




# Teachers' mediation practice: Opportunities and risks for youth media behavior

## Prácticas de mediación docente: Oportunidades y riesgos en el comportamiento mediático de jóvenes

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### ABSTRACT

Research with children and adolescents shows that teachers are one of the agents from whom they receive mediation of their media use. However, little is known about teachers' mediation practice. This study aims to approximate teachers' practice with the concept of mediation by, firstly, systematizing a set of curricular media-related competences into the goals of maximizing opportunities and minimizing risks in youngsters' media behavior. Then, teachers' professional and personal characteristics are tested for associations with the mediation of risks and opportunities of students' media use. Data collected in a survey with 315 teachers in Germany were analyzed. Results of regression analysis show that most factors predicted both opportunities and risks in a similar way. Teachers are more engaged in maximizing opportunities and minimizing risks when they use information and communication technologies (ICT) more frequently, consider the respective competences important, engage in collaboration with colleagues, do not teach STEM subjects, and do not work in a Gymnasium. Having received ICT-related training was a significant predictor only of mediation of opportunities, while age was a significant predictor only of mediation of risks. Implications of the findings and how the concept of mediation can contribute to the development of teachers as media educators are discussed.

### RESUMEN

Estudios con niños y adolescentes han mostrado que los profesores son uno de los agentes de quien reciben la mediación en el uso de los medios. Sin embargo, poco se conoce sobre las prácticas de mediación docente. El objetivo de este estudio es aproximar la práctica docente con el concepto de mediación a través de, en primer lugar, la sistematización de un conjunto de competencias curriculares relacionadas con los medios, con el objetivo de maximizar las oportunidades y minimizar los riesgos en el comportamiento mediático de los jóvenes. Posteriormente, se examinan las características de los profesores para buscar asociaciones con la mediación de riesgos y oportunidades del uso de los medios por parte de los estudiantes. Se analizaron datos recogidos en una encuesta con 315 profesores en Alemania. Los resultados del análisis de regresión muestran que los profesores están más comprometidos en maximizar las oportunidades y minimizar los riesgos cuando utilizan las TIC con más frecuencia, consideran importantes las respectivas competencias, colaboran con colegas, no enseñan asignaturas en STEM y no trabajan en escuelas del tipo Gymnasium. Haber recibido capacitación relacionada con las TIC fue un factor significativo solo de la mediación de oportunidades, mientras que la edad fue un factor significativo solo de la mediación de riesgos. Finalmente, se discuten cómo el concepto de mediación puede contribuir al desarrollo de los profesores como educadores de medios.

### KEYWORDS | PALABRAS CLAVE

Mediation, media literacy, teaching practice, opportunities, risks, secondary education, quantitative analysis, media use.

Mediación, competencia mediática, práctica docente, oportunidades, riesgos, educación secundaria, análisis cuantitativo, uso de medios.

## 1. Introduction

The necessity to educate children and adolescents to cope with the risks and seize the opportunities associated with digital media is widely recognized. Minimizing risks and expanding opportunities in online use are goals of media education expressed in practices such as mediation exercised by socializing agents (Kirwil, 2009; Livingstone et al., 2017) and the fostering of Media and Information Literacy (MIL) (Hobbs, 2010; KMK, 2012; Pöttinger & Meister, 2014).

Mediation is defined as “management of the relation between child and media” (Livingstone & Helsper, 2008: 581), while fostering MIL refers to teaching about media, usually in the context of schools (Berger & Wolling, 2019; Hatlevik & Hatlevik, 2018; Lorenz et al., 2019). In the research about the mediation of children and adolescents’ media use, parents have received the most attention (Mendoza, 2009). Indeed, studies frequently point out that parents are the primary agents from whom children and adolescents report receiving mediation of online media use (Jiménez-Iglesias et al., 2015; Livingstone et al., 2011; Shin & Lwin, 2017). However, research also shows that teachers have been recognized as influential mediating agents of children and adolescents’ safe internet use (Jiménez-Iglesias et al., 2015; Kalmus et al., 2012; Shin & Lwin, 2017; Tejedor & Pulido, 2012).

Thus, it is relevant to understand teachers’ mediation practices in the media education of youngsters. Nevertheless, most of what is known about teachers as mediating agents was investigated from the perspective of children and adolescents. Some studies explored the perspective of parents, pointing out, for instance, the mediation strategies adopted and the associations of parents’ characteristics with different mediation strategies (Lee, 2013; Livingstone et al., 2017; Nikken & Jansz, 2014; Nikken & Schols, 2015). Nevertheless, the perspective of teachers about mediation activities remains scarcely researched.

Teachers’ practices in media education have been studied mostly in terms of their integration of information and communication technologies (ICT) for instruction (Ertmer, 2005; Knezek & Christensen, 2016; Petko, 2012) and their fostering of students’ MIL (Lorenz et al., 2019; Hatlevik & Hatlevik, 2018; Siddiq et al., 2016). Nevertheless, it is unclear whether the teachers’ practices of fostering students’ MIL and mediation of students’ media use are equivalent. Although both practices share common goals, they are usually discussed individually, as Mendoza remarked, “parental mediation and media literacy are two fields that have not often crossed paths” (2009: 29). Considering the research about teachers as media educators, this also seems to be the case.

This study aims to connect the concepts of fostering MIL and mediation in the teacher’s practice. Firstly, it systematizes a set of curricular media-related competences according to what is common ground between the two practices: the functions of maximizing opportunities and minimizing risks in youngsters’ media use. Secondly, it explores teachers’ professional and personal characteristics associated with the mediation of risks and opportunities in students’ media use. Therefore, data collected in a survey with 315 teachers of secondary schools in the state of Thuringia, Germany, are analyzed.

### 1.1. Teachers as media educators

The role of teachers as media educators is frequently associated with a curriculum. Media education curricula in Europe tend to follow frameworks of MIL, digital, and computer literacy (Frau-Meigs et al., 2017). Taking as an example the state of Thuringia, Germany, its media education guideline for secondary schools, called “Kursplan Medienkunde,” consists of a list of competences that students should develop. Typically, secondary schools in Germany have students between 10 and 18 years old. Findings of the study by Brügggen et al. (2017) show that parents in Germany consider 11-12 years the most critical age in terms of online risks for their children. Thus, media education in secondary schools can target this critical group as well as older children and adolescents.

The “Kursplan Medienkunde” has seven competence areas: 1) Information and data; 2) Communication and cooperation; 3) Media production; 4) Presentation techniques; 5) Analysis and assessment; 6) Media and society; 7) Law, data security, and youth media protection. In an evaluation report of the guideline, Wolling and Berger (2018) observed that the competence areas of the “Kursplan Medienkunde” are consonant with the ones proposed by well-known references, such as the European Digital Competence Framework (Ferrari, 2013), the Framework of the Partnership for 21<sup>st</sup> Century

Learning (2015), and the UNESCO Media and Information Literacy Framework (UNESCO, 2013). Teachers usually carry the primary responsibility in schools for developing MIL competences with their students (Brüggemann, 2013). In German school curricula, media literacy is not a subject but should be taught in the realm of traditional school subjects instead (KMK, 2012). Thus, schools and individual teachers usually have the freedom to decide which media competences will be addressed in each subject. Despite guidelines of media education, Hartai observed that, not only in Germany, but also in the member countries of the European Union in general, it is not clear who should teach media education and with what qualifications, and “there is no single or well-defined focus of media literacy in formal education” (2014: 67). Due to this lack of firm establishment of media literacy in the school curricula, it is likely to exist considerable variance in the efforts that teachers invest in fostering MIL.

Studies addressed this variance and identified the following positive predictors of teachers’ fostering of their students’ media-related competences: adopting ICT for instruction more frequently (Berger & Wolling, 2019; Hatlevik & Hatlevik, 2018; Lorenz et al., 2019; Siddiq et al., 2016), having more positive attitudes towards the value of ICT for instruction (Berger & Wolling, 2019; Hatlevik & Hatlevik, 2018; Karaseva et al., 2015; Siddiq et al., 2016), feeling better prepared to deal with ICT (Hatlevik & Hatlevik, 2018; Siddiq et al., 2016), collaborating with other teachers to exchange knowledge and experiences about media education (Lorenz et al., 2019), teaching humanities subjects (Berger & Wolling, 2019; Siddiq et al., 2016), and teaching in specific types of schools (Berger & Wolling, 2019). Among these studies that explore the teacher’s perspective, only the study by Karaseva et al. (2015) addresses the fostering of media-related competences as mediation. Otherwise, most of the studies that refer to teachers as mediating agents investigated mediation from the perspective of children and adolescents, not of teachers. Consequently, the question arises of whether it is only a matter of terminology, or if there are differences in the teachers’ practices of fostering students’ MIL and mediating students’ media use.

Different from MIL frameworks, the concept of mediation of children and adolescents’ media use does not usually establish competences as goals. Therefore, it is less applicable in a curricular format. Concepts of mediation develop around the idea of adopting strategies to influence children’s and adolescents’ media use (Kalmus, 2013; Kirwil, 2009). Thus, mediation happens concerning a minor’s natural media behavior (Livingstone & Helsper, 2008), influencing, managing, or shaping it through different kinds of intervention or strategies. In the literature, five main types of mediation strategies are identified: 1) Restriction through rules and limitations of determined aspects of the media usage, e.g., time or access to particular contents; 2) Co-use, when the agent and the minor engage together in a shared media activity; 3) Monitoring, when the agent verifies details about the minor’s media use in records left on devices (e.g., browser history, chat logs); 4) Supervision, when the agent observes what the minor is doing with the media while the activity is happening; 5) Active mediation, when the agent instructs and talks to the minor about media content or media use (Bartau-Rojas et al., 2018; Livingstone & Helsper, 2008; Nikken & Jansz, 2014; Nikken & Schols, 2015; Smahelova et al., 2017).

Mendoza (2009) discussed possible connections between different types of mediation and media literacy, focusing on parents as media educators in regard to children’s television consumption. For instance, the author connects restrictive mediation to a protectionist approach to media education, observing that advice materials addressed to parents frequently suggest adopting restrictions to children’s media use. This creates an idea that restriction is the easiest way to protect minors from harm that media may cause. When it comes to active mediation, Mendoza argues that it is “the type of mediation most closely aligned with media literacy” (2009: 36) since it consists of talking to the minor about media use.

In their study with teachers from Estonia and Latvia, Karaseva et al. (2015) found out that teachers engaged mostly in active mediation and co-use to teach competences that help students identify opportunities in online media use and develop critical thinking. Teachers also reported adopting social and technical restrictions to try to protect students from potentially harmful online content. These findings suggest that the fostering of media-related competences happens through practices of (mainly active) mediation. Thus, the boundaries between the practices of mediation and fostering MIL are not clear, and both practices can happen interchangeably. Therefore, instead of looking at teachers’ efforts in specific curricular areas of media literacy, this study seeks to approximate the concepts of fostering MIL and of

mediation. Therefore, it systematizes teachers' practice according to what the two concepts share in common: the goals of expanding opportunities and reducing risks in students' media use.

### 1.2. Mediation of online risks and opportunities

Livingstone and Haddon (2009) proposed a classification of risks and opportunities in online media use in the areas of content, contact, and conduct (Table 1). These areas correspond to situations that children and adolescents are likely to engage in when they are online. The area of content refers to when the minor is a recipient, and thus, encounters opportunities and risks in the content available online to everyone. The area of contact considers the minor as a participant in a communicational situation, in which the minor engages in interactions with other people, mainly peers and adults. Finally, in the area of conduct, the minor is an actor, who initiates the interactions with others. Brüggem et al. (2017) proposed the additional area of contract, referring to financial costs that may occur due to unintentional in-app purchases and subscriptions, which can be done with a few clicks, especially on smartphones. However, this area was connected only to risks.

| Table 1. Examples of online opportunities and risks for minors |   |   |
|--|---|---|
| Area   | Opportunities   | Risks   |
| Content  | Educational resources<br>Global information<br>Advice (personal/health/ sex)  | Advertising, spam, sponsorship<br>Violent/ hateful/ harmful sexual content<br>Racist, biased info/ advice (e.g., drugs) |
| Contact  | Exchange among interest groups<br>Being invited, inspired to create/ participate<br>Social networking, shared experiences | Tracking/harvesting personal information<br>Being bullied, harassed or stalked<br>Meeting strangers, being groomed      |
| Conduct  | Concrete forms of civic engagement<br>User-generated content creation<br>Expression of identity                           | Gambling, illegal downloads, hacking<br>Bullying or harassing another<br>Creating/uploading pornographic material       |

Note. Livingstone & Haddon, 2009: 10.

Research that tested factors associated with mediation of risks and opportunities focused only on parents so far, i.e., the associations were tested only regarding parents' characteristics and the types of mediation they tend to adopt. The literature employed restrictive, active and enabling mediation as outcome variables, where restrictive mediation corresponds mostly to the mediation of risks (Mendoza, 2009), enabling mediation tends to favor opportunities (Livingstone et al., 2017), and active mediation can target either risks or opportunities (Nathanson, 2002). In different studies, a higher level of digital skills was associated with more frequent employment of restrictive mediation (Lee, 2013; Livingstone et al., 2017; Nikken & Jansz, 2014) and also with enabling mediation (Livingstone et al., 2017). However, when it comes to usage, Nikken and Jansz (2014) found that parents who use the internet less frequently tended to employ restrictions more often. Similarly, Nikken and Schols (2015) found a negative association between the amount of time that parents spend with media (TV, computers, or touchscreens) and the frequency that they apply restrictive and active mediation. In terms of demographics, most types of mediations tended to be adopted more frequently by female parents (Livingstone et al., 2017; Nikken & Jansz, 2014), although adoption of technical restrictions was an exception (Nikken & Jansz, 2014). Finally, the age of the parent was negatively associated with enabling mediation but positively associated with restrictive mediation (Livingstone et al., 2017).

This study attempts to approximate the concept of fostering media literacy with the concept of mediation by focusing on the fostering of competences that aim to expand opportunities and the ones that aim to counteract risks in students' media use, with the research question:

RQ: How can teachers' efforts in mediating opportunities and risks of students' media use be explained?

Based on the literature about teachers' fostering of MIL, factors are tested as predictors of both opportunities and risks. Positive associations are expected with regular use of ICT in class, positive attitudes towards media education, training, and collaboration with colleagues. In contrast, negative associations are hypothesized with teaching science, technology, engineering, and mathematics (STEM) and teaching at a Gymnasium. In the German school system, Gymnasium is a type of school that emphasizes the preparation for entering higher education and is selective. Thus, it is considered more differentiated from other school types. Based on the studies with parents, mediation of both risks and opportunities are expected to be

negatively associated with private digital use and positively associated with being female. Age is expected to predict risks positively and opportunities negatively.

## 2. Methods

### 2.1. Data collection and sample

The study employs data of a survey conducted with secondary teachers in 2017 in the state of Thuringia, Germany. From the secondary schools of the state (approx. 468 with 12,100 teachers), 88 schools were randomly selected to participate in the voluntary survey. The principals of the selected schools were asked to distribute the questionnaire among the teachers in their school. Besides the link to the online survey, schools also received printed questionnaires with a pre-stamped envelope. Thus, teachers could answer the online or the paper version of the questionnaire.

The sample of the study consists of 315 teachers (response rate of 12%). The majority are female (72%) and older than 50 (53%). Half (50%) have over 25 years of experience in the teaching practice. The characteristics of the sample are similar to the teachers' population in Thuringia (Thüringer Ministerium für Bildung, Jugend und Sport, 2018).

### 2.2. Measures

Mediation of risks and opportunities. Teachers were asked how frequently they would conduct activities in their classes aiming to foster several media-related competences in their students on a scale from 1=never to 5=very frequently. Within these competences were identified the ones aimed at minimizing risks and maximizing opportunities in the dimensions of content, contact, and conduct, based on Livingstone and Haddon (2009). The dimension of contract (Brüggen et al., 2017) was not adopted because it refers only to risks. The sets of competences were tested with a principal component analysis. The factor solution delivered two dimensions that together explained 63% of the variance (Table 2). The dimensions were consonant with the framework proposed by Livingstone and Haddon (2009). The only exception was "Following the adequate norms for online communication," which was initially identified as addressing the risk of conduct (i.e., avoid that students perpetrate cyberbullying or hate speech). However, in the analysis, it loaded in the dimension of opportunities. Due to this contradiction, the item was excluded from the composite scales. All the other items had their scales averaged to build two composite scales: teachers' mediation of online opportunities and teachers' mediation of online risks.

**Table 2. Principal component analysis: Factors loading**

| Item   | Opportunities | Risks      |
|--|---------------|------------|
| Content: Searching for information effectively   | .75           |            |
| Content: Filtering and interpreting information from different sources                         | .83           |            |
| Contact: Using media in cooperation with others to achieve common goals                        | .80           |            |
| Contact: Choosing media adequately for communicating with different partners                   | .69           |            |
| Conduct: Producing digital media outputs creatively  | .56           |            |
| Conduct: Choosing adequate media for specific purposes   | .66           |            |
| Conduct: Following the adequate norms for online communication*                                | .61           |            |
| Content: Differentiating between advertising and journalistic content                          |               | .70        |
| Content: Surfing safely on the Internet  |               | .81        |
| Content: Understanding how personal data is gathered and used further while using online media |               | .83        |
| Contact: Dealing properly with cyberbullying   |               | .72        |
| Contact: Protecting data and the private sphere effectively                                    |               | .85        |
| Conduct: Using online content in observation of copyrights                                     |               | .72        |
| Conduct: Evaluating the danger of media addiction  |               | .74        |
| Explained variance   | .34           | .29        |
| Eigenvalue   | 7.19          | 1.58       |
| Cronbach's alpha   | .86           | .92        |
| Mean (SD)  | 3.20(0.74)    | 3.34(0.86) |

Note. Bartlett's  $K^2=52.21$ ,  $p<.001$ ;  $KMO=.92$ ; Rotation method: Varimax. Only loadings  $> .40$  displayed. \* Item excluded from the composite scale.



- ICT use in class. Teachers were asked how often they use a set of 12 ICTs to conduct activities with their students in class on a scale from 1=never to 5=several times a week. The items were averaged, resulting in a composite scale indicating frequency of use of ICT with students in class ( $\alpha=0.90$ ,  $M=2.83$ ,  $SD=0.88$ ).
- Importance of risks and opportunities. Teachers were asked how important they consider that students develop each of the competences in Table 2 on a scale from 1=not important at all to 5=very important. The items were averaged to build the composite scales of importance attributed to competences that address opportunities ( $\alpha=0.70$ ,  $M=3.98$ ,  $SD=0.46$ ) and to competences that address risks in students' online use ( $\alpha=0.77$ ,  $M=4.43$ ,  $SD=0.41$ ).
- Training. Teachers were asked whether they received in-service or pre-service training on how to teach students about media use. The answer options were 0=no or 1=yes (yes=37.10%).
- Collaboration. Teachers were asked whether they learned about how to teach students about media use through exchanges with other teachers. The answer options were 0=no or 1=yes (yes=46.30%).
- Private digital media use. A question asked how important teachers consider the internet, computers, smartphones, and social media for their private use. For each item, the possible answers were on a scale from 1=not important at all to 5=especially important. These four items were averaged to build a composite scale of importance of digital media for private use ( $\alpha=0.76$ ,  $M=3.68$ ,  $SD=0.72$ ).
- School subjects taught. Teachers were asked whether they taught biology, chemistry, mathematics, physics, and informatics. The answer options were 0=no or 1=yes. Those who answered "yes" in one or more items were grouped to indicate the teachers involved in the instruction of STEM subjects (yes=44.48%).
- Type of school. Among five types of schools of the German school system operating in the state of Thuringia, teachers were asked to indicate the type of school where they teach. As the main differences exist between Gymnasium and other types of schools, the reference measure was set to Gymnasium, with answer options 0=no or 1=yes (yes=35.83%).
- Age and gender. Teachers were asked to choose in which of seven age groups they belonged, ranging from 1=up to 29 years old until 7=55 or older (largest group 7=34.30%). In addition, teachers were asked to inform their gender 0=female, 1=male (female=72%).

### 2.3. Data analysis

The hypothesized associations were tested with linear regression analyses so that the effects of each predictor can be verified when the remaining predictors in the model are held constant. One regression model was calculated for opportunities, and another for risks. Bivariate correlations between the predictors and variance inflation factors did not indicate multicollinearity problems.

### 3. Results

The findings shown in Table 3 point out that teachers' mediation of online opportunities are positively and significantly associated with teachers' use of ICT for instruction, the level of importance that teachers attribute to the competences that emphasize opportunities in media use, having received ICT-related training, and having collaborated with colleagues in ICT issues. Teaching STEM subjects and teaching at a Gymnasium associate negatively and significantly with the mediation of opportunities. The effects of importance attributed to competences that emphasize risks, private digital media use, age, and gender are close to zero. When it comes to the mediation of risks, positive and significant associations were found with the use of ICT in class, the importance attributed to competences that emphasize risks in media use, ICT collaboration with colleagues, and age. Teaching STEM subjects and teaching at a Gymnasium predicted mediation of risks negatively and significantly. No significant associations were found with importance attributed to competences that emphasize opportunities, having received training in ICT, private digital media use, and gender. The models explain 52% of the variance in the mediation of opportunities and 51% in the mediation of risks.

**Table 3. Regression models of teachers' mediation of opportunities and mediation of risks**

| Predictors                | Standardized coefficients |           |
|---------------------------|---------------------------|-----------|
|                           | Opportunities             | Risks     |
| Use of ICT in class       | .53***                    | .48***    |
| Importance opportunities  | .27***                    | .07 n.s.  |
| Importance risks          | .02 n.s.                  | .26***    |
| Training                  | .16**                     | .08 n.s.  |
| Collaboration             | .15**                     | .12*      |
| School type (Gymnasium=1) | -.12*                     | -.15**    |
| Subject (STEM=1)          | -.10*                     | -.13*     |
| Private digital media use | -.03 n.s.                 | .03 n.s.  |
| Age                       | -.06 n.s.                 | .21***    |
| Gender (male=1)           | -.03 n.s.                 | -.10 n.s. |
| N                         | 231                       | 231       |
| R <sup>2</sup>            | 0.52                      | 0.51      |
| F                         | 23.77***                  | 22.69***  |

Note. \*\*\*p<.001; \*\*p<.01; \*p<.05; n.s.=p > .05. Confidence level: 95%, margin of error: 5.5.

#### 4. Discussion and conclusion

Based on theoretical and statistical analyses, a set of competences distributed in seven areas in the “Kursplan Medienkunde” was rearranged into the goals of maximizing opportunities and minimizing risks in students’ media use. Besides presenting another way of organizing media-related competences, the study tested factors associated with emphasizing opportunities and risks. The significant associations found are mostly consonant with findings of studies that predicted traditional areas of MIL. These results indicate that fostering media literacy and mediating students’ media use are closely related and blend in teachers’ practice. When teachers’ are addressing the fostering of competences established in a media literacy curriculum, they are likely to mediate their students’ media use. Thus, it is pertinent to question whether it is beneficial for schools to adopt frameworks of media literacy that consist of several different areas of competence. Such guidelines with multiple areas might look challenging, too comprehensive, and unclear to some teachers, especially when many teachers in charge of MIL education do not have specific training for it (Hartai, 2014).

Also, most factors predicted both opportunities and risks in a similar way in terms of significance, strength, and direction of effects. This finding suggests that mediating opportunities and mediating risks do not compete with each other in teachers’ practice. Similarly, Livingstone et al. (2017) found that enabling and restrictive mediation are applied in a mixed way by parents. The strong associations with using ICT for instruction raise the possibility that besides active mediation, co-use may be a mediation practice employed by teachers, as already signaled by Karaseva et al. (2015). However, co-use at school might differ considerably from co-use at home. For instance, at school, co-use might be initiated more frequently by teachers and be paired with active mediation. Conversely, at home, children might have more opportunities to initiate co-use with parents.

The findings also confirm that teachers’ favorable attitudes toward media education are crucial for their engagement in practices involving media (Ertmer, 2005; Karaseva et al., 2015; Knezek & Christensen, 2016). Nevertheless, ICT training associated significantly only with the mediation of opportunities. Possibly, teachers are more frequently trained to focus on opportunities rather than on risks that media offer, as Trültzsch-Wijnen et al. (2017) observe, that media education in Europe has moved to a focus on efficiency and operational skills. However, research shows that parents and students believe that teachers share responsibility in the mediation of risks (Brüggen et al., 2017; Tejedor & Pulido, 2012). Therefore, teacher training should respond accordingly. In regards to collaboration with colleagues, it seems that encouraging exchanges between teachers can contribute to their engagement in media education practices (Hatlevik & Hatlevik, 2018), including mediation of opportunities and risks. Since colleagues tend to share similar work conditions and the same school culture, collaborating with other teachers might be more efficient than external training, which cannot consider the individual school environment.

Concerning the negative associations with teaching STEM subjects, it seems that some school subjects like humanities favor the fostering of topics related to media use, especially the ones that refer to critical competences (Siddiq et al., 2016; Fraillon et al., 2020). Regarding the school where teachers work, as

MIL is not part of the “Abitur,” the tests that are evaluated for admission in higher education programs in Germany, Gymnasium teachers seem to prioritize less the mediation of students’ media use. Moreover, students’ socioeconomic conditions might play a role. On an international basis, there is a positive association between students’ ICT competence level and their socioeconomic status (Fraillon et al., 2020). In Germany, students from families with higher socioeconomic status are more likely to attend a Gymnasium (Wernstedt & John-Ohnesorg, 2008). Thus, Gymnasium teachers might perceive that the students are competent enough regarding opportunities and risks in media use and so, do not feel the urge to engage regularly in mediation practices.

Concerning teachers’ personal characteristics, only age was associated with the mediation of risks. It is possible that older teachers might be more sensitive to the potential harm that media may cause and, thus, give higher priority to approach risks in media use. Contrary to the research about parental mediation, no associations were found with gender and private media use. Parents’ media habits and the duties of male and female parents reflect the values of the family. While these values influence parents’ active mediation, teachers’ mediation is expected to occur according to the culture, processes, and curriculum of the school as well as their professional experience and attitudes, instead of personal habits, values, and opinions.

This study challenges to look at teachers’ fostering of MIL as mediation of opportunities and risks of students’ media use. Schools could consider implementing simplified media education guidelines that aim at the fostering of competences that emphasize opportunities and risks in media use. This approach could be able to involve more teachers in media education for being more straightforward and appealing than guidelines with several competence areas. Also, making explicit the goals of maximizing opportunities and minimizing risks might help teachers become aware of their relevance in mediating students’ media use. Moreover, teachers must be conscious that online environments are dynamic and bring regularly new opportunities and risks, resulting in a big challenge for keeping curricula and training up to date (Frau-Meigs et al., 2017). In this sense, collaboration and informal exchanges among teachers have good potential to overcome this question. While there is no indication from research that the relevance of MIL contents varies significantly according to children’s age, the effects of mediation strategies vary (Chen & Shi, 2019). Thus, it could be pertinent that media education guidelines for schools consider including, besides curricular competences, the mediation strategies that teachers can use to foster MIL in different school years. However, for this purpose, more research is needed about teachers’ mediation strategies and their potential impacts.

This study is a secondary analysis of existing data. Thus, it is necessary to acknowledge limitations regarding the validity of the measures of mediation practices. Teachers’ mediation of opportunities and risks in students’ media use was not directly measured. Instead, in the original instrument, the teachers’ fostering of competences in the seven areas of the “Kursplan Medienkunde” was measured. In terms of strategies, it was possible only to assume that teachers fostered these competences mainly by active mediation (Karaseva et al., 2015; Mendoza, 2009). Future studies should focus clearly on developing measures of teachers’ mediation strategies. Then, it will be possible to explore associations between the fostering of specific media-related literacies and mediation strategies adopted.

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### References

- Bartau-Rojas, I., Aierbe-Barandiaran, A., & Oregui-González, E. (2018). Parental mediation of the Internet use of primary students: Beliefs, strategies and difficulties. [Mediación parental del uso de Internet en el alumnado de Primaria: creencias, estrategias y dificultades]. *Comunicar, 54*, 71-79. <https://doi.org/10.3916/c54-2018-07>
- Berger, P., & Wölling, J. (2019). They need more than technology-equipped schools: Teachers’ practice of fostering students’ digital protective skills. *Media and Communication, 7*(2), 137-137. <https://doi.org/10.17645/mac.v7i2.1902>
- Brüggemann, M. (2013). *Digitale Medien im Schulalltag: Eine qualitative rekonstruktive Studie zum Medienhandeln und berufsbezogenen Orientierungen von Lehrkräften. [Digital media in the school reality: A qualitative reconstructive study of media management and teachers’ professional orientation]*. Kopaed. <https://bit.ly/2J4iZGy>
- Brüggen, N., Dreyer, S., Drosselmeier, M., Gebel, C., Hasebrink, U., & Rechlitz, M. (2017). Jugendmedienschutzindex: Der Umgang mit onlinebezogenen Risiken—Ergebnisse der Befragung von Heranwachsenden und Eltern. [Youth media protection



- index: Dealing with online risks—Findings of the survey with youth and parentes]. FSM - Freiwillige Selbstkontrolle Multimedia-Diensteanbieter e.V. <http://bit.ly/3b1KCvM>
- Chen, L., & Shi, J. (2019). Reducing harm from media: A meta-analysis of parental mediation. *Journalism & Mass Communication Quarterly*, 96(1), 173-193. <https://doi.org/10.1177/1077699018754908>
- Ertmer, P.A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educational Technology Research and Development*, 53, 25-39. <https://doi.org/10.1007/bf02504683>
- Ferrari, A. (2013). *DIGCOMP: A framework for developing and understanding digital competence in Europe*. Publications Office of the European Union. <https://doi.org/10.2788/52966>
- Fraillon, J., Ainley, J., Schulz, W., Friedman, T., & Duckworth, D. (2020). *Preparing for life in a digital world: IEA International computer and information literacy study 2018 international report*. Springer Open. <https://doi.org/10.1007/978-3-030-38781-5>
- Frau-Meigs, D., Velez, I., & Michel, J.F. (2017). *Public policies in media and information literacy in Europe: Cross-country comparisons*. Routledge. <https://doi.org/10.4324/9781315628851>
- Hartai, L. (2014). *EMEDUS - European media literacy education study: Report on formal media education in Europe*. Hungarian Institute for Education Research and Development. <http://bit.ly/38UCly>
- Hatlevik, I.K., & Hatlevik, O.E. (2018). Students' evaluation of digital information: The role teachers play and factors that influence variability in teacher behaviour. *Computers in Human Behavior*, 83, 56-63. <https://doi.org/10.1016/j.chb.2018.01.022>
- Hobbs, R. (2010). Digital and media literacy: A plan of action. <http://bit.ly/2tA8mqD>
- Jiménez-Iglesias, E., Garmendia-Larrañaga, M., & Casado-Del-Río, M.A. (2015). Percepción de los y las menores de la mediación parental respecto a los riesgos en Internet. *Revista Latina de Comunicación Social*, 70, 49-68. <https://bit.ly/2UdqPEs>
- Kalmus, V. (2013). Making sense of the social mediation of children's Internet use: Perspectives for interdisciplinary and cross-cultural research. In Wijnen, C.W., Trützsch, S., & Ortner, C. (Eds.), *Medienwelten im Wandel: Kommunikationswissenschaftliche Positionen, Perspektiven und Konsequenzen. [Media worlds in change: Positions, perspectives and consequences of the Communication Science]* (pp. 137-149). Springer. [https://doi.org/10.1007/978-3-531-19049-5\\_11](https://doi.org/10.1007/978-3-531-19049-5_11)
- Kalmus, V., Von-Feilitzen, C., & Siibak, A. (2012). Effectiveness of teachers' and peers' mediation in supporting opportunities and reducing risks online. *Children, risk and safety on the Internet: Research and policy challenges in comparative perspective*, (pp. 245-256).
- Karaseva, A., Siibak, A., & Prullmann-Vengerfeldt, P. (2015). Relationships between teachers' pedagogical beliefs, subject cultures, and mediation practices of students' use of digital technology. *Cyberpsychology*, 9(1). <https://doi.org/10.5817/cp2015-1-6>
- Kirwil, L. (2009). Parental mediation of children's Internet use in different European countries. *Journal of Children and Media*, 3(4), 394-409. <https://doi.org/10.1080/17482790903233440>
- KMK (Ed.) (2012). *Medienbildung in der Schule—Beschluss der Kultusministerkonferenz vom 8. März 2012. [Media education at school—Resolution of the Kultusministerkonferenz from 8. March 2012]*. <http://bit.ly/2Z513VX>
- Knezek, G., & Christensen, R. (2016). Extending the will, skill, tool model of technology integration: Adding pedagogy as a new model construct. *Journal of Computing in Higher Education*, 28(3), 307-325. <https://doi.org/10.1007/s12528-016-9120-2>
- Lee, S.J. (2013). Parental restrictive mediation of children's Internet use: Effective for what and for whom? *New Media & Society*, 15(4), 466-481. <https://doi.org/10.1177/1461444812452412>
- Livingstone, S., & Haddon, L. (2009). *EU kids online: Final report*. LSE, EU Kids Online. <https://doi.org/10.2307/j.ctt9qgvds>
- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011). *Risks and safety on the Internet: The perspective of European children. Full findings*. EU Kids Online. <http://bit.ly/35Deqwt>
- Livingstone, S., & Helsper, E.J. (2008). Parental mediation of children's Internet use. *Journal of Broadcasting & Electronic Media*, 52(4), 581-599. <https://doi.org/10.1080/08838150802437396>
- Livingstone, S., Ólafsson, K., Helsper, E.J., Lupiáñez-Villanueva, F., Veltri, G.A., & Folkvord, F. (2017). Maximizing opportunities and minimizing risks for children online: The role of digital skills in emerging strategies of parental mediation. *Journal of Communication*, 67(1), 82-105. <https://doi.org/10.1111/jcom.12277>
- Lorenz, R., Endberg, M., & Bos, W. (2019). Predictors of fostering students' computer and information literacy – analysis based on a representative sample of secondary school teachers in Germany. *Education and Information Technologies*, 24, 911-928. <https://doi.org/10.1007/s10639-018-9809-0>
- Mendoza, K. (2009). Surveying parental mediation: Connections, challenges and questions for media literacy. *Journal of Media Literacy Education*, 1(1), 28-41. <http://bit.ly/2PA5vGF>
- Nathanson, A.I. (2002). The unintended effects of parental mediation of television on adolescents. *Media Psychology*, 4(3), 207-230. [https://doi.org/10.1207/s1532785xmep0403\\_01](https://doi.org/10.1207/s1532785xmep0403_01)
- Nikken, P., & Jansz, J. (2014). Developing scales to measure parental mediation of young children's internet use. *Learning, Media and Technology*, 39(2), 250-266. <https://doi.org/10.1080/17439884.2013.782038>
- Nikken, P., & Schols, M. (2015). How and why parents guide the media use of young children. *Journal of Child and Family Studies*, 24(11), 3423-3435. <https://doi.org/10.1007/s10826-015-0144-4>
- Partnership for 21st Century Learning (Ed.) (2015). P21 framework definitions. <https://bit.ly/2QApsik>
- Petko, D. (2012). Teachers' pedagogical beliefs and their use of digital media in classrooms: Sharpening the focus of the 'will, skill, tool' model and integrating teachers' constructivist orientations. *Computers & Education*, 58(4), 1351-1359. <https://doi.org/10.1016/j.compedu.2011.12.013>
- Pöttinger, I., & Meister, D.M. (2014). School's out? Informal and formal media education—An international perspective. In *School's out? Informelle und formelle Medienbildung*. Kopaed. <http://bit.ly/2Vw1hog>
- Shin, W., & Lwin, B. (2017). Parental mediation of children's digital technology use in Singapore. *Journal of Children & Media*, 11(1), 1-19. <https://doi.org/10.1080/17482798.2016.1203807>

- Siddiq, F., Scherer, R., & Tondeur, J. (2016). Teachers' emphasis on developing students' digital information and communication skills (TEDDICS): A new construct in 21st century education. *Computers & Education*, 92-93, 1-14. <https://doi.org/10.1016/j.compedu.2015.10.006>
- Smahelova, M., Juhová, D., Cermak, I., & Smahel, D. (2017). Mediation of young children's digital technology use: The parents' perspective. *Cyberpsychology*, 11(3), 11-11. <https://doi.org/10.5817/cp2017-3-4>
- Tejedor, S., & Pulido, C. (2012). Challenges and risks of Internet use by children. How to empower minors? [Retos y riesgos del uso de Internet por parte de los menores. ¿Cómo empoderarlos?]. *Comunicar*, 39, 65-72. <https://doi.org/10.3916/c39-2012-02-06>
- Thüringer Ministerium für Bildung, Jugend und Sport (Ed.) (2018). Statistisches Informationssystem Bildung: Personal nach Alter und Durchschnittsalter. [Statistical education information system: Staff by age and average age]. <http://bit.ly/36OmkU1>
- Trültzsch-Wijnen, C., Murru, M.F., & Papaioannou, T. (2017). Definitions and values of media and information literacy in a historical context. In *Public policies in media and information literacy in Europe: Cross-country comparisons* (pp. 91-115). Routledge. <https://doi.org/10.4324/9781315628851-3>
- UNESCO (Ed.) (2013). Global media and information literacy assessment framework: Country readiness and competencies. <http://bit.ly/2PVWFal8>
- Wernstedt, R., & John-Ohnesorg, M. (2008). *Soziale Herkunft entscheidet über Bildungserfolg Konsequenzen aus IGLU 2006 und PISA III*. [Social background decides about success in education. Consequences from the IGLU 2006 and the PISA III]. Friedrich-Ebert-Stiftung. <http://bit.ly/2Ss3xKc>
- Wolling, J., & Berger, P. (2018). *Die Vermittlung von Medienkompetenz in allgemeinbildenden Schulen: Zentrale Ergebnisse eines Evaluationsprojekts*. [Fostering media literacy in general education schools: Central results of an evaluation project]. Ilmenau Universitätsverlag. <https://doi.org/10.22032/dbt.34913>