes a plea for broadcasters regulated by public law and financed by the community to be taken to task. He believes this will force such broadcasters to acknowledge that they have a responsibility to public value, and for example use “a small percentage” of the fees to once again boost innovation and to set trends which young people of today can relate to. It is increasingly the young people who are spending far less



Prof. Peter Henning is a director, author, cameraman and Professor of Screenplay/Dramaturgy at the HFF Potsdam Academy for Film and Television, as well as a member of the jury for the German Screenplay Prize and on the Executive Committee of the Association of German Screenplay authors, the VDD.

“Basically, what kind of content you ever wish or imagine for a film, can only be transported through the protagonists.”

Brigitta Manthey

time frequenting the broadcasters regulated by public law.

In view of the budget for fictional programmes having been driven back, it is obvious that some

“I am beginning to get the feeling that in this whole discussion about ratings taking place at the moment, the criteria of social significance and cultural relevance are falling by the wayside and we are not even aware of it. The reason is that ratings have become the exclusive decision-making criteria, that we tend to go by the notion: “If plenty people are watching, there cannot possibly be anything wrong with it.””

Peter Henning

thought has to be given to finding alternative forms of finance. For Peter Henning it would be highly conceivable to set up some form of “topic fund” within the framework of “Public Private Partnerships”, thereby achieving productions based on a clear-cut set

of criteria that are tied to the public value concept. He considers the “Cause Entertainment” initiative that was introduced within the framework of the MINTiFF Conference a good example.

(STEM) Entertainment Education: Challenges and Responsibilities for Science and the Universities

In conversation with Marion Esch and Thomas Gazlig

Much change has come about since “Science in Dialogue” – Germany’s biggest ever initiative in science communication – took place in 1999. Alongside the German concepts of “Long Science Nights” with science centres staying open until late at night for the benefit of the general public and so-called “Years of Science”, a whole variety of dialogue formats and publications have become available: Science rail trips and cruise ships that travel across Germany, science programmes increasingly making their appearance on television and on the internet, universities for children springing up in the large German cities, and special offers made available to school pupils as the target market. What new opportunities, challenges and responsibilities are emerging for universities and science organisations through the STEM Entertainment Education approach?

To explore the potential of fictional television entertainment and advertising for up-and-coming candidates for STEM professions has also been

“We could find endless suitable content. Everything hinges on the creativity of the filmmakers making a good story from it.”

Thomas Gazlig

Marion Esch’s drive within the framework of the MINTiFF initiative (which looks to establishing equal opportunities

in fiction formats with regards to Mathematics, Information Technology, Natural Science and Technology). This led her to the realisation that with existing formats in this area one is only addressing those that are already interested in the topics concerned. “It had not been possible to reach the 70

per cent of young women, which according to the results of the survey put forward to young people, were saying “no” to STEM. They were saying “no” despite their own admission that they knew hardly anything about STEM.

“Why do young people think that it is not at all hip to be scientifically-technically capable? Why does this make a woman unattractive? Deep-seated notions are at the core of such questions and surely with the existing science communication formats these are not easily corrected.”

Marion Esch

The large target audience reached by big feature films and series makes it possible to reach extensive population groups – even the levels of society far removed from education – which have up until now

only been reached very unsatisfactorily with the existing “Science in Dialogue” formats.

Based on the large target audience reached by feature films, these together with series can there-



Dr. Marion Esch (Prof.) studied Media Science, Politics and Paedagogy at the Technical University of Berlin. As visiting professor she has been heading the MINTiFF project at the Institute for Machine Tools and Factory Operation and Automation since 2007.

fore promote on a broad basis the cultural values attached to STEM professions. They would also be able to promote the acceptance of women in gender untypical STEM professions. This acceptance is not only an important prerequisite to allowing young women to place greater trust in their proven talents, but also to engendering acceptance among parents, grandparents and teachers.

The results of the survey confirm that not only young people but also filmmakers know very little about the world of STEM professions and developments in the competencies of science and technology.

“If you look around you it is entirely acceptable to be a complete idiot when it comes to science. This is one of the reasons for a shortage of up-and-coming science professionals.”

Thomas Gazlig

For this reason Marion Esch is making a strong stand in promulgating the idea that not only journalists but also filmmakers constitute a

new target group in the context of “Science in Dialogue”. She recommends that new dialogue formats should be explored that will appeal to specific information interests and address the need for advice in this industry.



Thomas Gazlig's graduate studies include biology with the focus on biochemistry, biotechnology and genetics in Braunschweig, journalism in Hanover and business economics in St. Gallen. He has been Head of Media Communications at the Helmholtz Association of German Research Centres in Berlin since 2004.

Thomas Gazlig is firmly of the opinion that science, among other topics, is definitely present in society thanks to the measures initiated by “Science in Dialogue”. However this is not enough for him because: “If you look around you it is entirely acceptable to be a complete idiot when it comes to science. This is one of the reasons for a shortage of up-and-coming science professionals.”

“While a whole variety of educational and further education formats can be found for science journalism, similar offers are missing notably when it comes to the fictional realm.”

Marion Esch

For Thomas Gazlig there is therefore a huge opportunity to convey the worth of science and technology for society in a meaningful way in fictional formats. Since it has been established that fictional formats affect the career choices of young people these kinds of formats are an important tool. These should also be applied by scientific organisations in a meaningful manner. Even if it means getting rid of the reservations that currently exist on both sides because the scientific community and the film and television industry know very little about one another. “Cultural barriers” tend to exist on the part of science when it comes to anything that is all too popular and entertaining. That kind of fear of contact can however be mitigated – for example via the background and goals of MINTiFF – from which a “90 per cent” support and collaboration basis could emerge. Additionally some scientists definitely find it appealing that they could potentially have an effect on audiences of millions of people by collaborating with filmmakers – a positive aspect when it comes to viewer figures. Both Marion Esch and Thomas Gazlig state that the openness of the science community has noticeably increased

“We need to talk about criteria, self-image and public value more and put up a bigger struggle for these. What we have noticed in many instances is that decisions that broadcasters make come into being based on ideologies – also with regard to public preferences.”

Marion Esch

“I am strongly of the opinion that entertainment is one of the tools in television that will also work in the future – but not alone.”

Thomas Gazlig

and they believe a “cultural transformation” in this regard has taken place in the last ten years.

Scientists’ participation in the development of fictional content is not limited to the debate on suitable topics, according to Thomas Gazlig’s experience. It goes beyond this to discussions on what is doable accurately and realistically. It is a repetitive process in which creative and scientific minds pass one another balls until ultimately a solution is found, which satisfies both sides. “The product can neither be boring nor incorrect.”

Within the context of MINTiFF science events, science organisations are able to provide an insight into the great abundance and multitude of STEM research topics. The crucial effect this can have is that not only is attention drawn to science per se, but at the same time also to the fascination of the scientist, who is then perceived to be quite normal. In this regard Marion Esch points out another interaction between science and fiction, that fiction can also inspire research and has already proven to have done so – for instance in the case of technical achievements that had already been portrayed in ‘Star Trek’.

For Thomas Gazlig it is clear that it will take a number of different communications measures for science to become a crucial social element of public awareness on a permanent basis. In this regard, MINTiFF is a building block among others, albeit a crucial one and he is firmly of the conviction that “entertainment in television is one of the instruments that will also work in future – even if not alone.”

Alongside science organisations outside of universities, technical universities also play an important role. Marion Esch regards it as crucial to break down the “dichotomy between culture and technology” that is the norm through the separation of cultural and technical sciences at the universities. It has to be possible to perceive science as a cultural asset instead of only ascribing to culture that which is narrowly associated with advanced civilisation and

with high culture. She believes it is responsibility of the technical universities to sensitise its students “to develop an understanding of the other world in their personal logic and open themselves up to dialogue” and hence also establish contact with film and television schools – as is already the case in the United States.

Marion Esch states that there is a great backlog when it comes to research. While in social-scientific media research there exist numerous studies on topics like “news value” and “newsworthiness”, there is a complete lack of corresponding analyses of “entertainment value” and “entertainment worthiness” when it comes to fiction. In the ongoing quality and public value debate the fictional programme realm is largely omitted. Also within the stations themselves, measures for quality assurance and criteria setting are primarily applied to journalistic and information formats, but hardly if at all within the realm of fictional entertainment. It is against this background that Marion Esch strives – in the interests of the sustainable implementation of STEM entertainment education strategies – to develop learning formats that not only bring together students of cultural science, the arts and engineering, but also to intensify research in this area and likewise “make the methodical tool that quality science is, fruitful for the creative field.”

Marion Esch says what

would be desirable over and above this is more support and greater openness on the part of German technology foundations toward this sphere of activity, with whose help a “cultural transformation” that is imperative must be brought about. An excellent example of this is the commitment the Sloan Foundation delivers in the United States, as described in Doron Weber’s talk. Thomas Gazlig also emphasises that “Projects like MINTiFF must have a long staying power” and it would therefore be tragic not to promote such successful measures for the long term.

“The familiar forms of science communication have only allowed us to reach those already interested and not the 70% who say “no” to STEM, even though they have in reality never been in close contact with this area and know nothing about it.”

Marion Esch

Literature

- ALM (2010): Programmbericht Fernsehen in Deutschland 2009. Arbeitsgemeinschaft der Landesmedienanstalten in der Bundesrepublik Deutschland (ALM) (Ed.), Berlin
- BANDURA, A. (2004): Social Cognitive Theory for Personal and Social Change by Enabling Media. In: SINGHAL, A., CODY, M. J., ROGERS, E. M. & SABIDO, M. (Eds.): Entertainment-Education and Social Change. History, Research, and Practice. Mahwah/New Jersey
- BAUER, F. (2009): Nicht viel Neues in Küche und Kinderzimmer – zur Beharrlichkeit der traditionellen geschlechtsspezifischen Zeitverwendung in Deutschland und Großbritannien. In: HEITKÖTTER, M., JURCZYK, K., LANGE, A. & MEIER-GRÄWE, U. (Hrsg.), Zeit für Beziehungen? Zeit und Zeitpolitik für Familien, 235–257, Opladen
- BECKER, H. & BECKER, W. (1999): Die Darstellung von Frauen und die Behandlung von Frauenfragen im Fernsehen – Eine wissenschaftliche Untersuchung im Auftrag des Bundesministeriums für Familie, Senioren, Frauen und Jugend – Zusammenfassender Abschlussbericht. In: BUNDESMINISTERIUM FÜR FAMILIE, SENIOREN, FRAUEN UND JUGEND (Ed.), Osnabrück
- BECKER H. & BECKER, W. (2001): Die Darstellung von Frauen und die Behandlung von Frauenfragen im Fernsehen. Materialien zur Gleichstellungspolitik des BMFSFJ. Bonn
- BEM, L. S. (1993): Gender Polarization. In: BEM, L. S. (ed.): The Lenses of Gender. Transforming the Debate on Sexual Inequality. New Haven. London
- BERTHOUD, M. (2008): Wie das ZDF gegen das Altern seines Publikums angeht. Unvollständige Anmerkungen zu einem Grundsatzproblem der Programmarbeit. Vortrag gehalten bei der Veranstaltung „Fernsehen verjüngen“ am 13. März 2008 im RBB, Berlin
- BEULLENS, K. (2005): Uni Löwen 2005, [Online] URL: <http://www.3sat.de/3sat.php?http://www.3sat.de/nano/news/69803/index.html> (10.06.2007)
- BOLZ, P. (2004): Mädchen und junge Frauen im Berufsfindungsprozess. In: DEZERNAT FÜR SOZIALES UND JUGEND (Ed.), Reihe Soziales und Jugend. Frankfurt am Main
- BREUSING, C. (1999): Programmqualität im Fernsehen. In: MEDIA PERSPEKTIVEN 3/99, 94–110, Berlin
- BUNDESMINISTERIUM FÜR FAMILIE, SENIOREN, FRAUEN UND JUGEND (2008): Dokumentation der Tagung „Eigenverantwortung, Private und Öffentliche Solidarität – Rollenleitbilder im Familien- und Sozialrecht im Europäischen Vergleich“: 4.–6.10.2007, Villa Vigoni, Como. Italien. Forschungsreihe Bd. 3. Baden-Baden
- BUNDESMINISTERIUM FÜR FAMILIE, SENIOREN, FRAUEN UND JUGEND (2009): Rollenleitbilder und Realitäten in Europa: Rechtliche, ökonomische und kulturelle Dimensionen Forschungsreihe Bd. 8. Baden-Baden
- CONGRESSIONAL COMMISSION ON THE ADVANCEMENT OF WOMEN AND MINORITIES IN SCIENCE, E. A. T. D. (2000): Land of Plenty. Diversity as America's Competitive Edge in Science, Engineering and Technology. In: CONGRESSIONAL COMMISSION ON THE ADVANCEMENT OF WOMEN AND MINORITIES IN SCIENCE, E. A. T. D. (Ed.). Los Angeles
- CORNELIBEN, W. (1998): Fernsehgebrauch und Geschlecht. Wiesbaden/Opladen
- DEUTSCHE TELEKOM STIFTUNG/ BUNDESVERBAND DER DEUTSCHEN INDUSTRIE E. V. (BDI) (2009): Innovationsindikator Deutschland 2009. Ergebnisse einer Studie des DIW Berlin. Berlin
- DOSTAL, W. & TROLL, L. (2005): Die Berufswelt im Fernsehen. Beitrag zur Arbeitsmarkt- und Berufsforschung. Nürnberg
- ESCH, M. & J. HERRMANN (Hrsg.) (2008): Qualität durch Chancengleichheit. Gleichstellung als strategischer Faktor im Qualitätsmanagement technischer Universitäten. Bielefeld
- FLICKER, E. (2003): Between Brains and Breasts – Women Scientists in Fiction Film: On the Marginalization and Sexualization of Scientific Competence. *Public understanding of science*, 12, 307–318
- FLICKER, E. (2005): Representation of Women Scientists in Feature Films: 1929 to 2003. *Office of Science & Technology, Bridges*, 5, k.A.
- GEHRAU, V. (2011): Es fehlt Ausgeglichenheit. Interview der Pressestelle der Universität Münster, [Online-Dokument] URL: <http://www.uni-muenster.de/Rektorat/muz/2011/1-70.html> (11.02.2011)
- GÖTZ, M. H. (2002): Alles Seifenblasen? Die Bedeutung von Daily Soaps im Alltag von Kindern und Jugendlichen. München
- DREVES, D. (2002): Die Darstellung des Privatlebens von Kommissarinnen und Kommissaren im deutschen Fernsehkrimi von 1970 bis heute. Unveröffentlichte Magisterarbeit. Göttingen
- GRIFFIN, R. J., SEN, S. & PLOTKIN, R. (1994): Sex, Schemata, and Social Status: TV Character Identification and Occupational Aspirations among Adolescents. In: TURNER, L. H. (Ed.): Differences that make a difference: examining the assumptions in gender research. Westport
- HAFNER, Y., KÖNEKAMP, B. & KRAIS, B. (2006): Arbeitswelt in Bewegung – Chancengleichheit in technischen und naturwissenschaftlichen Berufen als Impuls für Unternehmen, [Online-Dokument] URL: http://www.ifs.tu-darmstadt.de/fileadmin/soziologie/chancen/arbeitswelt_in_bewegung.pdf (01.02.2011)
- HANNOVER, I. & BIRKENSTOCK, A. (2005): Familienbilder im Fernsehen. Familienbilder und Familienthemen in fiktionalen und nicht-fiktionalen Fernsehsendungen. Eine Studie im Auftrag des Grimme-Instituts, [Online-Dokument] URL: <http://www.bmfsfj.de/RedaktionBMFSFJ/Abteilung2/Pdf-Anlagen/tv-familienbilder.propertyp=pdf,bereich=bmfsfj,sprache=de,rwb=true.pdf> (01.02.2011)
- HARAN, J., CHIMBA M., REID, G. & KITZINGER, J. (2008): Screening Women in SET: How Women in Science, Engineering and Technology Are Represented in Films and on Television. Research Report Series for UKRC No. 3, Cardiff School of Journalism, Media and Cultural Studies. Cardiff
- HEINE, C., EGELN, J., KERST, C., MÜLLER, E. & PARK, S.-M. (2006): Bestimmungsgünde für die Wahl von ingenieur- und naturwissenschaftlichen Studiengängen. Ausgewählte Ergebnisse einer Schwerpunktstudie im Rahmen der Berichterstattung zur technologischen Leistungsfähigkeit Deutschlands. In: HIS GmbH (Ed.). Hannover/Mannheim, Hochschul-Informationssystem
- HEINE, C. & WILLICH, J. (2006): Informationsverhalten und Entscheidungsfindung bei der Studien- und Ausbildungswahl. Studienberechtigten 2005 ein halbes Jahr vor dem Erwerb der Hochschulreife. In: HOCHSCHULE, H. F. (Ed.). Hannover
- HOLLIMAN, R., WHITELEGG, E., ALLGAIER, J., HODGSON B. & SCANLON, E. (2006): Invisible Witnesses? – Representations of Women Scientists, Engineers and Technologists on UK Terrestrial Television. Centre for Research in Education and Educational Technology, The Open University, UK, [Online-Dokument] URL: <http://www.setwomenresource.org.uk/en/node/6797> (01.03.2007)
- IHSEN, S. (2010): Spurensuche! Entscheidungskriterien für Natur- bzw. Ingenieurwissenschaften und mögliche Ursachen für frühe Studienabbrüche von Frauen und Männern an den TU9-Universitäten. TUM Gender-und-Diversity-Studies, Band 1. München
- KAMMANN, U., JURKUHN, K. & WOLF, F. (2007): Im Spannungsfeld – Zur Qualitätsdiskussion öffentlich-rechtlicher Fernsehprogramme. In: FRIEDRICH-EBERT-STIFTUNG (ed.). Berlin
- KEUNEKE, S., GRAB, H. & RITZ-TIMME, S. (2010): „CSI-Effekt“ in der deutschen Rechtsmedizin. Einflüsse des Fernsehens auf die berufliche Orientierung Jugendlicher. *Rechtsmedizin*, 20, 400–406
- KIRBY, D. A. (2011): Lab Coats in Hollywood: Scientists Impact on Cinema, Cinema's Impact on Science and Technology. Cambridge
- KITZINGER, J., BOYCE, CHIMBA & HARAN (2007): Annotated Bibliography on representing women in SET. IN SET, U. R. C. F. W. I. (Ed.)
- KLAUS, E. u.a. (2001): Kommunikationswissenschaft und Gender Studies. S. 118 f., Wiesbaden
- KLAUS, E. (2004): Aufstand im Männerkloster – Stillstand in der Liturgie: Frauen in den Nachrichten. In: Ministerium für Gesundheit, Frauen und Familie des Landes Nordrhein-Westfalen (Ed.): Frauenbilder. Reader zu den landesweiten Aktionswochen der kommunalen Gleichstellungsbeauftragten 2005. Düsseldorf
- KLAUS, E. & KASSEL, S. (2005): Studie für den Publikumsrat 2004. Zur Wahrnehmung von männlichen und weiblichen Rollenbildern in den ORF-Unterhaltungsserien und deren Identifikationspotentiale aus der Sicht der ZuschauerInnen. In: ORF (Ed.): ORF Markt- und Medienforschung. Universität Salzburg Kommunikationswissenschaften, Salzburg
- KRAIS, B. (2008): Berufliche Chancen für Frauen in der Wirtschaft – für Naturwissenschaftlerinnen und Ingenieurinnen kein Problem?

- In: ESCH, M., HERRMANN, J.: Qualität durch Chancengleichheit. Gleichstellung als strategischer Faktor im Qualitätsmanagement technischer Universitäten. Bielefeld
- KRAIS, B. (2006) (zusammen mit HAFFNER, Y. und KÖNEKAMP, B.): Arbeitswelt in Bewegung. Chancengleichheit in technischen und naturwissenschaftlichen Berufen als Impuls für Unternehmen. Bundesministerium für Bildung und Forschung. Bonn, Berlin
- KREWERTH, A., ULRICH, J. G. & EBERHARD, V. (2004): Der Einfluss von Berufsbezeichnungen auf die Berufswahl: Zentrale Ergebnisse, offene Fragen und Ziele zukünftiger Forschung. In: KREWERTH, A., TSCHÖPE, T., ULRICH, J. G. & WITZKI, A. H. (Eds.): Berufsbezeichnungen und ihr Einfluss auf die Berufswahl von Jugendlichen. Theoretische Überlegungen und empirische Ergebnisse. Bundesinstitut für Berufsbildung, Bonn
- LUHMANN, N. (1996): Die Realität der Massenmedien. Opladen
- MANGOLD, M. & ÜSTÜNSÖZ-BEURER (2006): TV-gestützte Lösungsansätze: Die Bedeutung des Fernsehens für die Berufsorientierung. Wirtschafts- und Berufserziehung, 17–20
- MAX-PLANCK-GESELLSCHAFT (2010): Der lange Abschied vom Ernährermodell. Pressemitteilung zum Forschungsprojekt „Was kommt nach dem Ernährermodell?“, [Online-Dokument] URL: http://www.mpg.de/610919/pressemitteilung20101220?filter_order=LT&research_topic=KG-SW (20.12.2010)
- NISBET, M. C., SCHEUFELE, D. A., SHANAHAN, J., MOY, P., BROSSARD, D. & LEWENSTEIN, B. V. (2002): Knowledge, Reservations, or Promise? A Media Effects Model for Public Perceptions of Science and Technology. *Communication Research*, 29, 584–608
- NISBET, M. C. & DUDO, A. (2011): Science, Entertainment, and Education: a Review of the Literature. [Online-Dokument] URL: http://www.scienceandentertainmentexchange.org/NisbetDudo_LiteratureReview_ScienceEntertainment_FINAL.pdf (10.06.2011)
- O'BRYANT, S. L. & CORDER-BOLZ, C. R. (1978): The Effects of Television on Children's Stereotyping of Women's Work Roles. *Journal of vocational Behavior*, 12, 233–244
- ORF Markt- und Medienforschung (2005): Zur Wahrnehmung von männlichen und weiblichen Rollenbildern in den ORF Unterhaltungsserien und deren Identifikationspotenziale aus Sicht der Zuschauerinnen. Studie für den Publikumsrat 2004. ORF (ed.), Wien
- POTTS, R. & MARTINEZ, I. (1994): Television Viewing and Children's Beliefs About Scientists. *Journal of applied developmental Psychology*, 15, 287–300.
- RENN, O. E. A. (2009): Nachwuchsbarometer Technikwissenschaften. In: ACATECH, V. (Ed.). Düsseldorf
- RODDE, I. (2011): Coole Powerfrauen und kämpfende Glucken, [Online-Dokument] URL: http://www.mediaculture-online.de/fileadmin/bibliothek/rodde_powerfrauen/rodde_powerfrauen.html (03.04.2011)
- RUHRMANN, G. & GÖRKE, A. (2003): Public communication between facts and fictions: on the construction of genetic risk. In: *Public Understanding of Science*, 12, 229–241
- SCHREINER, C. & SJØBERG, S. (2004): ROSE. The Relevance of Science Education. Sowing the seeds of rose. In: DEVELOPMENT, D. O. T. E. A. S. (ed.). University of Oslo. Oslo
- SEMTA (Sector Skills Council [SSC] for Science, Engineering and Manufacturing Technologies) (2005): Forensic science: Implications for Higher Education 2004, Sector Skills Council for Science, Engineering and Manufacturing, k.A.
- SICHTERMANN, B. & KAISER, A. (2005): Frauen sehen besser aus. Frauen und Fernsehen. München
- SICHTERMANN, B. (2009): Alles bleibt anders. Wir gestalten die Rollenbilder. In: Ministerium für Arbeit und Soziales Baden-Württemberg (Hrsg): Alles bleibt anders. Einsatz von Rollenbildern in den Medien. Dokumentation der Fachtagung am 26. November 2008, 11–21 Stuttgart, [Online-Dokument] URL: <http://www.sozialministerium-bw.de/fm7/1442/Dokumentation-Fachtagung-Alles-bleibt-anders.pdf> (10.06.2011)
- SINGHAL, A., CODY, M. J., ROGERS, E. M. & SABIDO, M. (2004): Entertainment-Education and Social Change. History, Research, and Practice. Mahwah/New Jersey
- SJØBERG, S. & SCHREINER, C. (2005): Young people and science. Attitudes, values and priorities. Evidence from the ROSE project. Keynote session 4: Fostering diversity, inclusiveness and equality in science. University of Oslo. Oslo
- SOLGA, H. & L. PFAHL (2009): Wer mehr Ingenieurinnen will, muss bessere Karrierechancen für Frauen in Technikberufen schaffen. In: *wzBrief Bildung*, 07/2009, 6 S., Berlin
- STATISTISCHES BUNDESAMT (2010) (Titel fehlt) [Online-Dokument] URL: <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Statistiken/Arbeitsmarkt/content75/BerufeMaennerFrauen.templateId=renderPrint.psm1> (10.05.2010)
- STEINKE, J. (1998): Connecting Theory and Practice: Women Scientist Role Models in Television Programming. *Journal of Broadcasting and Electronic Media*, 42, 142–151
- STEINKE, J. (2005): Reinforcing Cultural Representations of Gender and Science: Portrayals of Female Scientists and Engineers in Popular Films. *Science Communication*, 27, 27–63.
- STEUL, W. (2009): Einführung und Begrüßung. In: Ministerium für Arbeit und Soziales Baden-Württemberg (Hrsg): Alles bleibt anders. Einsatz von Rollenbildern in den Medien. Dokumentation der Fachtagung am 26. November 2008. S. 3–6, Stuttgart, [Online-Dokument] URL: <http://www.sozialministerium-bw.de/fm7/1442/Dokumentation-Fachtagung-Alles-bleibt-anders.pdf> (10.06.2011)
- VORDERER, P. & BRYANT, J. (2006): Playing Video Games. Motives, Responses, and Consequences. Mahwah/New Jersey
- WASBURN, M. H. (2004): Creating Positive Media Images of „Techy“ Women: A Proposal to Viacom
- WASBURN, M. H. (2007): Cultivating Greater Acceptance of Women in Technology: a Pilot Study. *International Journal of Information and Communication Technology Education*, 3, 22–35
- WEINGART, P. (2003): Von Menschenzüchtern, Weltbeherrschern und skrupellosen Genies – Das Bild der Wissenschaft im Spielfilm. In: IGLHAUT, S. & Spring, T. (Eds.): science + fiction. Zwischen Nanowelt und globaler Kultur. Berlin
- WEINGART, P. (2009): Katastrophenszenarien und Nulltoleranzdenken: Die Dramatisierung von wissenschaftlichen Risiken und deren gesellschaftliche Implikationen. In: WOLF, P. & HERDT, D. (Eds.): Global Warming. Ethische und technologische Perspektiven des Klimawandels. Leipzig
- WEINGART, P., ENGELS, A. & PANSEGRAU, P. (2007): Von der Hypothese zur Katastrophe. Der anthropogene Klimawandel im Diskurs zwischen Wissenschaft, Politik und Massenmedien. Opladen
- WEINGART, P. & PANSEGRAU, P. (2003): Introduction: perception and representation of science in literature and fiction film. *Public Understanding of Science*, 12, 227–228
- WEINGART, P., SALZMANN, C. & WÖRMANN, S. (2008): The social embedding of biomedicine: an analysis of German media debates 1995–2004. *Public Understanding of Science*, 17, 381–396
- WENGER, E. (2000): Wie im richtigen Fernsehen. Die Inszenierung der Geschlechter in der Fernsehfiktion. Hamburg
- WITTIG, S. (2006): Innovationsindikator Deutschland 2006. Deutsche Telekom Stiftung & Bundesverband der Deutschen Industrie e.V. (Hrsg.), [Online-Dokument] URL: http://ww2.bdi.eu/initiativen/innovationsindikator/Documents/innovationsindikator_studie_2006.pdf (10.06.2011)
- WOLBER, M. (2009): Beispiel Fernsehen: Starke Frauen als Markenartikel – Trends bei Geschlechterbildern im Fernsehen. In: Ministerium für Arbeit und Soziales Baden-Württemberg (Hrsg.): Alles bleibt anders. Einsatz von Rollenbildern in den Medien. Dokumentation der Fachtagung am 26. November 2008, 21–26, Stuttgart, [Online-Dokument] URL: <http://www.sozialministerium-bw.de/fm7/1442/Dokumentation-Fachtagung-Alles-bleibt-anders.pdf> (10.06.2011)
- WOMEN & WORK COMMISSION (2006): Shaping a Fairer Future. Presented to the Prime Minister by Baroness Prosser of Battersea. London, [Online-Dokument] URL: http://www.womenandequalityunit.gov.uk/publications/wwc_shaping_fairer_future06.pdf (10.06.2007)

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