

# All's Simple (Club)?

## Education and Learning in the Digital World

### Abstract

Young people use the potentials of digital media to learn outside of school, for example through explanatory videos and tutorials. The use of such YouTube videos has long since found its way into everyday school life. However, it is entirely unclear how the (educational) market for explanatory videos and tutorials currently presents itself, especially to pupils since it is no longer shaped solely by semi-professional and amateurishly created moving images. In this article, we present the first data and findings of a market analysis of school-related explanatory videos and tutorials with their communicative embedding, and of a survey of ca. 700 secondary school students regarding their usage and motivation gathered for the BMBF-funded project "Digital extracurricular learning and education-related action practices of young people". We present a scope of forms these videos can take, show how differently knowledge and education are valued and how the students' attention is increasingly treated as a good in business models.

### Zusammenfassung

Jugendliche nutzen die Potenziale digitaler Medien, um außerhalb der Schule zu lernen, zum Beispiel durch Erklärvideos und Tutorials. Der Einsatz solcher YouTube-Videos hat längst Einzug in den Schulalltag gehalten. Völlig unklar ist jedoch, wie sich der (Bildungs-) Markt für Erklärungsvideos und Tutorials derzeit insbesondere für Schülerinnen und Schüler gestaltet, da dieser nicht länger nur von semi-professionell und amateurhaft erstellten Videos geprägt ist. In diesem Beitrag stellen wir erste Daten und Ergebnisse einer Marktanalyse schulbezogener Erklärungsvideos und Tutorials mit ihrer kommunikativen Einbettung sowie einer Befragung von ca. 700 Schülern weiterführender Schulen zu deren Nutzung und Motivation vor, die im Rahmen des vom BMBF geförderten Projekts "Digitale außerschulische lern- und bildungsbezogene Handlungspraxen von Jugendlichen" erhoben wurden. Wir möchten einen Einblick in die Bandbreite der unterschiedlichen Formen der Videos ermöglichen, zeigen wie unterschiedlich Wissen und Bildung bewertet werden und die Aufmerksamkeit der Schülerinnen und Schüler zunehmend als 'Ware' in Geschäftsmodellen behandelt wird.

*Keywords:* Business model, explanatory videos und tutorials, using YouTube videos

## 1 Introduction

In a profoundly mediatised/digitised world, digital media have potential to open up a variety of accesses to educational resources and educational offerings beyond formal ones. Thus, the relation between formal and non-formal education is fundamentally redesigned and the educational system (possibly) loses its previously unique selling point of 'knowledge advantage'. Partisan strategies of digital sophists and educational nomads are radically changing framework conditions of the educational sector, as do the learning behaviour and acceptance of formalised educational processes. As the trend goes increasingly from book-based research towards the Internet, the genre of so-called explanatory videos and tutorials established itself in the participatory practical use of the online video platform YouTube since its foundation in 2005. Almost paradigmatically, aspects of a development provided with the hashtag 'digital education' become clear: First of all, the idea of the 'workers' radio' formulated by Bertolt Brecht in another media world seems to have become reality through (and with) content produced by users. Almost everyone can produce explanatory videos with relatively little effort and make them available to a worldwide community. Accompanied by an effective self-empowerment of the makers, some of whom subversively question the hegemony of the established educational system, this may indicate the end of the 'Gutenberg Galaxy', with its focus on book and text. In the spirit of Niesyto (2003), the orientation towards 'linear' text (which ultimately always connotes bourgeois education/high culture and thus excludes others) is replaced by an audiovisual sign system often based on symbolic worlds of youth culture. In addition, techniques of 'Web 2.0' enable almost direct communication between producers and recipients (see below). The range of topics on offer is now broad and covers all areas of life (from cooking tips to higher mathematics). In 2015, a representative survey by 'Digitalverband Bitkom Deutschland' showed the widespread use of explanatory videos and tutorials on the World Wide Web by stating that 37% of Internet users aged 14 and over have already viewed online tutorials (2015). Explanatory videos and tutorials on YouTube are not only popular in the context of leisure interests and hobbies, but also used as a free educational resource for schools, universities, vocational and further training (Rummler & Wolf, 2012). A Bitkom study from 2014 (p. 15) already indicated a spreading of the trend in searching for information and acquiring knowledge through digital audiovisual products towards children's and youth cultures. At this time, Internet usage of children and young people was characterised by reception of videos and films and by research for school work. Asking young people today where they carry out their research when looking for information or explanations, more and more answers point to not just Google and Wikipedia, but also YouTube (JIM 2017; JIM 2018). Thus, in digital information search and knowledge acquisition of young people, YouTube with its explanatory videos and tutorials has placed itself ahead of Wikipedia, Facebook and Twitter, just behind search engines such as Google. In addition, data from the JIM stu-

dies 2017 (p. 47) and 2018 (p. 52) show that more than 60% of surveyed young people aged 12–19 use YouTube to find information on topics of personal relevance. Despite of this normalisation, only overview (JIM 2017, p. 44, p. 53; Rat für kulturelle Bildung, 2019) and few small-scale studies exist (Rummler & Wolf, 2012; Valentin, 2018; Wolf, 2015a). So, the specific juvenile information-oriented and participatory practical usage in German-speaking countries widely represents a research desideratum – further data are missing on a large scale. On the international level, the focus is mainly on the use of explanatory videos by university students, design of effective videos (Feijóo-García & Gardner-McCune, 2019; Orús et al., 2016; Oujezdsky, 2014) and their institutionalised integration as in the “Flipped Classroom” model (Almurashi, 2016; Jackman & Roberts, 2014). Nevertheless, these studies showed 1) an improvement in students’ performance (Gawlik, 2009; Wells Barry & Spence, 2012), 2) an increase in self-organization skills (Garrett, 2016; Valls Martínez, Martínez-Victoria & Parra Oller, 2019) and 3) a higher motivation for the subject content to be taught. In general, audio-visual offerings were rather perceived as edutainment than lessons (Majgaard & Bertel, 2018; Moghavvemi et al., 2018). Further studies exist on characteristics of “professional” videos uploaded by lecturers at universities and explicitly marked as “education” on YouTube (Martinho, Pinto & Kuznetsova, 2012), also compared to “amateur videos” (Mogos & Trofin, 2015).

Explanatory videos and tutorials spread via YouTube and other channels have long since become an integral part of young people’s everyday lives and must be regarded and accepted as a widely established learning medium not only for pupils. Therefore, fundamental research is needed on the market for explanatory videos and tutorials currently available for young people, especially pupils.

## 2 Methodology

The joint project “Digital extracurricular learning and educational practices of young people”, “Digitale außerschulische lern- und bildungsbezogene Handlungspraxen von Jugendlichen [Dab-J]” of RWTH Aachen University and University of Bremen aims at empirically clarifying tension between formal, non-formal and informal education as a result of the digitisation/mediatisation of our world and society. Focus is on digital learning and educational practices of adolescents in dealing with explanatory videos and tutorials. In addition, content and learning-specific communication repertoires are examined, such as the use of forums or blogs to describe and analyse the diversity of digital media activities of young people in extracurricular learning. In three phases, interdisciplinary and closely interwoven subprojects holistically address the question of “how and what do young people study and learn about and with digital media outside of school?”. A mixed-methods approach allows for more reliable and more valid results and also broadens and deepens the insights into learning about and with digital media and its use by students. First, a market and media analysis is carried out on the

video platform YouTube (JIM, 2017, p. 42) in which videos of particular relevance to selected school subjects and extracurricular educational interests are identified, analysed and compared. A quantitative survey followed from late summer to the end of 2019. Using standardised questionnaires, ca. 1,000 pupils in years 9–11 at different secondary school types<sup>1)</sup> in the city state of Bremen and in the Aachen region – to represent various social spaces – are interviewed online. A qualitative survey is then carried out to obtain deeper insights for a reconstruction of learning and education related practices and media environment, repertoires of communication and collaborative networking among young people (see figure 1).

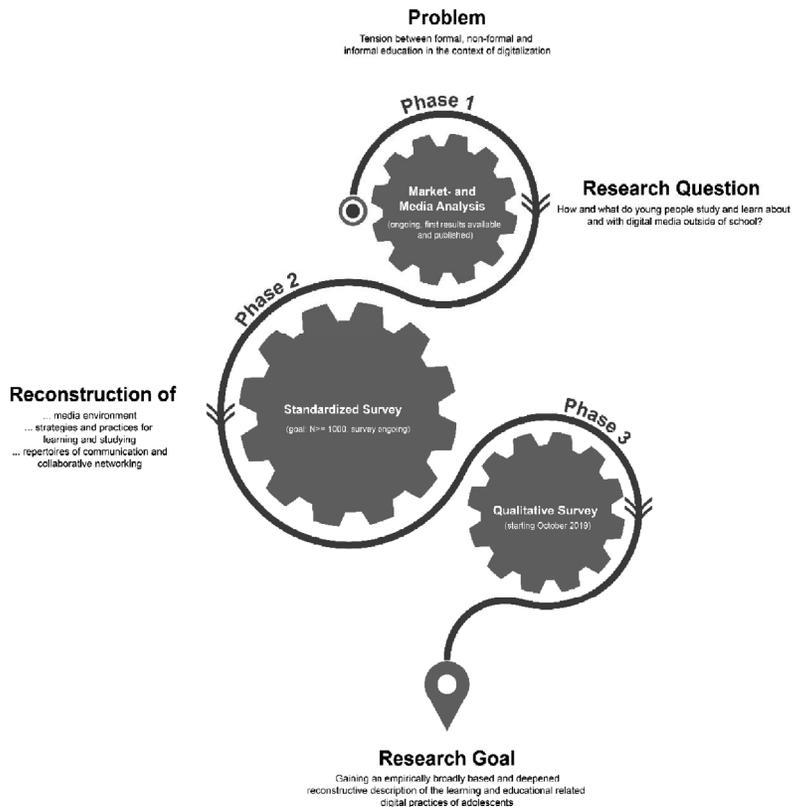


Figure 1: Research design

In spring 2019, the market analysis for school-related explanatory videos and tutorials was carried out. Explanatory videos are defined as self-produced films in which you explain how you do something, how it works or in which abstract concepts and connections are explained (Wolf, 2015b, p. 30). Here they are understood as a new, extre-

1) The tripartite structured school system in Germany offers three different types of secondary schools: Hauptschule, Realschule and Gymnasium (grammar school), there are also Gesamtschulen (comprehensive schools) combining the three types.

mely heterogeneous field of learning offers, whose use is closely linked to formal learning processes in schools and retroactively affects them.

The respective population corresponds to the set of all YouTube videos<sup>2)</sup>. Only German-language videos and their embedding (“Views”, “Likes” & “Dislikes”, video descriptions, comments and channel imprint) were considered.

For all subject<sup>3)</sup>, the core curricula of four federal states (with respect to the quantitative survey) were compared and cross-state teaching and learning contents were mapped out on the basis of subject-specific “central terms”. These terms were used as keywords in youtube.de’s search field to identify a sample of relevant explanatory videos and tutorials. The focus was on the top 20 videos generated by YouTube. Basically, “popular videos”, measured by “views” and “likes”, were chosen from this selection for in-depth analysis. To reconstruct a large variety of methods and designs for videos, as many different channels and videos from different producers as possible were included. Further videos included were the result of snowball sampling. For each subject, random samples of 20 videos were determined, which seemed to be relevant to topic and addressee. This corpus of 230 videos<sup>3)</sup> was then analysed by an inductive-deductive structured content analysis with a category system developed in advance by the research group. Subject of the analysis was not only the audiovisual, linguistic and didactic design of the videos themselves, but also their presentation (eg. preview, “blurb”), embedding in YouTube (e.g. “channel”), their networks (links to other videos or sites) and communication in comment fields following the video. This was done by determining the value (ranging from “yes/no”, to number values representing up to 30 “design choices”) of 155 sub-categories within five main categories (preview, embedding, video, links, advertising), for every video, doubly encoded to ensure inter-coder reliability.

### 3 First results

First of all, it became clear quickly that a large variance can be observed in the videos’ didactic organisation and media design. The spectrum ranges from amateur productions to semi-professional to technically complex and didactically outstanding videos. The designs of the videos range from target group-oriented comics to animés, animations and videos with toy figures up to presentations similar to frontal instruction (“talking head”) or realistic scenarios from lessons.

The variance in length ranges from short videos with durations of less than two minutes to half-hour productions or entire series with large numbers of sequential explanatory videos, embedded in specific YouTube channels. In principle, the analysis

2) The population cannot be reduced to the amount of all school-related tutorials and explanatory videos.

3) Subjects: German, mathematics, English, biology, chemistry, physics, geography, history, art, music. Special cases include sports, religion and computer science. In some federal states, sports and religion are compulsory subjects, in other states electives or special subjects. Since religion is usually taught on a denominational basis or, alternatively, philosophy is offered, it was not taken into account in the analysis. Sports was included in the analysis with a smaller number of cases. In contrast to the other school subjects with high key figures, computer science was included in the analysis due to current developments in educational policy.

showed that an informal, everyday communication style has established itself even in school-related explanatory videos (Wolf, 2015b). What is striking here is not only the general use of the more personal pronoun “du” (“you”, in contrast to the more formal and distancing German “Sie”), but also the utilization of target group-oriented language style with youth language elements, especially during the address phase of popular explanatory videos. This makes the communication – at least at the beginning – appear less hierarchical and “from above”, so that explainers look like moderators or even friends. Nevertheless, technical terms are gradually introduced and used during the videos over the course of time – as is done in school and private lessons. Through meaningful connections and examples from the life and everyday world of pupils, loosened up by (animated) graphics and sound effects, which remind partly of comics/cartoons, and connected with youth cultural humour and cynicism, a positive learning atmosphere is developed in the videos.

However, the mediated attitude towards the learning object itself differs greatly in the various videos. Some YouTubers would like to just impart “all the bogey”<sup>4)</sup> to their recipients as time-efficiently as possible and pass on “secret recipes”, tips and tricks to their viewers, with help of which they can secure the passing of their tests and exams with as little hard work as possible<sup>5)</sup>. Some describe the learning content in a derogatory way and simultaneously present juvenile users with an identification offer that accommodates their negative stance and attitude. In contrast, producers of other videos pursue the goal of making previously negatively connoted material more accessible and creating a generally positive attitude towards the subject matter<sup>6)</sup> or embed content meaningfully in a larger (technical) context<sup>7)</sup>.

Finally, three important findings could be gained from the market analysis, which will be examined in more detail during the next step of the project by conducting in-depth video analyses, a standardized survey and qualitative interviews with pupils:

*Tutorials and explanatory videos are used as an alternative and supplement to school lessons as well as traditional tutoring.*

The learning atmosphere, which appears to be positive, is reflected in “Views” and “Likes” of the videos. If one considers the number of German students in relation to the views of individual videos of over 500,000 or the number of subscribers to individual channels of over 100,000, the relevance and significance of explanatory videos and tutorials becomes clear. This is also emphasized by the many a) thank-you notes that are found in the comments (figure 2).

4) “den ganzen Rotz”, see Giesecke, A. & N. Schork [Biologie-simpleclub]. (2014, October 27) DNA Replikation - Wie funktioniert's? [Video file]. Retrieved from <https://www.youtube.com/watch?v=Ee3WaE4XPWw>

5) See N.N. [Auf gut Deutsch]. (2016 January 24) *Abi/Deutsch/ wie schreibt man einen Kommentar?* [Video file]. Retrieved from <https://www.youtube.com/watch?v=7sDbul-by1g>

6) Cf. see N.N. [musstewissen Chemie]. (2017 November 15) *Strukturformeln einfach erklärt | musstewissen Chemie* [Video file]. Retrieved from <https://www.youtube.com/watch?v=toQD3nPZQn4>

7) Cf. see Tippelt, T. [Elektrotechnik einfach erklärt]. (2016 January 24) *Wie sind Atome aufgebaut? Das Bohrsche Atommodell | Elektrotechnik Grundlagen #1* [Video file]. Retrieved from <https://www.youtube.com/watch?v=pCGj-tIoRpv8>

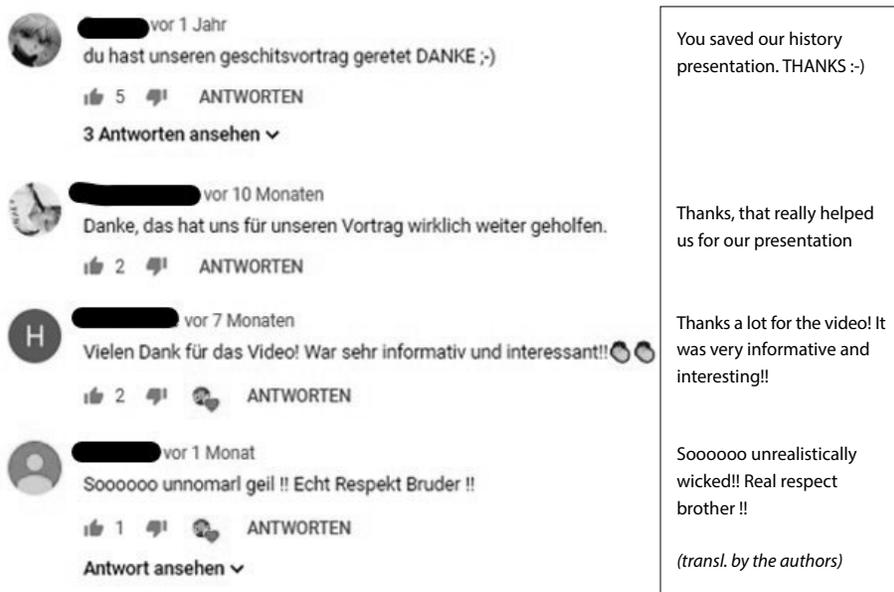


Figure 2: Notes of thanks in comment

In light of their own interests and current and future subject matter in class, pupils also specifically ask for further explanations and b) make suggestions on topics and videos they deal with in class (figure 3).



Figure 3: Request in comment

The market (or makers) in turn reacts to requests and wishes of the juvenile recipients and provides links to further learning tools and content-related offerings in the video descriptions. This shows the structure and possibilities of Web 2.0 with its focus on social networks in an ideal way. Here, the needs of recipients can (and are) met much mo-

re quickly than in the context of particularly formal education systems. In addition, the step from reception to (self-)production is easy to take. But pupils also use the commentary function to c) articulate their displeasure, resentment and dissatisfaction with teachers, classroom situations and school. It is not uncommon for a great astonishment to be expressed that subjects which could hardly be conveyed by teachers can be presented in such a 'simple' way (figure 4).

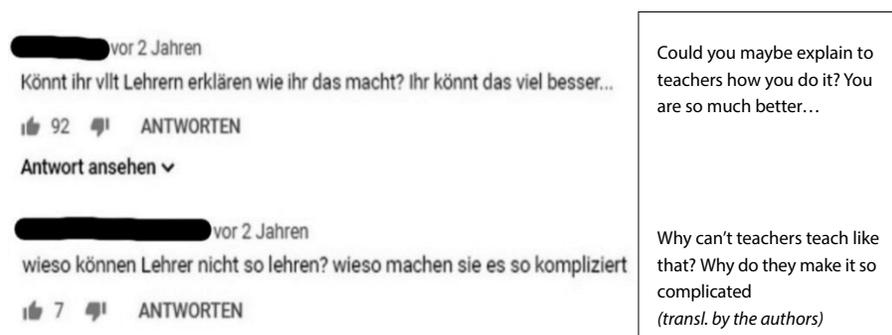


Figure 4: Comparing teachers to You Tubers

Finally, the insight of explanatory videos and tutorials being used as alternative and supplement to school lessons and traditional tutoring is supported by the evaluation of the quantitative data. Only 1% of the interviewed students stated never to use school-related explanatory videos and tutorials. The main motivations of the respondents are “To understand things better”, “To get better grades”, “Because the teacher explains poorly” and “To deepen my knowledge”, in particular not “because they were recommended by teachers and parents”<sup>8)</sup>

*These offers and explanatory videos have long since become a business model in their own right.*

The available range of explanatory videos and tutorials is no longer a niche product. Thus, there are no longer only videos and YouTube channels from individuals who, for fun and with passion, convey school and extracurricular content and go through a process of self-professionalization observable over time. Instead, school-related explanatory videos and tutorials are now often embedded within YouTube channels created by semi-professional and professional film crews. In video descriptions and comments below videos, producers advertise their own videos, their channel(s) and websites and set links to their Facebook, Instagram and Twitter profiles. The in-depth analysis shows that in more than half of all videos examined, elements of self-promotion, references to other videos and requests to “like” appear. In some cases, this is done by referring to a wide (fee-based) range of additional learning offerings, from scripts and exercises to apps for creating personalised study plans. Channel operators can receive revenue

8) As using preliminary results, this refers to N=682, surveyed in the Aachen region

from YouTube based on the number of views for the video itself and commercials before, during or after the video. On top of that, they can also finance themselves with funds generated through affiliate links, product placement and selling their own merchandise. In addition to these self-marketing strategies, an evaluation of the imprints also shows how much the educational market for explanatory videos and tutorials has become commercialized. For some channels, players from the world of traditional educational media such as Klett, ARD, ZDF, Duden and Axel Springer are those responsible. With this result, the question arises as to what has a higher relevance: communication of content and support for pupils in their learning or self-advertising and marketing. A commercial learning network has been set up here, characterised by mutual interdependence and dependency between producers themselves and financially supporting publishers. Monopolies such as Simple Club, Die Merkhilfe, Musstewissen and Wissen2Go are currently emerging. Only YouTubers cooperating with other producers and large publishing houses may have a future in this educational market. In other words: The (youth) cultural self-empowerment and subversion of early days is increasingly becoming a commercial, capitalist media conglomerate characterized by the intention to make profit. Capitalistically, in the search for alternatives to paid private tuition, recipients become not only consumers but goods themselves, for whose time and attention the major channels compete with increasingly specific offers.

*In explanatory videos and tutorials, different ideas of learning are conveyed*

Another result is that explanatory videos and channels convey different images of learning and the learning process. The spectrum ranges from learning as an educational process to a clearly economic-oriented understanding. The educational process connotes the process of (world) appropriation, in which a meaningful context, the connection to everyday life and further disciplinary and interdisciplinary contexts are conveyed. Opposed to that, an economically-pragmatically oriented understanding of learning is just about pupils acquiring material in the sense of the “Nuremberg funnel”, only to superficially pass the next test, exam or even class level at short notice (level “knowledge”, see Bloom, 1956, pp. 20–24). In this context, it is especially alarming that the quantitative data show a tendency of uncritical reception: less than 1/5 of the participants question the content regarding its validity. Consequently, especially for qualitative questioning, it is necessary to critically examine and evaluate explanatory videos and tutorials with regard to the learning process.

#### 4 Reflection and research limitations

In context of sampling, it became clear once again that analyses within social media are determined by a clear complexity of the framework conditions. For example, it was shown that multidimensional information research with different search strategies is indispensable. Easily accessible data such as the frequency of access (number of “views”), number of “likes” or “dislikes” of a video only represent general evaluations

of videos, whether they were liked (“like”) or found to be wanting (“dislike”). However, both values are included in the ranking generated by an undisclosed algorithm. For the researchers, it is only partly comprehensible why a certain video is located high up in the hit list. A pragmatic orientation on this runs the risk of overlooking interesting and relevant videos, as they might only be listed at the bottom. The same applies to “recommendations” generated by YouTube: here, too, it can at best be assumed how and why they were thus generated. A further problem is derived from the search terms used for the query. Ideally, in a longer iterative process, which would have to be restarted for each topic, it can be determined whether selected terms also correspond to the logic of naming and indexing within the portal. This requires specific competence for “research in a digitally networked world”, for example the competence to recognize, understand and reflect on algorithmic patterns and structures. “Views”, “likes” and “dislikes” can, but do not have to, be an indication of correctness of content and quality of the presentation.

The initial decision to include only German-language tutorials and explanatory videos in the sample may be particularly distorting here, as a large number of relevant videos are only available in English. It remains to be seen what role these play from the point of view of the students surveyed in 2019.

## 5 Outlook

As indicated above, explanatory videos and tutorials are exemplary for the opportunities, questions, phenomena, structures and processes to be discussed and analysed under the label “Education in the Digital Networked World” (or the hashtag “Digital Education”).

From a socio-cultural perspective, it becomes apparent that here, alongside institutions and traditions of the formal education system, a field of its own is developing, almost subversive in places, characterized by a specific form of media, but also by strong positioning of amateurs, at least in the initial phase. With this form of participatory self-empowerment, the long-standing hegemonic structures are at least challenged, if not permanently questioned. Here lies the potential for “learning differently”, i.e. collaboratively, participatively, just in time etc. The relationship between formal and non-formal/informal education may then have to be rebalanced. The same applies to the already mentioned processes of commercialisation, progress of which may lead to new monopolies displacing individual, self-determined and subversive providers. Last but not least, it remains to be seen how the major players in school and extracurricular education market will react to this challenge.

From an application and action-oriented perspective, new paths, opportunities and possibilities of individual, self-determined learning and studying should be emphasized. The diverse offer requires a multitude of competences on part of the recipient in order to move successfully and productively in this field. However, “application” also

includes the perspective of producers: Thus, self-production can then be a means of articulating oneself, demonstrating and developing one's own media competence, but also a highly demanding didactic path to independent acquisition of knowledge (and ultimately also of education).

The technological-medial perspective shows how, and which possibilities of production and distribution are enabled by digital media and their network, but also, for example, helps analysing algorithms used by the portals for ranking and recommendations. It will also help to analyse how payment and subscription models are technically implemented and what consequences of user tracking are. Additionally, the possible use of learning analytics promises to ensure individual learning success.

In summary, it can be seen that explanatory videos and tutorials are by no means only relevant regarding content. Rather, the examination of this field poses a variety of questions that can hardly be addressed without media educational competence. As in other cases, an interdisciplinary cooperation of didactics, media pedagogy, media and communication sciences lends itself to the processing and mediation.

Finally, the market analysis opens up the following questions, which will be examined in greater depth in the further course of the project using other methods:

How is the search for and recommendation of explanatory videos and tutorials structured?

How and according to which criteria are explanatory videos and tutorials evaluated?

How do explanatory videos and tutorials fit into the everyday (school) life of adolescents and the sustainability of education in general?

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