

Critical Media Literacy and Islamist Online Propaganda: The Feasibility, Applicability and Impact of Three Learning Arrangements

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The networked structure of the internet facilitates the dissemination of extremist messages and often makes removal impossible. Equipping media users with critical (preventive) skills appears a more promising strategy than trying to block any exposure to extremist messages. Although various prevention programs follow this approach, research on their impact and success is scarce. This contribution describes how prevention programs can benefit from systematic evaluation using the example of the CONTRA school program, which seeks to foster critical media literacy with regard to extremist online messages via three sub-dimensions: awareness, reflection, and empowerment. The feasibility, applicability and impact of methods and measures developed in the context of CONTRA were assessed using an innovative mixed method design. The contribution describes the scientific approach of the prevention program, outlines the results of the evaluation and extrapolates from this prevention program to the general question of best practices for prevention programs with a specific focus on the school context.

Keywords: evaluation, critical media literacy, extremist propaganda, school, primary

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Stumbling upon or intentionally searching for extremist online propaganda is part of everyday media reality, particularly for adolescents and young adults (see for example, Reineemann et al. 2019). Islamist actors are among the principal producers of such propaganda material (Gartenstein-Ross, Barr, and Moreng 2016). The impulse of repression-oriented actors and legal entities is to protect people from this kind of extremist online content, for instance by finding legislative means to delete it. This endeavor is problematic for two reasons: First, the networked structure of the internet facilitates the dissemination of extremist messages and often makes removal impossible. Second, deleting content—whether by private actors or legal entities—raises questions of censorship and freedom of speech (Beuth 2017).

Theories that stress the importance of self-determination (for example, Ryan and Deci 2000) and authentic experiences of learning competence and autonomy (for example, Dewey 1993) favor equipping media users with preventive mechanisms rather than preventing any exposure to extremist messages. Consequently, one approach lies in the promotion of *critical media literacy* (Hobbs 2016; Kellner and Share 2007) as an important aspect of primary prevention.¹

Although various programs in the field of radicalization prevention seek to equip young media users with the skills and literacy to navigate (digital) media, systematic evaluation of positive—or potential non-intended negative—effects is scarce. The European Radicalisation Awareness Network reports a general lack of knowledge on the effects of prevention programs (RAN 2016), in particular for programs addressing media literacy (RAN 2017). Many of these programs actually appear to be evaluated on the basis of anecdotal evidence (for example, Lum, Kennedy, and Sherley 2006). Consequently, specific knowledge about best practices is needed.

In order to address these shortcomings,² we developed and evaluated three learning arrangements for implementation in class as part of the interdisciplinary project CONTRA.³ We developed these learning arrangements on the basis of

recent findings from (media) psychology, educational, and radicalization research. They aim to foster critical media literacy in response to extremist online messages.

This paper presents the scientific approach of this prevention program and supplies insights into the innovative evaluation design and results. As such, it addresses the question of the extent to which the learning arrangements are able to promote critical media literacy (awareness, reflection, empowerment) with regard to extremist messages. Further, it extrapolates from this prevention program to the general question of best practices for programs with a specific focus on school context. In so doing, it contributes to the research on radicalization prevention (for example, Armbrorst and Kober 2017) as well as to literature on media pedagogical measures and their potential effects (for example, Bergsma and Carney 2008; Reynolds and Scott 2016).

In the following, we first shed some light on the nature of Islamist propaganda, outline reasons why young people are vulnerable to extremist messages, and discuss different attempts to counter Islamist propaganda. Subsequently, we elaborate on the underlying concept of critical media literacy in relation to CONTRA learning arrangements for primary radicalization prevention in schools, and describe the evaluation procedure.

1. Islamist Online Propaganda and Attempts to Counter it

1.1. Vulnerability and Susceptibility of Adolescents to Propaganda

The internet is the perfect instrument for broadcasting messages without temporal or geographical restrictions. Islamist extremists have discovered these benefits; they use the internet as their home base and operational area (Chatfield, Reddick, and Brajawidagda 2015). Their messages often target young people.

During adolescence, cognitive representations and political schemes start to differentiate and develop, although the understanding of abstract concepts such as democracy is not yet solidified and stable (Torney-Purta 1992). The search for identity, the development of individual values, and the testing

¹ With regard to primary prevention, we follow the definition by Caplan and Caplan (2000, 131): “organized programs for reducing the incidence (rate of new cases) of a disorder in a defined population”. In the current context, we understand primary prevention as prevention of new cases of radicalization especially within youths.

² For further information about the content of the learning arrangements see below or refer to Ernst et al. 2018.

³ While the current article focuses on fostering critical media literacy to deal with Islamist online propaganda, the CONTRA school program deals with both Islamist and right-wing extremist online propaganda. Its general approach followed an ideology-unspecific logic. In this paper, implications especially relevant to countering Islamist extremist propaganda are emphasized.

of boundaries are essential developmental tasks, and ones which make adolescents potentially vulnerable to radical messages (Fend 2005). Islamist agents target these insecurities and developmental openings. They present their beliefs and ideologies as meaningful and identity-promoting, offering answers to questions that interest many young people, for example, “Which professions are compatible with Muslim faith?” (Lützing 2010; Sieckelink and De Winter 2015). Moreover, extremist actors deliberately connect their messages to topics and search terms that are relevant for younger age groups or even borrow marketing strategies from popular media culture such as games or music videos to distribute their ideas (Jugendschutz.net 2015a, 2015b).

1.2. Measures to Counter Islamist Online Propaganda

In order to offer something in reply, actors in civic education, youth prevention, and security agencies seek to disseminate anti-extremist messages in the same environment. This includes counter-message campaigns that actively set out to counter or deconstruct extremist ideas—often distributed and promoted via social media channels. The web video campaign “Begriffswelten Islam” (bpb 2015) is one German example of such counter-messages. In the English-speaking world, there is, for instance, the initiative “#NotInMyName” (Active Change Foundation 2016) and the online campaign “The Redirect Method” (Jigsaw 2015) initiated by Google.

Nevertheless, research concerning the effectiveness of counter-messages has found mixed results. The effects seem to depend on the perceived narrativity of the message, its genre, and individual characteristics of the recipients: The more a counter-message tells a story (higher narrativity), the more it fosters recipients’ identification with the content and willingness to consume further counter-messages and share them in their social networks (Morten et al. 2017). Moreover, counter-messages created by former extremists (“exiters”) are evaluated more positively and remembered for a longer time than other genres (Frischlich et al. 2017). In contrast, counter-messages that actively deconstruct an extremist message by correcting or ridiculing it seem to raise reactance and run the risk of being automatically rejected (Hemmingsen and Castro 2017). As far as susceptibility to extremist arguments is concerned, the effectiveness of counter-messages also depends on pre-existing attitudes towards ex-

tremism and violence: extremist propaganda and counter-messages appeal most strongly to people who are already receptive to the topic (Hemmingsen and Castro 2017).

Earlier work on the role of social media features suggests that using social media to spread counter-messages might risk actually guiding users to extremist material. For example, individuals might come across hate speech in the user comments related to counter-message videos (Ernst et al. 2017) or receive recommendations for extremist content through the thematic overlap of counter-messages and extremist messages (for example, via shared keywords). Similarly, “recommendation” algorithms on social media platforms such as YouTube may facilitate contact to extremist content (Schmitt et al. 2018).

This may pose severe problems, especially for younger users who lack *critical media literacy* (Sonck et al. 2011). They need to develop comprehensive knowledge and a deeper understanding of social media functionalities in order to foster a critical understanding of both manipulative messages and the internet as distribution channel (Rieger et al. 2017).

2. Critical Media Literacy in Prevention Work

According to Ganguin and Sander (2015), critical media literacy may be understood as the analytical, reflexive, and ethical assessment or judgment of media content. In the prevention context of potential negative propaganda effects, we divide critical media literacy into three intertwined sub-dimensions: *awareness*, *reflection*, and *empowerment*.

Awareness means knowledge of the existence of extremist messages on the internet, of the possibility of encountering propaganda. It also encompasses knowledge of manipulation and propaganda mechanisms (for example, rhetorical and visual resources) and the way in which media offerings operate (including the function of algorithms; Buckingham 2006). Awareness may initiate subsequent processes such as *reflection* (Dewey 1910).

From a psychological perspective, *reflection* can be understood as a meta-cognitive process “that creates greater understanding of self and situations to inform future action” (Sandars 2009, 685). In the context of critical media literacy, reflection means applying analytical criteria to online content and considering whether it is extremist and/or propaganda.

As such, *reflection* engages the individual's knowledge, skills, and attitudes to critically reflect on (media-communicated) messages in terms of specific criteria (such as credibility, source, and quality). Reflection can be practiced successfully within a protected framework (Sandars 2009)—such as school may provide. Research demonstrates that reflection processes are fostered by individual factors such as age, curiosity, openness, autonomy (Dewey 1910; Naghdipour and Emeagwali 2013), peer interactions (Song, Kosalka, and Grabowski 2005), and cooperative learning environments (Hua 2008).

Empowerment involves strategies and methods fostering the individual's confidence in their ability to detect manipulative messages, to participate in social discourses, and to position themselves actively against extremism and group-focused enmity. It may be described as a specific mode of acting that includes the individual's ability to perceive and express their doubts concerning specific content and to voice their own opinions. Empowerment builds on knowledge (awareness) and critical thinking (reflection) about media conveyed messages—and may also be a predictor for greater awareness. Feeling *empowered* supports the individual's engagement with media, which, finally, is an important predictor of online and offline political participation (Hobbs 2016).

Awareness, reflection and empowerment are considered intertwined (see Figure 1). As awareness of propaganda grows, so does the ability to reflect critically upon it; critical reflection on radical content, in turn, requires knowledge regarding the presence of such content in the internet. Reflection on extremist content affects the possibility to actively position oneself vis-à-vis such content (empowerment) and may in-

crease awareness of the contributions of those who have already taken a stance against propaganda on the internet.

One means of equipping young people with these competencies is to integrate critical media literacy within formal education, where schools are important communicators of democratic values and competencies (Oberle 2017).

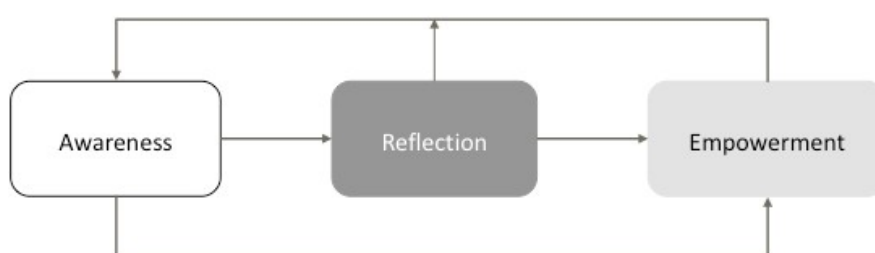
3. Educational Institutions as Important Prevention Agents

Education in school “is a powerful antidote to propaganda” (Hobbs and McGee 2014, 59). The formal learning conditions that school provides may enable a structured and targeted promotion of critical media literacy (Martens and Hobbs 2015). However, Hobbs and McGee (2014) criticize the way extremism-related media education has in the past focused on analyzing the content and strategies of propaganda, as this largely ignores the pupils' social context and living circumstances. They argue that school programs should not only aim to deliver skills to recognize and resist propaganda, but should consider the pupils' individual environment and enable them to question extremist messages and oppose them in social discourse.

On a formal level, the implementation of such school programs depends on planning of timetables and school curricula. On a content level, success of school education (not only regarding the promotion of critical media literacy) depends mainly on media-literate teachers. Particularly in the context of extremist messages conveyed via online media, both teachers' media competence and their confidence in dealing with controversial topics (for example, extremist messages) are necessary.

Several studies point to teachers' uncertainties concerning the aforementioned areas (Hobbs and Tuzel 2017; Initiative 21 e.V. 2016). This underlines the importance of not just providing the methods and measures for classroom implementation but also raising teachers' awareness of the importance of the topic (extremist propaganda online) and providing training designed to create confidence (for example, their own media literacy, dealing with the topic of extremism).

Figure 1: Sub-dimensions of critical media literacy #weARE



4. Systematic Evaluations of Radicalization Prevention Programs

Until now, such school programs have been few and far between, and research and evaluation are scarce. This applies to: (1) focused prevention programs against extremist ideologies⁴; (2) programs and materials that foster critical media literacy *in schools*⁵; (3) prevention programs that build upon a carefully derived theoretical framework; and (4) systematic research on the respective programs' intended and unintended effects (for example, generating interest in extremist ideologies). There are manifold reasons for the deficiency. Besides a general lack of resources, there seem to be uncertainties regarding the evaluation criteria and methods required to perform a specific evaluation (for example, knowledge regarding potential effects of programs, and how to streamline programs, Kübler 2014; Armbrorst and Kober 2017). The Institute for Strategic Dialogue published two rare examples of evaluations of prevention programs. (1) Reynolds and Scott (2016) provide results of an evaluation of a school intervention called "Digital Citizenship" aiming to "develop digital citizenship, critical thinking skills and knowledge of social media phenomena" (56). (2) Reynolds (2017) presents an overview of the theoretical background, the origins and the evaluation of a program of extracurricular workshops named "Be Internet Citizen," designed to teach media literacy, critical thinking, and digital citizenship. In order to thoroughly evaluate the effectiveness of these programs, Reynolds and Scott (2016) and Reynolds (2017) combined different qualitative and quantitative methods. For both programs, they found positive assessments by pupils and education professionals. They found positive effects of the measures with regard to their objectives and—more importantly—they also identified potential improvements to measures and methods and strategies for adapting them to new contexts (for more information, see Reynolds and Scott

⁴ One example would be the project MEET: <http://meetolerance.eu/en/about/>. It seeks to promote "a critical and intercultural understanding as well as an aware use of media among young citizens in multicultural public schools and democratic societies." However, no information is available on any evaluation of the methods and materials used in schools.

⁵ Although various materials for implementation in schools are freely available (for example, <http://www.klicksafe.de/service/schule-und-unterricht/zusatzmodule-zum-lehrerhandbuch/>, <http://extremedialogue.org/educational-resources/>), most lack a systematic evaluation.

2016; and Reynolds 2017). Another rare example is the evaluation of several programs run by the German NGO Ufuq.de (Schwenzer and Sträter 2018). Using qualitative and quantitative measures to evaluate their success, Schwenzer and Sträter derived important suggestions for improvements—despite an overall very positive evaluation.

These reports underline the importance of an evaluation of intervention strategies. Following these examples, CONTRA aims to foster critical media literacy—as conceptualized above—in response to extremist online messages. CONTRA focused on deriving methods and measures from a theoretically sound framework, and on a thorough evaluation.

5. Evaluation of the CONTRA School Program

The CONTRA school program serves to support primary radicalization prevention addressing *all* pupils. It aims to strengthen personal resources and enhance a desired behavior (the ability to engage in critical media literacy), rather than focusing on deficits (Ceylan and Kiefer 2013). The three learning arrangements we designed built upon the following aspects of the literature and practice: (1) the theoretical background on critical media literacy as outlined above; (2) findings from communication studies and (media) psychology on the effects of online propaganda and counter-messages; (3) radicalization research; and (4) two qualitative empirical pretests of learning arrangements (for more details, see Ernst, Schmitt, Rieger, and Roth 2018). See Table 1 for description, purpose and theoretical background of the three learning arrangements.

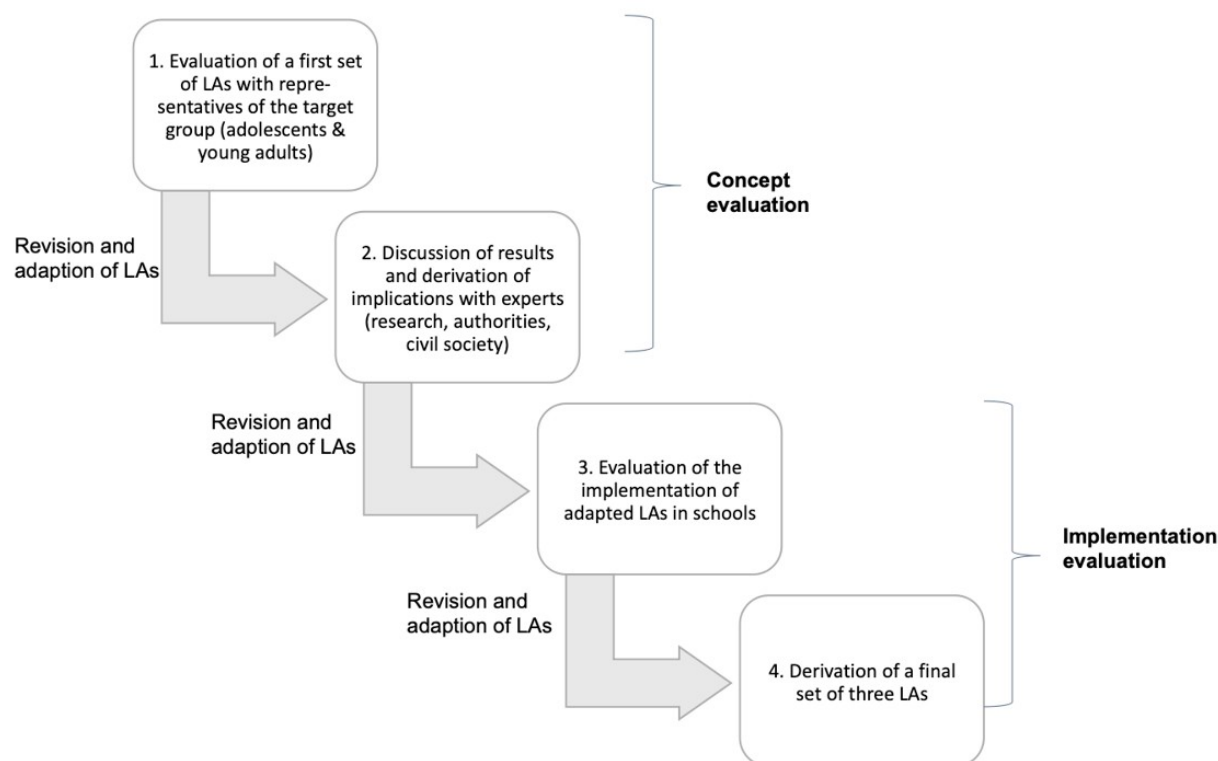
In the framework of the school program described here, we addressed the deficits of many other programs by developing the learning arrangements on the basis of scientific knowledge and systematically evaluating their feasibility and effects. The evaluation raises the central research question: To what extent do the learning arrangements promote critical media literacy (awareness, reflection, empowerment)?

In social scientific research, evaluation means a scientifically sound assessment of facts, methods, and measures with regard to *specific criteria* (for example, efficiency, acceptance, sustainability) while taking into account the perspective of relevant stakeholders (Döring and Bortz 2016). The example of the CONTRA learning arrangements illustrates the necessity and relevance of a careful evaluation.

Table 1: Overview of three evaluated learning arrangements (LAs)

Name of LA	Purpose	Theoretical foundation
LA I “Defining Propaganda”	Aims at the interactive construction of a working definition of propaganda to form the basis for the following two LAs. In order to achieve this, pupils watch authentic propaganda videos (e.g., Islamist propaganda videos) and discuss and analyze them with their peers. Studies indicate that adolescents feel discomfort when confronted with propaganda (Cottee and Cunliffe 2018), but they are unable to put their feelings into words (Rieger, Frischlich, and Bente 2013). Furthermore, research has shown that, during adolescence, peers are the most important persons when it comes to the exchange of information about media content, and this makes them an important factor in learning and educational processes in the context of media (Harring et al. 2010). Dealing with the topic of propaganda therefore requires LAs that give adolescent learners opportunities to discuss propaganda with their peers.	This LA focuses primarily on the two target dimensions of awareness and reflection. When dealing with propaganda, as a specific form of communication with specific characteristics—such as for example group-related denigration (Merten 2000)—the raising of awareness becomes the most important task of primary prevention. The distinct characteristics listed in the definition of propaganda furthermore enable the highlighting of certain aspects and create room for comparisons—and thus potentially also lead to reflection.
LA II “Reflecting on Everyday Media Usage”	Aims to encourage adolescents to reflect on their everyday usage of online media, in particular with regard to the functional principles of the extremely popular online platform YouTube (mpfs 2017). The LA focuses mainly on YouTube’s so-called recommendation algorithms. As adolescents may come across internet propaganda in their everyday life—deliberately or incidentally (e.g., Rieger et al. 2017)—they must be encouraged to actively reflect on their media activities. In this regard, it is essential to align LAs at school as closely as possible with situations that students might encounter in their out-of-school life (e.g., Dewey 1993)—for instance, by integrating the work on YouTube in the LA.	This second LA addresses all three sub-dimensions of critical media literacy: awareness, reflection, and empowerment. It aims to raise students’ awareness of the fact that extremist messages are only a few clicks away and could cross their path at any time, even though they might not be looking for it. The LA also covers knowledge about ways in which automated algorithms function on YouTube—and the effects they might have (e.g., filter bubble). Discussions on click paths and ways to break out of the filter bubble have the potential for triggering further reflection on users’ own media activities, as well as pointing to options for changing and broadening them (empowerment).
LA III “Dealing with Propaganda”	Aims at testing reactions to extremist propaganda. In concrete terms, the pupils are asked to conceptualize a counter-message that undermines the one-sided ideological positioning of a piece of propaganda. In doing so, they can apply and refine the working definition of propaganda that has been developed in LA I and put to the test in LA II. Conceptualization of a counter-message represents an action-oriented approach to the nature of propaganda in the sense of “learning by doing” (Dewey 1993). This access can provide pupils with a learning experience that is of especially sustainable benefit. Furthermore, they can process and incorporate aspects and peculiarities related to new media that are of particular relevance for their phase of life (Hurrelmann and Quenzel 2013).	This LA addresses the target dimension of empowerment. The pupils are given the chance to actively discuss, balance and shape their options for reacting to propaganda—in a self-chosen scenario that is true to their own lifeworld.

Figure 2: Evaluation steps of the CONTRA learning arrangements



5.1. Evaluation Design

Several development steps preceded the development of the three learning arrangements (see Figure 2)—each leading to a careful revision and adaption of the respective learning arrangements.⁶ The first version of the learning arrangements was evaluated in a qualitative pretest with ten representatives of the future target group (aged 17 to 21, male = 8, female = 2) and a discussion with experts from different fields (research, authorities, civil society).⁷ These two steps were vital in enabling us to detect which of the didactical methods worked, which did not, and which were associated with unintended (negative) effects.⁸ The expert workshop discussion of the first set of learning arrangements and the pretest results also served as a first step to legitimate the school program among relevant stakeholders.

⁶ For reasons of space, we can only give a brief overview of the design, procedure and results of the evaluation study. For more details, please refer to Schmitt et al., forthcoming.

⁷ More information on the pretest can be found in Ernst et al. 2017; also Ernst et al. forthcoming.

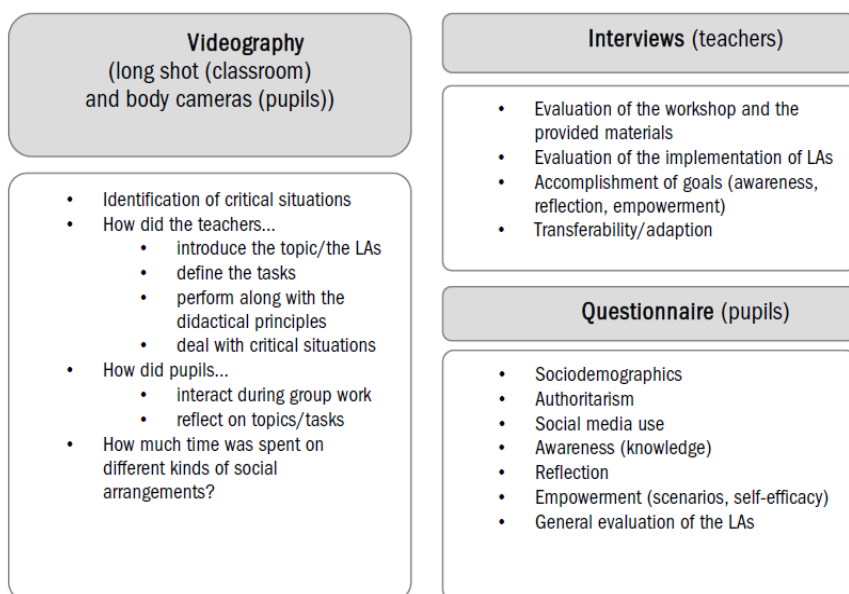
⁸ For instance, a learning arrangement about conspiracy theories stimulated conspiracy thinking in the young people, and was therefore withdrawn (for a detailed overview, see Ernst et al. 2017).

In a next step, we tested the implementation of the adapted learning arrangements in schools. Methodologically, we employed a combination of a pretest-posttest (T1, T2) two-group (control and experimental) questionnaire administered in the field (Hoyle, Harris, and Judd 2002, *summative evaluation*), and behavioral observation (*formative evaluation*). According to Cresswell (2014), this design can be termed a *convergent parallel mixed-method design*, meaning that we collected qualitative and quantitative data within a comparable period.

We collected observational data using video meaning that we recorded the implemented learning arrangements in the class using two long-shot cameras (one focusing on the teacher, another focusing on the class) and ten body cameras. We complemented this design with guided expert interviews with the responsible teachers. We triangulated findings from the interviews and video recordings with the quantitative survey, for example in an explanatory function for effects found in the quantitative data.⁹ Figure 3 gives an overview of

⁹ Various methods were applied to analyze the video material: qualitative content analysis (Mayring 2010), documentary conversation analysis (Przyborski 2004) and segmentation analysis (Dinkelaker

Figure 3: Evaluation steps of the CONTRA learning arrangements



workshop, teachers learned about the underlying concept of critical media literacy and the content, procedures, and didactical principles of the learning arrangements. They were also given (1) a manual with detailed guidelines for implementing and conducting the learning arrangements; (2) background materials on extremist online propaganda and counter-messages; and (3) information on how to detect and respond to radicalization.

5.3. Measures

In the questionnaire, we measured *awareness* by asking pupils about their knowledge about the characteristics of propaganda, counter-messages, and

Table 2: Overview of the sample (after exclusion of cases with invalid data)

	Experimental group	Control group
n	38	22
Gender	Male = 30 female = 8	Male = 14 female = 8
Age	M = 18.89 (SD = 2.4)	M = 20 (SD = 1.14)

the concepts that we measured to answer the research question of the evaluation.¹⁰

5.2. Sample

We assessed the effectiveness of three learning arrangements (90 minutes each) in two vocational schools. Three female teachers implemented the learning arrangements in their classes (experimental group), two further classes served as the control group, $N_{pupils} = 60$ (Table 1 gives an overview of the sample; 33 pupils were excluded as they lacked data for T1 or T2). We trained teachers in advance in a three-hour workshop conducted by two of the researchers.¹¹ In this and Herrie 2009)

¹⁰ Due to reasons of space, in the present paper we describe only the measures assessing the effectiveness of the program with regard to awareness, reflection, and empowerment.

¹¹ Teachers from all secondary schools in Cologne were invited to take part in the workshops. Eleven teachers in the workshops, three

of whom implemented the learning arrangements in their classes. Following Reynolds and Scott (2016), pupils were presented four scenarios exemplifying different ways of encountering online extremist material and hate speech. The scenarios represented a spectrum of situations allowing different appropriate reactions and justifications. They were asked to choose from a list of behavioral options (same options for each of the four scenarios), describing how they would react (for example, "I would try to discuss with the person about why they think and feel that way"). Next, they were asked to give a justification for their decision, using an open question. For analysis, we categorized the behavioral intentions as follows: *individual*, *interactive actions* that include a direct interaction between the subject/s of the story and the participant; *negative actions* include insults or vilification of the subject/s of the story; *authoritative actions* aim at involving a third party in the situation; *no/inactive actions* are characterized by lack of action. Open-ended answers were categorized using qualitative content analysis based on Mayring (2010).

Table 3: Overview of the psychometrics of awareness, reflection, and empowerment

<i>Awareness</i>					
	<i>N</i>	<i>M_{T1}</i>	<i>SD_{T1}</i>	<i>M_{T2}</i>	<i>SD_{T2}</i>
EG	39	7.46	2.59	8.33	3.08
CG	21	8.10	2.53	7.62	1.91
<i>Reflection</i>					
	<i>N_{T1} (N_{T2})</i>	<i>M_{T1}</i>	<i>SD_{T1}</i>	<i>M_{T2}</i>	<i>SD_{T2}</i>
EG	37 (34)	3.63	0.53	3.59	0.66
CG	20 (20)	3.60	0.33	3.63	0.56
<i>Empowerment</i>					
<i>Scenario</i>	<i>N</i>	<i>M_{T1}</i>	<i>SD_{T1}</i>	<i>M_{T2}</i>	<i>SD_{T2}</i>
<i>interactive¹</i>					
EG	34	9.47	2.38	8.85	2.78
CG	21	8.24	1.89	8.52	2.42
<i>authoritative¹</i>					
EG	34	1.94	2.07	2.03	2.50
CG	21	0.86	1.11	1.24	2.17
<i>negative²</i>					
EG	34	9.56	0.82	9.59	0.96
CG	21	9.62	0.8	9.67	0.97
<i>no/inactive²</i>					
EG	34	8.26	1.42	7.82	1.95
CG	21	9.00	1.26	8.71	1.31
<i>Self-efficacy</i>	<i>N_{T1} (N_{T2})</i>	<i>M_{T1}</i>	<i>SD_{T1}</i>	<i>M_{T2}</i>	<i>SD_{T2}</i>
EG	35 (34)	3.65	0.64	3.60	0.71
CG	20 (21)	3.60	0.52	3.68	0.62

Note:

¹Scores based on four items; ²Scores based on two items; EG: experimental group; CG: control group

Scott 2016) and (2) *media-related self-efficacy* (six items constructed following the guidelines in Bandura 2006). For example: “I am convinced that I am able to respond to comments on social networking sites that denigrate an ethnic or religious group”; Cronbach’s $\alpha_{T1} = .64$, Cronbach’s $\alpha_{T2} = .71$. Reflection and self-efficacy items were answered using a five-point Likert scale (1 = *strongly disagree*; 5 = *strongly agree*). We created sum scores (awareness) and mean scores (reflection, self-efficacy) for T1 (pretest) and T2 (posttest). For selected analyses, we used difference scores

(Diff = T2-T1). With regard to the instrument “behavioral intentions and their justification”, we first excluded cases with missing values in any of the four scenarios. Next, we summed identical items over the four scenarios (range: 0 to 4) and re-coded values into a five-point Likert scale (1 = *not empowered at all*, 5 = *very empowered*). Table 3 gives an overview of the psychometrics for each concept.

We assessed potential covariates such as the pupils’ evaluation of the learning arrangements (for example: “How did you like the three sessions dealing with YouTube and propaganda? I thought they were relevant for me.”) as well as general social media use (for example: “How often do you do the following things on social networking sites like YouTube or Facebook?”, for example: “Check my account.”. All questions were assessed on a seven-point scale (1 = *never*, 7 = *more than once per day*), (eight items, $M = 3.84$; $SD = 1.37$; Cronbach’s $\alpha = .89$).

6. Results and Discussion

6.1. Summary and Integration of Quantitative and Qualitative Results

Following the idea of a convergent parallel mixed method design, the following paragraphs provide the results of both quantitative and qualitative analyses and integrate them in the interpretation and discussion of the results. Tables 4 a to c give an overview of the zero-order correlations of all relevant variables.

In the experimental group we found significant gains in *awareness* over time, meaning that the learning arrangement was able to foster awareness. The experimental group showed a significantly higher difference score for awareness ($M = 0.87$, $SD = 3.09$) than the control group ($M = -0.48$, $SD = 1.66$), $t(57.99) = 2.20$, $p = .032$, $d = 0.54$). In order to analyze the influence of predictor variables, we calculated two regression analyses: (1) including gender, social media use, reflection and self-efficacy (Table 5); (2) including evaluation items rated by the pupils (Table 6). For all calculations relating to awareness, we used the statistics software SPSS (Version 23, 2015).

The video material offers further insights into teacher behavior and possible influences on the effects of the learning arrangements. It shows that the more intensively and competently teachers introduced and talked about a topic, the

Table 4a: Awareness: Zero-order correlations

		T1_aware ness	T2_aware ness	Group (1 = EG)	Gender (1 = male)	Rele- vance	Informa- tiveness	Differ- ence re- flection	Differ- ence self-effi- cacy	Teacher knows all	Social media use
T1_awareness	<i>r</i>	1	.500**	-.220	-.054	-.179	.332	.180	.095	.133	.105
	<i>p</i>		.000	.091	.683	.318	.059	.176	.486	.433	.426
	<i>N</i>		60	60	60	33	33	58	56	37	60
T2_awareness	<i>r</i>		1	.013	.136	-.360*	.339	.190	.290*	.343*	-.079
	<i>p</i>			.919	.302	.040	.053	.154	.030	.038	.549
	<i>N</i>			60	60	33	33	58	56	37	60
Group (1 = EG)	<i>r</i>			1	.111	. ^c	. ^c	.010	-.090	. ^c	.010
	<i>p</i>				.400	.000	.000	.942	.509	.000	.941
	<i>N</i>				60	33	33	58	56	37	60
Gender (1 = male)	<i>r</i>				1	-.045	-.025	-.136	.177	-.155	.106
	<i>p</i>					.802	.892	.310	.192	.360	.420
	<i>N</i>					33	33	58	56	37	60
Relevance	<i>r</i>					1	.028	.021	.139	.024	.147
	<i>p</i>						.877	.908	.455	.895	.413
	<i>N</i>						33	32	31	33	33
Informative- ness	<i>r</i>						1	.039	-.221	.021	.289
	<i>p</i>							.830	.232	.909	.103
	<i>N</i>							32	31	33	33
Difference re- flection	<i>r</i>							1	.210	.126	-.112
	<i>p</i>								.120	.464	.402
	<i>N</i>								56	36	58
Difference self- efficacy	<i>r</i>								1	-.055	-.131
	<i>p</i>									.759	.335
	<i>N</i>									34	56
Teacher knows all	<i>r</i>									1	-.048
	<i>p</i>										.779
	<i>N</i>										37
Social media use	<i>r</i>										1
	<i>p</i>										
	<i>N</i>										60

Note: ** $p < 0.01$ (2-sided), * $p < 0.05$ (2-sided)

c. Informativeness, relevance and “teacher knows all” were only measured for EG. Thus, EG is a constant.

more pupils were able to acquire knowledge (awareness)—which seems to be a quite trivial finding as knowledge transfer should constitute a routine aspect of school (Baumert and Kunter 2006). Altogether, the results for awareness demonstrate that the learning arrangements were able to provide competence in detection of and knowledge about propaganda, which might diminish unease when it is encountered online (Cottee and Cunliffe 2018, Rieger et al. 2013).

With regard to *reflection*, we calculated *t*-tests and multi-level analyses using the software R (version 3.4.3, 2017).

We did not find effects of the learning arrangements in the quantitative data. However, qualitative content analysis of recordings of selected body cameras found that pupils in the experimental groups engaged in relevant reflection processes (for example, discussing the financial/political intentions of the video producers). Teachers’ statements reporting “light-bulb” moments among pupils (especially in learning arrangement II) underline this result. Teachers also reported time pressure with regard to the preparation and the implementation of learning arrangement I, which may have limited the

Table 4b: Reflection: Zero-order correlations

		T1_Reflection	T2_Reflection	Group (1 = EG)	Gender (1 = male)	Age	Social media use
T1_Reflection	r	1	.553**	.073	-.119	.161	-.032
	p		.000	.579	.363	.226	.809
	N	60	58	60	60	58	60
T2_Reflection	r		1	.068	-.215	.299*	-.126
	p			.610	.105	.025	.345
	N		58	58	58	56	58
Group (1 = EG)	r			1	.111	-.247	.010
	p				.400	.062	.941
	N			60	60	58	60
Gender (1 = male)	r				1	-.154	.106
	p					.247	.420
	N				60	58	60
Age	r					1	-.156
	p						.242
	N					58	58
Social media use	r						1
	p						
	N						60

Note: ** $p < .01$ (2-sided), * $p < .05$ (2-sided)

possibility to reflect on propaganda in learning arrangements II and III. The latter observation has implications for revision and adaption of teaching materials. The final version of the teachers' manual, for example, included an exact indication of the time required for the different phases of the learning arrangements.

Concerning *empowerment*, we ran *t*-tests as well as variance analyses¹³ using the software R (version 3.4.3, 2017) in order to analyze group differences. Here again, there were no significant findings in the quantitative data. This result can be explained with help of teachers' statements: Teachers found themselves overwhelmed by the tasks of the third learning arrangement and supporting their pupils to conceptualize a counter-message. They also found their students to be overtaxed by the requirements of learning arrangement III. Nevertheless, qualitative content analysis of pupils' justifications of intended behaviors in critical online situations (see assessment of empowerment) indicated some differences between the experimental and the control group. Pupils in

the experimental group were more likely to adjust their justifications over time than pupils in the control group. Moreover, pupils in the experimental group seemed to consolidate their interactive (and positive) explanations for their intended behaviors in critical online situations. Thus, we may—cautiously—conclude that dealing with the topic in the context of the learning arrangement particularly empowered pupils with a pre-existing preference for positive, (inter-)active actions.

Documentary conversation analysis of videographed material of presentations of counter-messages developed by pupils hints at empowerment, as they were enabled to express their own position “in their own words”. However, time pressure, lack of response by teachers concerning pupils' results, and lack of support from teachers in learning arrangement III may have impeded successful development of empowerment. More detailed instructions for teachers and pupils in the final manual address these difficulties concerning learning arrangement III.¹⁴

¹³ Although, due to the data structure a multilevel analysis seemed to be appropriate, intraclass correlations were too low. Thus, we conducted ANOVAs.

¹⁴ The final version of the manual is reproduced in Ernst et al. 2018.

Table 4c: Empowerment: Zero-order correlations

		T1_Interactive actions	T1_Interactive Negative actions	T1_No actions	T1_Interactive actions	T1_Interactive Negative actions	T1_No actions	T2_Interactive actions	T2_Interactive Negative actions	T1_No actions	T2_Interactive actions	Difference awareness	Difference reflection	T1_Self- efficacy	T2_Self- efficacy	Group (1=EG)	Gender (1=Male)	Social media use
T1_Interactive actions	<i>r</i>	1																
	<i>p</i>																	
	<i>N</i>	60	60	60	60	60	60	60	60	60	60	60	60	57	56	60	60	60
T1_Negative actions	<i>r</i>	1																
	<i>p</i>																	
	<i>N</i>	60	60	60	60	60	60	60	60	60	60	60	60	57	56	60	60	60
T1_No actions	<i>r</i>	1																
	<i>p</i>																	
	<i>N</i>	60	60	60	60	60	60	60	60	60	60	60	60	57	56	60	60	60
T1_Authoritative actions	<i>r</i>	1																
	<i>p</i>																	
	<i>N</i>	60	60	60	60	60	60	60	60	60	60	60	60	57	56	60	60	60
T2_Interactive actions	<i>r</i>	1																
	<i>p</i>																	
	<i>N</i>	60	60	60	60	60	60	60	60	60	60	60	60	57	56	60	60	60
T2_Negative actions	<i>r</i>	1																
	<i>p</i>																	
	<i>N</i>	60	60	60	60	60	60	60	60	60	60	60	60	57	56	60	60	60
T2_No actions	<i>r</i>	1																
	<i>p</i>																	
	<i>N</i>	60	60	60	60	60	60	60	60	60	60	60	60	57	56	60	60	60

	T1_Interactive actions	T1_Negative actions	T1_No actions	T1_Authori- tative actions	T2_Interactive actions	T2_Negative actions	T1_No actions	T2_Authori- tative actions	Difference awareness	Difference reflection	T1_Self- efficacy	T2_Self- efficacy	Group (1=EG)	Gender (1=male)	Social media use
T2_Authoritative actions	<i>r</i>							1	.154	.088	.001	.174	.149	.133	-.044
	<i>p</i>								.240	.518	.993	.201	.255	.310	.741
	<i>N</i>							60	60	56	57	56	60	60	60
Difference awareness	<i>r</i>							1		-.011	.244	.353**	.278*	.144	-.068
	<i>p</i>									.937	.067	.008	.032	.271	.606
	<i>N</i>							60	56	56	57	56	60	60	60
Difference reflection	<i>r</i>								1		.081	.313*	-.080	-.096	-.114
	<i>p</i>										.558	.020	.558	.482	.404
	<i>N</i>								56	54	54	55	56	56	56
T1_Self-efficacy	<i>r</i>										1	.486**	-.002	.104	-.301*
	<i>p</i>											.000	.990	.441	.023
	<i>N</i>										57	54	57	57	57
T2_Self-efficacy	<i>r</i>											1	-.039	.331*	-.369**
	<i>p</i>												.773	.013	.005
	<i>N</i>											56	56	56	56
Group (1 = EG)	<i>r</i>												1	.167	.056
	<i>p</i>													.203	.672
	<i>N</i>												60	60	60
Gender (1 = male)	<i>r</i>												.167	1	.121
	<i>p</i>												.203		.356
	<i>N</i>												60	60	60
Social media use	<i>r</i>													1	
	<i>p</i>														
	<i>N</i>														60

Note: ** $p < .01$ (2-sided), * $p < .05$ (2-sided)

Table 5: Model 1 – Predicting awareness (T2)

Predictor	B	SE	t	p
(intercept)	6.70	.69	10.19	< .001
T1 awareness	1.04	.33	3.17	.003
Gender (reference: male)	0.73	.72	1.01	.317
Social media use	-0.13	.33	-0.46	.649
Group (reference: EG)	1.35	.64	2.12	.039
Difference reflection	0.33	.38	0.87	.390
Difference self-efficacy	0.35	.33	1.09	.283

Note. Group: 1 = EG, 0 = CG; gender: 1 = male, 0 = female, $n = 56$; four observations deleted due to missing values, $F(6, 49) = 3.35$, $p = .008$, adjusted $R^2 = .20$

Table 6: Model 2 – Predicting awareness (T2)

Predictor	B	SE	t	p
(intercept)	8.88	.36	24.73	< .001
Informative	-1.14	.39	-2.94	.007
Relevant for me	1.49	.38	3.92	.001
My teacher knows all about the topic.	1.09	.38	2.88	.008

Note. Group: $n = 31$, only EG participants included; eight observations deleted due to missing values, $F(3, 30) = 10.14$, $p < .001$, adjusted $R^2 = .48$.

Based on the teachers' interviews, it can also be assumed that the teachers' lack of familiarity with digital media and their reluctance to deal with topics related to (Islamist) extremism may have prevented further reflection and empowerment in the classroom (see also Schmitt et al., forthcoming). A deeper analysis of the video material might give further insights into these processes.

6.2. Limitations

Although the design of the study and the triangulation of qualitative and quantitative data sources can be regarded as an explicit strength permitting us to explain contradictions, the study still comes with some limitations. First, the results of the quantitative survey are limited due to the sample size. The sample is small and not socio-demographically representative for secondary pupils in Cologne (for more information, see Wulf et al., forthcoming). Second, the questionnaire asked mostly closed, standardized questions measuring awareness, reflection, and empowerment. It is conceivable that the full complexity of the constructs could not be assessed, which would be another possible explanation why we

did not find any changes in reflection and empowerment as a consequence of the implementation of the learning arrangements. A more in-depth qualitative analysis of the video material could give further insights. Future studies could also focus on different ways to operationalize and measure these kinds of complex constructs. They could also include further concepts such as trust in educational institutions and the (subjective) perception of marginalization. It could be interesting to investigate to what extent these variables interact and how they could influence the efficiency and effects of such programs.

Panel conditioning should be mentioned, as a further limitation that could also offer an explanation of the lack of differences between the experimental and control group. Panel conditioning refers to the way experiences within an earlier survey influence behavior at a later point in time (Hoyle et al. 2002; Sturgis, Allum, and Brunton-Smith 2009). In this way, the initial survey (pretest) may itself act as an intervention and influence subsequent responses. Alternatively, potential effects of the learning arrangements might have been overlaid by memory effects.

The implementation and data collection took place within a limited period of approximately three weeks. It can be assumed that changes—in particular regarding the dimensions reflection and empowerment—might appear over the longer term, in the sense that the information delivered and discussed in the context of the learning arrangement has to be consolidated over time in order to show the intended effects on the two mentioned sub-dimensions. On a very practical level, the teachers who implemented the learning arrangements in class could be considered as a confounding variable. Although they were trained beforehand, they reported uncertainties with regard to the topic of extremist online propaganda and social media after the implementation of the learning arrangements. These uncertainties may have negatively affected their performance in class—compared to a “normal” lesson.

7. Implications for Research, Education, and Policy

To the best of our knowledge, the CONTRA project is the first to both develop and evaluate a primary prevention program

for schools against extremist propaganda. It not only contributes important knowledge about the promotion of critical media literacy, but also addresses the research gap related to the evaluation of prevention programs (RAN 2016). It adds to the body of evidence concerning the effects of finding extremist propaganda online; enhancing critical media literacy makes pupils more competent in naming propaganda as such (see Cottee and Cunliffe 2018; Rieger et al. 2013) and better equipped when they receive extremist content on social media (see Schmitt et al. 2018). The results of this evaluation also support research on the effectiveness of counter-messages as prevention tools (Braddock and Horgan 2016, Frischlich et al. 2017). When framed appropriately (in the classroom or through critical media literacy), counter-messages could unfold a stronger inoculating effect than when being distributed without such context.

The suggested school setting can be regarded as especially helpful, since previous research found that the school context provided collective engagement motivation (Wang and Eccles 2013). Further, following the above-mentioned examples of evaluations of prevention programs by the Institute for Strategic Dialogue and Ufuq.de, the present study underlines the importance of a systematic evaluation. Our multistep evaluation allowed us to identify shortcomings of our methods and measures, derive suggestions for improvements, and adapt our materials accordingly.

The evaluation served not only to analyze the program's overall quality and effects but also to legitimize this kind of approach towards relevant stakeholders, such as policy actors (Bortz and Döring 2016). Moreover, it has been shown to be worthwhile to integrate different stakeholders—in this case adolescents and young adults, teachers, and representatives of different authorities (for example security forces)—in the evaluation process. This supplied important information with regard to the feasibility and applicability of the proposed prevention methods and measures. Following this evidence-based approach allowed decisions made in the context of the development of the methods and materials to be viewed as rational, logical, and scientifically sound rather than founded on habit or intuition. The project and results reported here underline the great importance of evaluations of these kind of prevention measures—especially against the background of the volume of resources and efforts devoted to preventing and countering violent extremism on national

and international levels these days (for example, European Commission 2014).

The success of these kinds of prevention measures in formal learning settings (school) depends on more than methodologically sound development of methods and materials. Over the course of the evaluation, we found that their success also stands and falls with the willingness and (subjective and objective) abilities of the pedagogical professionals using them. Accordingly, teachers need to be carefully prepared before working with the topic of (in this case) Islamist extremism. Teachers have been shown to be extremely reluctant to discuss it in the classroom, much more reluctant than with topics related to right-wing extremism, possibly reflecting a lack of knowledge of the symbols, concepts and language (for example Arabic) used in Islamist propaganda. Further, we tend to assume an ideal teacher who thinks and works free of prejudice and within the framework of the democratic system. But teachers are individuals with fears, prejudices, beliefs and attitudes, which might not always be favorable.

Moreover, it has been shown—in the present study and in previous research on digitalization and schools (see for example, Initiative 21 e.V. 2016)—that teachers are also generally hesitant about using and discussing digital media in the classroom. They tend to overrate the actual competence of their pupils—often referred to as “digital natives” (Prensky 2001)—concerning digital media and online platforms and doubt their own (see for example, Li and Ranieri 2010). And if they doubt their own (critical) media literacy, how can teachers be expected to successfully foster critical media literacy with regard to topics as controversial and sensitive as (Islamist) extremism? Against this background, future studies and programs should focus more concretely on teachers' uncertainties and (potential) anxieties, and programs should be systematically assessed to derive measures to foster teachers' (subjective and objective) competencies in dealing with controversial topics and social media in the classroom.

To sum up, a successful prevention program requires evidence-based methods and materials for pupils. Additionally, it is necessary to provide careful preparation for teachers in order to address reservations and reluctance regarding the topics (for example, digital media, Islam, Islamist fundamentalism) associated with the implementation of programs like the one discussed here. This can and must be initiated on

various different levels: promotion of teachers' critical media literacy has to be addressed in the context of their own training and studies, while measures such as special training (for example, workshops), peer coaching, and supervision should be provided either by their schools or external institutions. In order to systematically foster any kind of professional education, we suggest developing evidence-based teach-the-teacher or blended learning concepts. This would contribute to sustainability in combating the influence of violent extremist movements.

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