

## Teachers' negotiations of bias in relation to teaching resources offered to schools by industrial actors

Maria Andrée & Lena Hansson

To cite this article: Maria Andrée & Lena Hansson (2022): Teachers' negotiations of bias in relation to teaching resources offered to schools by industrial actors, Nordic Journal of Studies in Educational Policy, DOI: [10.1080/20020317.2022.2031831](https://doi.org/10.1080/20020317.2022.2031831)

To link to this article: <https://doi.org/10.1080/20020317.2022.2031831>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 09 Feb 2022.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

# Teachers' negotiations of bias in relation to teaching resources offered to schools by industrial actors

Maria Andrée <sup>a</sup> and Lena Hansson <sup>b</sup>

<sup>a</sup>Department of Mathematics and Science Education, Stockholm Universitet, Stockholm, Sweden; <sup>b</sup>Mathematics and Science Education, Kristianstad University, Kristianstad, Sweden

## ABSTRACT

This article focuses on the participation of industrial and corporate actors in science and technology education in Sweden. Opening up schools for the participation of industrial actors may be seen as a means of making education more connected to society. However, it may also contribute to the emergence of tensions related to ensuring values of objectivity and neutrality. The aim is to investigate how teachers deal with commercial interest, bias and partiality in collegial evaluations of industry-produced teaching resources. The data consist of focus group interviews with teachers, which were analysed using an ecological perspective on teacher agency. The teachers' evaluations of the teaching resources focussed: (1) *The legitimacy of evaluating teaching resources in terms of bias*, (2) *The value of a resource in terms of correctness and versatility*, (3) *Acceptable ways in which commercial interests are communicated (undercurrent messages, logos and advertisement)*, (4) *Bias in light of different educational aims*, and (5) *Upholding neutrality versus imparting specific values and behaviours*. The results are discussed with regard to the teacher agency achieved in evaluations concerning commercial interests, bias and partiality.

## ARTICLE HISTORY

Received 4 November 2021  
Accepted 18 January 2022

## KEYWORDS

Industry-produced teaching resources; commercial interest; partiality; educational policy; teacher agency

## Introduction

This article focusses how teachers deal with commercial interest, bias and partiality in collegial evaluations of industry-produced teaching resources offered to schools by companies and business organizations in the various areas of science and technology (S&T).

The production and distribution of teaching resources by industry and corporate actors are part of the broader tendencies of commercialization in education. Commercial activities in education include several intertwined tendencies such as privatization of educational functions, digitalization of educational governance, and marketization of educational concepts, standards, and technologies, but also, participation of private actors that are not education companies. Here, we focus on the commercialization which follows when industry and corporate actors seek to impact the content of the S&T education and/or students' attitudes to the industry or its products (Andrée & Hansson, 2020). We label such commercial actors as 'industry and corporate actors'. To industry and corporate actors, the production of teaching resources for S&T education is part of achieving agendas of education governance (cf., Ball & Juneman, 2012). There are many examples of such teaching resources in Sweden including, for example, a main chemistry business organization offering teaching resources to teach about plastics, and a forestry company providing teaching resources to teach about forestry and climate change.

In such cases, the commercial interests of the industries are not primarily related to education (such as in the case of 'edu-companies') but education nonetheless functions as an arena for sustaining commercial interests (Molnar, 2006; cf., Andrée & Hansson, 2020). Thus, the commercialization in focus of this study is not concerned with the 'edu-preneurial' actors engaged in schools to sell their products and services to schools (cf. 'edu-business' in Sweden, Ideland, 2021; Ideland et al., 2021; and in Finland; Seppänen et al., 2020). Compared to forms of commercialization where private providers sell goods and services to schools, oftentimes on a global education market (Molnar, 2006; cf. 'cola-isation' Ball & Youdell, 2007; Molnar, 2005), the commercialization targeted in this study is related to achieving aims other than immediate profit from *selling* education goods.

## From teaching boards to websites

Historical examples of private companies offering teaching resources to schools, are provided in the introduction to this special issue and include teaching boards from the Danish brewery Tuborg and the Danish Brugsen supermarket co-op (Moos & Coone, this issue). This kind of commercialization has a long history and, particularly within S&T education, there has been a concern since the beginning of the 20th century about the relationship between

science education and industry (Andrée & Hansson, 2021). Today, teaching resources for S&T education are provided by industrial actors, and readily accessible for teachers through websites. Such teaching resources (including booklets, lesson plans, film clips etc.) are commonly provided for free by, for example, energy companies, mining companies and business organizations. Several studies on school-industry collaborations in the field of science education research point to the benefits for schools of school-industry collaborations; including for example, increasing student motivation (Loukomies, 2013), and challenging stereotypical images of science, scientists, and the industry (e.g. Henriksen et al., 2015). However, research on educational policy also describes a risk of a decreased emphasis on citizen perspectives in education following increased participation of the private sector in education (Robertson et al., 2012; Spring, 2015). One recently discussed example in Sweden concerns S&T teaching resources provided by the forestry industry, where critical voices have been raised concerning the forestry industry's self-affirming messages on sustainability, climate change, and biodiversity (Röstlund, 2021).

Companies and business organizations are often explicit about the fact that the ultimate goal of their engagement in schools is to create long-term value for them, including for example, in securing future competent labour and economic growth or improving their public image (Andrée & Hansson, 2020). For example, an energy company, organizing a competition on future energy supply solutions for lower-secondary school students, describes the reasons for their engagement in S&T education like this on their webpage:

This competition has been a way to create interest in the energy sector among young people, and how we create a sustainable society together. That [the company] is a natural part of young people's consciousness when we talk about energy and sustainable solutions, creates a value for us, both now and in the long term.

From an industrial perspective, providing teaching resources might be a way to market a company, but also to influence the curriculum taught and the attitudes of students. In line with this, a recent study by Eaton and Day (2020) shows how the fossil fuel industry in Canada provides teachers with narratives on energy, climate change, and related problems and solutions. Similarly, in a Swedish study on externally produced teaching resources in social science, Johnsson Harrie (2012) shows that different actors (representing different interests) convey distinctly different narratives and that the engagement from external actors is fueled by the external actors' dissatisfaction with available teaching resources.

The use of teaching resources, produced by industrial actors, in S&T education brings potentially contradictory expectations on schools and teachers to the fore. Opening up schools for the participation of industrial actors may be seen as a means for connecting education with society and communities. In line with this, the national curriculum states that: '[t]eachers should / ... / assist in establishing contacts with / ... / organisations, companies and others who can help enrich the school's activities and establish it in the surrounding society' (Swedish National Agency for Education [in Swedish Skolverket], 2018, p. 19). But such external participation might also contribute to tensions related to ensuring educational values such as objectivity and versatility (in Swedish 'saklighet och allsidighet', p. 6).

### Teacher agency in the governing of education

Here, we conceptualize the production and distribution of teaching resources for S&T education as governance activities. Simons et al. (2013) argue that it is important for research on educational policy to take the actors, interactions, and interests of actors not commonly associated with educational policy into account. Thus, the governing of education is not only about formal governing structures and implementation of national policy in the form of curricula and/or other steering instruments, but the governing of education also includes all forces, at international, national and local level, influencing the outcomes of education (Daun & Mundy, 2011). Such forces include industry and other corporate actors seeking to influence the aims and outcomes of S&T education. Frequently, actors engage in policy work as part of loosely connected networks with 'disparate but more or less focused interests and commitments' (Ball et al., 2011, p. 637). Thus, the multitude of policy demands facing teachers includes those sanctioned by governmental bodies as well as those imposed through governance activities initiated by other types of external actors (such as in this case in the form of teaching resources offered to schools by industrial actors). Our point of departure is that all teachers, in their day-to-day work, participate in local micro-level curriculum enactment (Priestley et al., 2015). As participants in the governing of education on the micro-level teachers are both policy subjects and policy actors (Ball et al., 2011). Thus, teachers are, in their daily work, making active contributions to the enacted policy, through negotiations between sometimes contradictory forces and policy demands regarding, for example, educational aims.

We conceptualize teachers' contributions in the micro-level curriculum enactment in terms of the agency they achieve. We draw on the theoretical framework of an ecological approach to teacher agency developed by Biesta and colleagues (Biesta & Tedder, 2007; Priestley et al., 2013; 2015) to

understand teachers' work when they evaluate and make decisions about whether to use teaching resources produced and offered by industrial actors. Teacher agency refers to the ways in which teachers shape their responses to different situations and is seen as something that is 'achieved through engagement with very specific contextual conditions' (Priestley et al., 2013, p. 188). Teacher agency is closely related to teacher professionalism and the notion of teacher agency may be seen as a subset of the more encompassing notion of professional agency. Eteläpelto et al. 2013, proposes a notion of professional agency in referring to the agency achieved when 'professional subjects and/or communities exert influence, make choices and take stances in ways that affect their work and/or their professional identities' (p. 62). Priestley et al. (2015) underscore the importance of collegial working as a means to foster professional relationships and as a prerequisite for enhancing teacher agency. They also highlight the fact that teaching traditionally has been an isolated profession, with a lack of room for generative dialogue, which has constrained teacher agency.

Here, we focus on the teacher agency achieved by S&T teachers in situations where teachers in collegial conversation face and evaluate teaching resources offered by industry and corporate actors. Teacher agency is achieved in particular practices mediated by available resources and constraints. The teachers' collective capacity to be 'active agents of their own work' is shaped by the everyday practices and the mediational resources available (Priestley et al., 2015, p. 2). Such mediational resources might include access to vocabulary for making tensions of public and private good explicit but also (lack of) financial resources and aspirations for their teaching. Thus, teacher agency may align as well as go against the policy intention teachers encounter in various governing tools and activities (e.g. national steering documents, as well as offers by industrial actors; Priestley et al., 2013).

Ball et al. (2011) argue that teachers take on a variety of different positions in the local policy work in schools. However, the space for teachers to achieve agency in enacting policy will be different in different education systems. This study is set in a Swedish context where there is a goal steered educational system with a high degree of local autonomy (see, e.g. Carlgren, 2009). For example, the national curricula provide overall goals and guidelines for education but does not provide detailed information on the contents or design of education. For example, teachers are responsible for designing classroom practices, developing teaching activities and materials, choosing textbooks (there are no sanctioned or authorized textbooks), selecting contexts of teaching,

sequencing the content across school-years as well as assessing and grading student performance. When it comes to the use of externally produced teaching resources, which are offered for free to schools, such decisions are often up to individual teachers. In sum, there are high expectations on teachers to act as autonomous professionals making decisions based on analyses of why, what and how to teach a specific group of students. In a decentralized education system, it is possible for external actors to try to influence school on the local level. When details of educational content and approaches, are not specified in the national curriculum there is more room for teachers and local school leaders to enact agency as compared to more centralized educational systems. This means that teachers, to a high degree, are in control of the narratives communicated in the classroom which might be considered part of the governing of education on the micro level, where teachers are not only implementing policy but also make active contributions.

Today, there is not much research providing insights to how teachers make use of commercial teaching resources. One exception is the study by Hogan et al. (2018) who investigated how teachers and school leaders valued teaching programmes sold by private providers to schools. They point to the importance of understanding why schools and teachers purchase commercial programmes. Their conclusion is that the use of commercial resources should not be interpreted as lack of agency but that teachers use and adapt such resources to fit their local context and the needs of their students. Similarly, we have recently shown that teachers draw on a broad repertoire of discourses when they evaluate the types of industry-produced S&T teaching resources in the scope for this study (Andrée & Hansson, 2021). The discourses drawn upon by teachers as a collective, when evaluating such teaching resources include curriculum, educational design, practical conditions, correctness of the science, and partiality and bias. However, since such teaching resources are provided for free, teachers are often left alone to evaluate and decide whether or not to use them. These resources do not require budget negotiations with colleagues or school leaders in the same way as commercially provided teaching programmes sold to schools (Hogan et al., 2018). In spite of the examples of how teachers achieve agency in relation to commercial teaching resources (e.g. using them in ways that suit their own teaching), Eaton and Day (2020) warn that teachers tend to adopt industry narratives (e.g. on environmental issues) unreflectively. The study by Eaton and Day (2020) underscores the critical role of teachers and teacher agency in relation to the narratives accompanying industry-produced STEM-education resources. In sum, there is a need to continue

scrutinizing S&T teachers' capacity to engage in evaluations of bias and partiality in industry-produced teaching resources.

The aim of the study is to investigate teacher agency in negotiations of commercial interest, bias and partiality when evaluating industry-produced teaching resources in a collegial context. The overarching objectives are to contribute to strengthening teacher agency on local micro-level policy arenas and to mitigate the risk that teachers implement industry agendas unreflectively in ways that run counter to the public interest.

## Design of the study

To investigate teacher agency in negotiations of commercial interest, bias and partiality when evaluating industry-produced teaching resources, we have employed a focus group methodology. Focus groups are a form of qualitative data collection method in between unstructured interviews and participatory observations (Morgan, 1997). A strength of using focus groups in exploratory research is that it enables the exploration of different points of view. The participants make shared experiences based on something that they have listened to or watched and the subsequent conversation is arranged to stimulate a range of personal and reflective responses (cf., Vaughn et al., 1996). In this study, the participating teachers were presented to S&T teaching resources in the form of films, worksheets and booklets/books. By using focus groups, we as researchers provide space for the teachers to guide the flow and direction of the conversation which may encourage new thoughts and ideas (Williams & Katz, 2001).

The study is based on five focus groups (FG A–FG C) with a total of 20 S&T teachers in Swedish compulsory school. The teaching experiences of the

teachers ranged from less than two to more than ten years. The teachers' experiences of using teaching resources provided by corporate actors differed among them. Four of the focus groups were composed of S&T teachers from different schools across Sweden participating in a professional development programme on teaching physics. The fifth focus group was composed of a team of S&T teachers from a school, which was chosen, in light of its previous participation in a yearly industrial STEM education initiative. Taken together, the participants included teachers from different schools as well as teachers with varying experience of school–industry collaborations.

The focus groups were led by a moderator (one of the authors) and organized around focus materials consisting of S&T teaching resources produced by industrial actors (Table 1). In the final stage of the focus groups, a collection of excerpts was introduced from the Swedish national curriculum for compulsory school (Swedish National Agency for Education [in Swedish Skolverket], 2018) and guidelines from the Swedish Consumer Agency [in Swedish Konsumentverket] (2004) concerning sponsoring in schools. The following excerpts from Swedish National Agency for Education (2018, official translation) were used:

Teaching should be objective and encompass a range of different approaches [in Swedish allsidighet, versatility]. All parents should be able to send their children to school, fully confident that their children will not be prejudiced in favour of any particular view. (p. 6)

The school works in settings where there are many different sources of knowledge. (p. 9)

Pupils should receive an education of high quality in the school. They should also obtain a foundation for making choices in their further education. This presupposes that the compulsory school works closely

**Table 1.** Description of the industry-produced teaching resources used in the focus groups.

Teaching resource	Type of industrial actor	Visibility of the industrial actor	Type of teaching resource
<i>Plastics Knowledge for Compulsory School</i>	Business and employers' organization	Explicit industrial actor. Visible sender of the resource (a web-address is found at the bottom of last page of each chapter). Non-commercial appearance.	Student booklet, including integrated student worksheets and tasks.
<i>The 'Antibiotics School'</i>	Business and employers' organization	Difficult to discern who the sender is in the worksheets. The industrial actor is explicit in the film included (with #Swedishmeat).	Lesson plans for a teaching sequence including film clips and student worksheets.
<i>Forestry the Swedish Way</i>	Single company	Explicit industrial actor. Use of company logos and colour scheme.	Lesson plans for a teaching sequence including film clips and student worksheets.
<i>Energy Genius</i>	Single company	Explicit industrial actor. Use of company logos and colour scheme.	Student booklet, including student worksheets and tasks.
<i>The Book about the Forest</i>	An umbrella organization run mainly by forestry companies with an aim to work with schools.	Implicit industrial actor. Difficult to discern who the sender is and its connection to forestry. Non-commercial appearance.	Textbook in colour with text, photos and illustrations. Can be ordered as book or downloaded as pdf.

with the upper secondary schools pupils will later attend. It also presupposes close co-operation between working life and the local community in general. (p. 15)

The teacher should / ... / assist in establishing contacts with receiving schools and with organisations, companies and others who can help enrich the school's activities and establish it in the surrounding society.. (p. 16)

The following excerpts from Swedish Consumer Agency (2004) were used:

Sponsorship may be part of a collaboration. The sponsorship must not conflict with the values of school legislation, and requirements of factuality and comprehensiveness. It must also not conflict with the principle of objectivity and the principle of equality. One must also, especially when it comes to compulsory school, remember that there is an obligation to attend school which means that children and adolescents cannot choose to avoid the impact that a sponsored message may imply. Considerations must be taken to the maturity of the child. The younger children, the greater reason to exercise caution with sponsored activities. (p. 2, our translation).

When assessing a sponsor, one should consider:

- whether the company is run seriously and has no tax debt or the like
- whether the enterprise is compatible with the school's foundational values
- whether the company complies with good marketing practice
- whether sponsored material or activities contain advertising, promotional offers or other direct marketing
- that the sponsor does not encourage students themselves to buy or to influence their parents to buy the company's goods or services (p. 2, our translation).

We have conducted a thematic analysis, which resulted in themes describing the teachers' negotiations related to bias (cf., Braun & Clarke, 2006). In doing this, we draw on the ecological approach to teacher agency (Biesta & Tedder, 2007); seeing teacher agency as achieved in a situation and based upon the teachers' different, and sometimes contradictory, knowledge, experiences, values and beliefs. We first discerned sections in the transcripts of teacher talk concerning bias, interests, partiality, objectivity, neutrality, and undue influence related to the industry-produced teaching resources. Second, we analysed how bias and partiality was talked about regarding what tensions emerged in the empirical material concerning different cultural, structural and material factors reactivated, and formulated themes describing teachers' negotiations of bias and commercial interest as part of their evaluations of the industry produced teaching resources. Third, we analysed the teachers' uses of vocabularies for talking

about commercial interest, partiality and bias before and after the introduction of the regulatory guidelines.

The research adheres to the ethical guidelines provided by the Swedish Research Council [in Swedish Vetenskapsrådet] (2017). The teachers participating in the focus group interviews provided written consent to participate after having been informed about the overall scope of the research. In accordance with the Act concerning ethical review of research involving humans in Sweden (SFS 2003: 460), the research project has not undergone ethical review since it does not handle data of the kind requiring ethical review.

The issue of researchers' positionality is an integral aspect of quality in research (Holmes, 2020). We both hold positions as researchers in science education and, not least, as teachers in science teacher education. We also share a background as qualified science teachers. Our positions and life-histories are entangled with cultural norms and aspirations related to science education, such as aspirations of doing good for and through science education and beliefs concerning the importance of the work of teachers. The latter includes recognizing the importance of affording opportunities for the voices of teachers to be heard. Researchers' positions, aspirations and beliefs always influence the orientations in all parts of the research process, including the formulation of research questions, the design of the study and how it is conducted. In presenting the themes below, we seek to provide an account as rich in detail as possible – provided the article format – to enable the reader to assess the validity of our conclusions (cf., Geertz, 1973).

### **Themes in teacher talk about commercial interest, partiality and bias in industry-produced teaching resources**

In the first part of the results, we present five themes describing the teachers' negotiations of commercial interest, partiality and bias in evaluating the industry-produced teaching resources:

- (1) *The legitimacy of evaluating teaching resources in terms of bias,*
- (2) *The value of a resource in terms of correctness and versatility,*
- (3) *Acceptable ways in which commercial interests are communicated,*
- (4) *Bias in light of different educational aims,*
- (5) *Upholding neutrality versus imparting specific values and behaviours.*

#### ***The legitimacy of evaluating teaching resources in terms of bias***

The legitimacy and relevance of evaluations of bias and potential undue influence of students is not taken-for-granted in the teachers' evaluations of the

teaching resources but is negotiated. The negotiations took place to different extent in the different focus groups. In four of the groups (all but FG C), problems of potential biases accompanying industry-produced teaching resources are raised and the topic becomes recurrent.

In some instances, the negotiation of bias and partiality as relevant or not to the evaluation of teaching resources was characterized by uncertain utterances, and at times, tensions and compromise. For example, in FG B, one of the teachers, Anders, raised the potential interest of the producer of the teaching resource as an issue already in the initial phase of the focus group:

Anders: Yes, but sometimes, if one looks at these ... they do come from somewhere.

Moderator: Mm.

Anders: So, I get a bit like ... there was one ... I think it was the sugar company that sent out a lot of information.

Per: Yes.

Anders: Well yes ... mm ... aren't they a bit party to the case here? ((laughter)) (FG B)

In this dialogue, bias was mentioned for the first time in FG B. In later instance, the mentioning of bias as a potential problem was 'taken back', or supported by other discourses to strengthen the argument. This indicates that potential bias and undue influence on students is not a taken-for-granted dimension of evaluating industry produced teaching resources.

During the focus groups, there are few examples of teachers reactivating previous experiences of evaluating teaching resources in terms of bias. The few experiences that were reactivated were mainly individual using references to 'I feel' and 'I think'. Lack of collective professional experiences and knowledge constrain teacher agency, and the expressions of insecurity accompanying the introduction of bias may be understood in the light of this. In the fifth group, FG C, there was no explicit talk related to bias or partiality before the introduction of the regulatory guidelines. In one instance, one of the teachers, Karl, frowned at the lack of correctness in the film 'Forestry the Swedish way', but received no response on this from the other teachers. After the introduction of the regulations, Karl concluded: 'These [industrial actors] are a bit more long-term in their investments so to say [...] that they earn money, but in the long run' (FG C). Overall, the teachers in FG C indicate a scrutiny of bias and commercial interest in the industry-produced teaching resources as a possibility but they do not establish it as a shared pursuit in the group.

By some teachers, the regulations are used to legitimize them making independent evaluations of industry-produced teaching resources. For example,

Tom (FG A) expressed that the regulations provide support for him to make evaluations of industry-produced teaching resources independent of industrial collaborators:

Tom: [sponsoring and external collaborations] have to be set on the terms of school [...] It is the school that, more or less, decides 'Is it good? Can we do it or not?'"

The text referred to by Tom positions the teachers in a stronger position compared to industrial collaborators. In FG D Anna, after having looked at the regulations, spontaneously stated that one of the resources does not meet the requirements of the regulations: 'Then Swedish Meat doesn't work'. She argues that the resource violates the regulations with respect to its attempt to influence students to buy Swedish meat. The regulations were, thus, used to legitimize the inclusion of bias in the teachers' evaluation of the teaching resource and opened up for imagining future trajectories where the teachers themselves are in charge of making decisions on what resources to use in the S&T teaching and, for what purposes. This is in line with the view of teacher agency proposed by Priestly, Priestley et al. (2015, p. 24) where the 'continual imaginative reconstruction of the future' is seen as an expression of agency. Thus, the regulations seem to mediate a discussion and negotiation of bias against other values and possible ways to handle potential bias. Prior to the moderator's introduction of the regulatory guidelines there were no explicit references to national or local guidelines in the evaluations of teaching resources offered to schools by external actors. However, in some groups objectivity and neutrality in the teaching were referred to as important which refers to collective educational values that are also communicated in the Swedish national curriculum.

### ***The value of a resource in terms of correctness and versatility***

When the teachers evaluated the teaching resources tensions emerged between acknowledging bias as a problem of incorrect facts versus acknowledging bias as a lack of versatility.

In the evaluation of the teaching resource produced by Swedish Meat, Per (FG B) noted the hashtag '#swedishmeat' displayed at the end of the film clip and remarks: 'but then I thought the content, I thought was good, neutral still. Even though it has a lot of focus on ... meat'. All three teachers in the group agreed that the content and the topic of the film was valuable. This is an example of how priority was given to evaluation of correctness of the content. Neutrality is interpreted as communicating 'correct facts',

while acknowledging that the resource ‘has a lot of focus on ... meat’. Somewhat later, however, Per raised the issue of what is taken for granted in the film: ‘I’m thinking that it’s like ... it’s assumed that ... one eats meat ... and that it’s something *desirable* without any *reflection*’. Doing so, he foregrounded that there are perspectives missing (e.g. problematizing meat consumption). At the end of this conversation, a discussion emerged on the correctness of the information in the film. The correctness and importance of the information become decisive for the teachers when they decided that the teaching resource can be used, in spite of the identified partiality.

Similarly, in FG D a conversation emerged regarding the judgment of correctness in relation to versatility. Anna argued that she considered the information in the booklet *Plastics Knowledge for Compulsory School* trustworthy regarding the facts about plastics, in spite of the producer’s interest in selling plastics: ‘IKEM is a source that I can trust’. IKEM’s interest in promoting plastics is thus acknowledged but not seen as problematic in relation to teaching. Klas later added that all teaching resources (including ordinary textbooks) need to be evaluated with regard to correctness. Thus, there is nothing particular with industry-produced teaching resources.

In traditional school science practice, teaching is framed as the teaching of neutral and objective science facts (Zacharia & Barton, 2004). This practice is apt to render S&T teachers unprepared to deal with issues of partiality, bias, and vested interests potentially visible in the *selection* of facts and perspectives presented in teaching resources – whether industry-produced or produced by other external actors, such as NGOs (Andrée et al., 2018). Within this tradition, the focus on evaluating the teaching resources in terms of correct or incorrect – discussing, for example, whether it is correct that Swedish animals receive fewer antibiotics than animals in other countries becomes reasonable. When discussing what is correct and incorrect in industry teaching resources, the agency achieved by the teachers was strong. Although both correctness and versatility were discussed by the teachers, there is a risk that teachers’ evaluations of teaching resources fail to acknowledge the need to focus what is not there (e.g. arguments *against* the use of plastics) or the overall messages and vested interests of the actor behind a resource. Acknowledging the risk of leaving perspectives out or uncritically reproducing the narrative of a specific actor when using industry-produced teaching resources (cf., Eaton & Day, 2020), is crucial. Thus, the limited reactivation of the selection of facts as a potential basis for bias/partiality seems to constrain

the agency in evaluating industry-produced teaching resources.

### **Acceptable ways in which commercial interests are communicated**

When negotiating the different ways in which commercial interests are visible in the teaching resources, the teachers referred to different ways of communicating commercial interests as more or less acceptable. For example, teachers referred to values of not making science teaching an arena for advertisement. The teachers reactivated values of ‘neutral’ and ‘objective’ teaching that became important for how they framed their S&T teaching practices in relation to different kinds of appearances of commercial interests.

When the teachers talked about using the teaching resources presented to them in the focus groups, they distinguished between different types of biases and commercial messages. These conversations reflect an aspiration that S&T teaching should be objective but the conclusions drawn concerning consequences in terms of usability differ in the different groups, and also between different types of commercial appearances. In FG D a discussion emerged concerning the presence of logos. Anna exclaimed that the logo ‘bothers me a bit’. The group discussed whether it was more problematic with logos from single companies than from business organizations, reasoning that the gain of a logo might be greater to a single company than to a business and employers’ organization. The discussion centred on the presence of logos and economic gain for the involved actor, and, in this case, not on potentially partial content. As a way to reduce the risk of making science teaching an arena for advertising Lotta suggested to remove the logo before using the booklet: ‘I can copy it without [the logo]’. She, thus, emphasized the visual appearance of the teaching resource. Thus, data suggests that the teachers enacted agency in discussions on what is acceptable and not, as well as in suggesting possible solutions such as removing logos, or in other cases telling students that there are other similar companies. When it comes to resources which might be perceived as advertisement the teachers expressed great sensitivity. The teachers in all groups reacted strongly to the film from the resource *Forestry the Swedish Way*. For example, Henrik in FG A, exclaimed ‘Hallelujah’ after having seen the film. This is followed by collective laughter. Henrik continues ‘they are obviously very careful to point out how good they are’ and ‘it was almost too commercial’. The commercial appearance is framed as ‘provocative’ by Anita in FG A.



In FG A, Kristin and Tom enacted agency when differentiating between uses of company names or logos and, what they call, ‘undercurrent’ messages:

Tom: But, like ... does it feel objective, or does one stay [objective] throughout and then at the end reveals who [the sender] is. Then that’s easier to deal with than if there’s an undercurrent [message] that what we’re doing is a little bit better than the alternatives. So, if one sticks to, [I] was going to say, to the facts ... Without adding values. (FG A)

Tom phrased the problem as one of added ‘undercurrent’ values in contrast to ‘sticking to the facts’ (communicating objective information) while mentioning a company name in the end. The latter, they reason, is easier for them to manage.

### **Bias in light of different educational aims**

Avoiding bias and aiming for ‘neutral’ teaching resources makes sense in relation to aims of education concerning developing students’ conceptual understanding. However, all groups of teachers also reactivated educational aims of teaching critical examination and source critique and pointed to the possibility of seeing bias and partiality as opportunities for teaching critical examination. For example, Per (FG B) suggested: ‘You can use it [information sent to the school from a sugar company] as a resource, because they [students] are supposed to think about ... Who is behind this message? Could they have an interest and so on? [...] So, in that way I think it’s an asset’. However, he did not see any industry-produced resource as fruitful for teaching source critique and critical examination – according to Per it should not, like in the case of *Forestry the Swedish way*, be ‘too overly biased’.

The negotiation of bias in light of different educational aims became entangled with how different aims were prioritized by the teachers. Anders (FG B) objected to the idea of including clearly biased teaching resources to teach source critique with reference to time constraints: ‘then I have to take that debate on source critique, and then maybe I don’t feel that I have that time’. There is a principal difference between taking advantage of an industry-produced teaching resource to teach source critique – directing students’ attention towards the interests and agendas of different industrial actors – and to use the teaching resources as intended by the industry actors producing them – to develop understanding of scientific concepts and models, or certain attitudes and values. Teachers’ envisioning of possible futures, and their references to aims and motives are one dimension of teacher agency as described by Priestley et al. (2015). Thus, the teachers imagine

the use of industry-produced teaching resources for teaching targeting aims different from those of the industrial actors, may be seen as an example of how the teachers achieved agency in relation to the industrial actors.

### **Upholding neutrality versus imparting specific values and behaviours**

This theme centres the potential influence of the industry-produced teaching resources on students and what the teachers’ responsibilities are in relation to upholding values of neutrality and objectivity while at the same time fostering desirable habits and attitudes among their students.

In some of the groups, neutrality was emphasized as something valuable in teaching resources. For example, Anders (FG B) argued that he prefers to use a ‘neutral’ resource over the booklet on plastics from IKEM (which he does not consider ‘neutral’). The teachers in FG A talked about their relationships with their students in terms of a contract governing mutual obligations between teachers and students in a teaching situation (cf., Brousseau, 2002). Peter (FG A) summarized it with ‘it’s also about our trustworthiness [...] a part of the contract is that we are supposed to be objective when we teach’. In relation to upholding objectivity, issues that are ‘politically charged’ become contentious. Oscar (FG E) stated that the desirable resources are the ones that are ‘Neutral, or like not charged. Like, politically charged’. In FG A, Tom said that they should strive not to be partial and not to ‘brainwash’ students. He warned: ‘But would we start acting partial in our teaching in one way or another ... I mean, we could almost brainwash them if I exaggerate a bit’. Thus, the teachers expressed a fear of indoctrinating the students – similarly to what has been observed in previous literature on teaching about socio-scientific issues (Qablan et al., 2011).

In other instances, the teachers talked about their responsibility as teachers to influence students. This became foregrounded in the evaluations of the teaching resource produced by Swedish Meat. When evaluating this resource, the teachers emphasized the importance of informing their students about risks regarding use of antibiotics. In conversation, this information was seen as more significant than the risks of communicating messages that benefit Swedish Meat. In FG E, the teachers acknowledged that the resource might be a means for the meat industry to influence people to buy meat produced in Sweden but this was not seen as controversial:

Sture: Yes, that’s like, there is like an ulterior motive to get more ... [Get] more people to buy Swedish meat.

Oscar: And that's good.

Sture: Yes, exactly! That's good. Then of course, their members get more ... [they] gain from it.

Oscar: Exactly.

Sture: But at the same time, it's like a ... It's like not very *contentious* [said in English]

Oscar: Not so charged.

[...]

Sture: No, if you step in [a classroom] and say this in school ... I guess it's not really controversial. And to say that antibiotics are not good in large quantities, and there are no real reasons to give it automatically to animals ... Sure they [the meat industry] benefit, but still. [...] So, to me it doesn't bother much, no. (FG E)

Here, Sture concluded that it does not bother him that members of the business organization are benefiting from the use of the resource in science teaching. He stuck to this position also after the introduction of the regulations. The justification reactivated for a transition from an alleged neutral position to influencing the behaviours of students is that: 'the information [about antibiotics] is really important' (FG B). In these conversations, the commercial interests reflected in the teaching resources become subordinate to importance of the message. After having reviewed the steering documents regarding sponsorships, Per in FG B underscored that a sponsor is not allowed to try to convince children or their parents to buy products or services sold by the company. He also concluded that Swedish Meat violates this regulation although he thinks it is 'for a good cause'. Thus, Per framed the regulations as negotiable in relation to other values at stake.

The teachers' concern and engagement with the overall aims and values of education may be seen as an expression of a strong sense of agency. The teachers expressed that it is their responsibility to take a stance in relation to conflicting aims, and, to decide what teaching resources to use, even when it goes against the guidelines. Thus, the teachers interpret and negotiate the steering documents quite freely and although the regulations mediate the work of the teachers they do not seem to function as delimiting teacher agency. In the next section, we will elaborate on the mediating character of the vocabularies introduced through the regulations.

### Teacher vocabularies for talking about bias and commercial interest

In this second part of the results, we zoom out and look at the vocabularies used by the teachers when talking about the teaching resources. Priestley et al.

(2015) underscore that access to vocabulary and discourses is fundamentally important in the sense that they provide 'the "materials" teachers think *with*' (p. 59, italics in original).

During the focus groups, the teachers made use of different vocabularies when dealing with issues of bias (although the word bias is not used *per se* in the conversations). In the initial stages of the focus groups the teachers searched for words and ways of expressing themselves that would make sense in the conversation. For example, Anders (FG B) talked about the sugar company being "party". In other examples, the teachers talked about 'neutrality' and/or 'neutral appearance', facts being 'correct' or 'true', lack of perspectives or that there might be 'hidden agendas' in need of scrutiny (see, Table 2). The vocabulary differs between groups, and different vocabulary was used to varying degrees, even though some words and expressions are used in several focus groups. During their discussions, the groups came closer to locally shared vocabulary – the teachers acknowledged and used the vocabulary introduced by others in the group – and bias became at least temporarily accepted as a legitimate discourse for evaluating industry-produced teaching resources.

In the focus groups, the introduction of the authoritative texts supported the development of a shared language, providing access to new vocabulary and ways of talking about bias and partiality. The more salient new vocabulary incorporated into the focus group conversations includes 'versatility', 'principle of objectivity', 'sponsor', 'goods and services', 'interest' but also 'enrichment', 'collaboration', and 'vocation'. Some of the vocabulary stems from the extracts from the national curriculum and the guidelines (see, Table 2). The authoritative texts thus afforded slightly new ways of talking about the use of externally produced resources, expanding previous discourses, and functioned as a mediational resource for achieving teacher agency. For example, one of the teachers pointedly expressed that a teaching resource should be 'objective but then also versatile' (FG A) which seemed a productive way for S&T teachers to combine an analysis of correctness, which adheres to the values of traditional school science, and the issue of 'versatility'. Notably, the vocabulary used by the teachers after the introduction of the authoritative texts also included new vocabulary not used in the authoritative texts.

Drawing on Priestley et al. (2015) it is not surprising that the collegial discussions and the discursive changes in the focus groups might be understood as strengthening the teachers' professional agency. However, it might seem counter-intuitive that the introduction of regulatory guidelines and authoritative texts would contribute to strengthening teacher agency. It is important to note that the regulations at

**Table 2.** Teacher use of vocabulary for talking about bias and commercial interest in the focus groups. Vocabulary used in Swedish Consumer Agency (2004) is marked (\*) and in Swedish National Agency for Education (2018) is marked (\*\*).

Focus Group	Before the introduction of the authoritative texts	After the introduction of the authoritative texts
A	Neutral	Versatile*
	Lack of perspectives	Angled
	Reasons for [producing the S&T teaching resource]	Objective*
	Sender	Factual*
		Sponsor*
		Conditions
		Regulations**
		Gains/earnings
		One-sided influence
		Connection
B	Being party	Vocation
	Neutral	Versatile*
	Correct	Principle of objectivity*
	Secret motives	Factual*
	Hidden agendas/messages	Influence/impact*
	Reasons for [producing the S&T teaching resource]	Sponsor*
	Sender	Goods and services*
	Intent	Demands
	Angled	Advocate
		Interest
		Selling a product
		Balance
		Questioning
	Create debate	
	Enrichment**	
C	Advertisement	Advertisement*
		Investment
		Gains/earnings
		Collaboration
		Connection
		Vocation
		Versatile*
		Factual*
D	Hidden agendas/messages	Influence/impact*
	Gain	Goods and services*
	Trust	One-sided influence
		Message*
		Collaboration
		Vocation
		Versatile*
E	Neutral	Influence/impact*
	Correct	Sponsor*
	Hidden agendas/messages	Goods and services*
	Reasons for [producing the S&T teaching resource]	Demands
	Intent	Advertisement*
		Message*
		Collaboration
		Connection
	Vocation	

hand are not detailed but have to be interpreted by the teachers. Also, the teachers do not use the guidelines as regulatory, rather the guidelines provided access to a broader repertoire of vocabulary. In addition, the authoritative texts functioned to frame the problem of bias as legit in the evaluation of industry-produced teaching resources (see section *The legitimacy of evaluating teaching resources in terms of bias*). Thus, the results of this study point to that the authoritative texts contribute with vocabulary as well as make visible culturally new ways of reasoning for the teachers; making it legitimate for a teacher to reject a teaching resource due to bias.

Priestley et al. (2015) acknowledge, drawing on previous work in the field of educational policy, that

agency may well be achieved in opposing or subverting policy and that resistance may be understood as an agentic process. Based on the results of this study, we do not argue that teacher compliance to regulatory guidelines is to be seen as an expression of teacher agency. Rather, it is the more elaborate use of vocabulary for talking about bias when evaluating industry-produced teaching resources and the displayed certainty in the teachers' professional stance-taking that we see as signs of stronger agency. There are examples in the data and the results presented in this study pointing to instances where teachers take a position that a teaching resource could or should be used in spite of violating the suggested criteria in the regulations (e.g. the appraisal of the resource on antibiotics from Swedish Meat – in spite of the teachers' recognition of the interests of the meat industry at stake). Thus, the results point to a complex relation between authoritative guidelines and regulations, on the one hand, and teacher agency on the other, where different types of regulations might function in different ways in relation to supporting or constraining teacher agency.

## Discussion

The themes illustrate that evaluating bias, partiality and commercial interest is not a given approach to the evaluation of teaching resources but something that requires negotiation. However, the results also point to partially shared cultural values of importance for such evaluations with neutrality and objectivity as important aspirations, but also aspirations of influencing student behaviours. At times tensions emerge between these aspirations. During the evaluations, the teachers exhibited confidence and ownership in relation to the question of what teaching resources to use, when benefits outweigh disadvantages, and when they do not. The teachers enacted agency when reacting strongly against resources, which they perceive as 'too much marketing', and they suggest ways to handle for example, logos and company names. The teachers readily took a stance concerning what information was important for students and what behavioural changes were desirable (e.g. minimizing use of antibiotics through buying Swedish meat). The teachers also exhibited agency in relation to what information is of relevance, whether information is incorrect, or if there is a lack of information and perspectives. However, it takes more of the teachers to identify and evaluate what facts and perspectives are present, what are not, and what the potential consequences in relation to the influence of students might be. In addition, incorrect information seems to be more decisive to the teachers than a biased selection of facts. There is, thus, a risk that the difficulties of talking about potentially partial selection of facts

may function to uncritically reproduce controversial narratives such as was the case in the reproduction of oil-industry narratives in Canadian science education (Eaton & Day, 2020).

Our data indicate a lack of prior experiences of evaluating teaching resources in terms of bias among S&T teachers. The teachers in our focus groups seemed unprepared to evaluate teaching resources in terms of bias and partiality and reactivated few experiences of similar evaluations. This conclusion is corroborated by observations in a recent governmental investigation showing that there is a shortage of collegial evaluations of textbooks and teaching resources in Swedish schools (Läromedelsutredningen [Official report of the Swedish government on teaching materials], 2021). In this study, the focus groups provided a space for the teachers to share experiences about industry-produced teaching resources, and to develop vocabulary for talking about commercial interests. Both access to vocabulary, and the space for collegial evaluations of teaching resources seemed to matter for the achievement of agency. Such spaces, in the form of place, time, and opportunity, seem important in order to contribute to the development of a shared professional knowledge of teaching (Jensvoll & Lekang, 2018).

### **Similarities and differences with other commercially produced teaching resources**

The types of industry-produced teaching resources focussed in this study differ from other types of commercial interests intersecting the educational system (e.g. the Edu-tech industry) primarily in that the industry-produced teaching resources are not sold to schools. Instead, the producing actors (e.g. energy, chemistry and forestry industry) represent different agendas to impact S&T curricula and students' knowledge, attitudes and habits (Andrée & Hansson, 2020). Or, as one of the teachers concluded: 'These [industrial actors] are a bit more long-term in their investments so to say'.

Hogan et al. (2018) urge educational policy researchers to nuance the critique of commercialization in schools by recognizing teacher agency in selecting, importing and modifying resources, perceived as high quality by teachers and school leaders, to their specific needs. They suggest that teachers are 'not being seduced by commercialisation and the "easy fix" it promises' (op cit, p. 617), but that teachers are agentic professionals who work to create learning experiences to meet the needs of their students within their contexts. Also, based on our previous research (Andrée & Hansson, 2020), we acknowledge that Swedish teachers are agentic in respect of taking their students into account when evaluating and deciding on whether to use and how to adjust industry produced teaching resources. The present study adds to an understanding of the teacher

agency achieved in relation to industrial actors entering the arena of educational governing with expressed intents to influence S&T curricula. We conclude that in order to strengthen teacher agency in dealing with such resources, teachers need to become aware of the industry-produced teaching resources as tools for educational governing. Evaluations on bias and partial messages in teaching resources need to become an integrated part of professional evaluation.

### **Commercialization at various levels of educational policy in Nordic education**

This research was conducted in a Swedish context. However, there are similarities with other educational systems with decentralized governance models based on ideas of goal steering and teacher professionalism (Carlgren, 2009). In such governance models, extended professional responsibilities are prescribed for teachers on a macro-level. Teachers decide what curriculum resources to use, and what external actors to let into their classrooms (within frames of a given budget). Although the macro-level policy may enable teachers to achieve agency in their work, the findings of this study shed light on the difficulties for achieving agency when scrutinizing externally produced teaching resources. To strengthen teachers' capacity to deal with corporate and commercial interests in education, macro-level policy needs to be combined with meso-level curriculum development that provides guidance to teachers as they enact the curriculum. In addition, there is a need to develop local school cultures and practices, which support professional agency on the micro-level policy arena when handling governance activities by different actors. Such a broad approach to curriculum policy may support the development of new ways of connecting schools to local communities (including industry) such that schools do not become subordinate to external interests, and such that collaboration is conducted on the schools' terms in ways that are compatible with the educational aims of citizenship and democracy.

### **Disclosure statement**

No potential conflict of interest was reported by the author(s).

### **Funding**

This work was supported by the Swedish Research Council (Grant no. 2017-03657).

### **ORCID**

Maria Andrée  <http://orcid.org/0000-0002-5574-8636>  
Lena Hansson  <http://orcid.org/0000-0003-3175-5185>

## References

- Andrée, M., & Hansson, L. (2020). Industrial actors and their rationales for engaging in STEM education. *Journal of Curriculum Studies*, 52(4), 551–576. <https://doi.org/10.1080/00220272.2019.1682055>
- Andrée, M., & Hansson, L. (2021). Industry, science education, and teacher agency: A discourse analysis of teachers' evaluations of industry - produced teaching resources. *Science Education*, 105(2), 353–383. <https://doi.org/10.1002/sce.21607>
- Andrée, M., Hansson, L., & Ideland, M. (2018). Political rationalities in science education: A case study of teaching materials provided by external actors. In A. Arvola-Orlander, K. Otrell-Cass, & M. K. Sillasen (Eds.), *Cultural, social, and political perspectives in science education – A Nordic view* (pp. 75–92). Springer.
- Ball, S., & Juneman, C. (2012). *Networks, new governance and education*. The Policy Press.
- Ball, S., Maguire, M., Braun, A., & Hoskins, K. (2011). Policy subjects and policy actors in schools: Some necessary but insufficient analyses. *Discourse: Studies in the Cultural Politics of Education*, 32(4), 611–624 doi: <https://doi.org/10.1080/01596306.2011.601564>.
- Ball, S., & Youdell, B. (2007). *Hidden privatisation in public education*. (Preliminary report). Education International 5th World Congress. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.534.7273&rep=rep1&type=pdf>.
- Biesta, G., & Tedder, M. (2007). Agency and learning in the lifecourse: Towards an ecological perspective. *Studies in the Education of Adults*, 39(2), 132–149. <https://doi.org/10.1080/02660830.2007.11661545>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Brousseau, G. (2002). *Theory of didactical situations in mathematics*. Kluwer Academic Publishers.
- Carlgrén, I. (2009). The Swedish comprehensive school—lost in transition? *Zeitschrift Für Erziehungswissenschaft*, 12(4), 633–649. <https://doi.org/10.1007/s11618-009-0103-1>
- Daun, H., & Mundy, K (2011). Educational Governance and Participation – With Focus on Developing Countries. (Stockholm University, Institute of International Education.) [http://www.edu.su.se/polopoly\\_fs/1.142104.1375791716!/menu/standard/file/Educational\\_Governance\\_and\\_Participation.pdf](http://www.edu.su.se/polopoly_fs/1.142104.1375791716!/menu/standard/file/Educational_Governance_and_Participation.pdf)
- Eaton, E., & Day, N. (2020). Petro-pedagogy: Fossil fuel interests and the obstruction of climate justice in public education. *Environmental Education Research*, 26(4), 457–473. <https://doi.org/10.1080/13504622.2019.1650164>
- Eteläpelto A, Vähäsantanen K, Hökkä P & Paloniemi S. (2013). What is agency? Conceptualizing professional agency at work. *Educational Research Review*, 10 45–65. [10.1016/j.edurev.2013.05.001](https://doi.org/10.1016/j.edurev.2013.05.001)
- Geertz, C. (1973). Thick description: Toward an interpretive theory of culture. In C. Geertz (Ed.), *The interpretation of cultures: Selected essays* (pp. 3–30). Basic Books.
- Henriksen, E. K., Dillon, J., & Ryder, J. (Eds.). (2015). *Understanding student participation and choice in science and technology education*. Springer.
- Hogan, A., Enright, E., Stylianou, M., & McCuaig, L. (2018). Nuancing the critique of commercialisation in schools: Recognising teacher agency. *Journal of Education Policy*, 33(5), 617–631. <https://doi.org/10.1080/02680939.2017.1394500>
- Holmes, A. G. D. (2020). Researcher positionality - A consideration of its influence and place in qualitative research - A new researcher guide. *Shanlax International Journal of Education*, 8(4), 1–10. <https://doi.org/10.34293/education.v8i2.1477>
- Ideland, M. (2021). Google and the end of the teacher? How a figuration of the teacher is produced through an ed-tech discourse. *Learning, Media and Technology*, 46 (1), 33–46. <https://doi.org/10.1080/17439884.2020.1809452>
- Ideland, M., Jobér, A., & Axelsson, T. (2021). Problem solved! How edupreneurs enact a school crisis as business possibilities. *European Educational Research Journal*, 20(1), 83–101. <https://doi.org/10.1177/1474904120952978>
- Jensvoll, M. H., & Lekang, T. (2018). Strengthening professionalism through cooperative learning. *Professional Development in Education*, 44(4), 466–475. <https://doi.org/10.1080/19415257.2017.1376223>
- Johnsson Harrie, A.(2012). Sponsrade läromedel i samhällskunskap. [Sponsored teaching resources in social science education]. A. Johnsson Harrie & H.-A. Larsson Eds., *Samhällsdidaktik – Sju aspekter på samhällsundervisning i skola och lärarutbildning* Social science education seven aspects of social science teaching in school and teacher education. seven aspects of social science teaching in school and teacher education. 83–103. Linköpings universitet.
- Loukomies, A. (2013). *Enhancing students' motivation towards school science with an inquiry - based site visit teaching sequence: A design - based research approach* (Doctoral dissertation). University of Helsinki.
- Läromedelsutredningen [Official report of the Swedish government on teaching materials](2021). *Läromedelsutredningen–böckernas betydelse och elevernas tillgång till kunskap* [Official report of the Swedish government on teaching materials–the importance of books and students' access to knowledge] (SOU 2021:70). Elanders.
- Molnar, A. (2005). *School commercialism: From democratic ideal to market commodity*. Routledge.
- Molnar, A. (2006). The commercial transformation of public education. *Journal of Education Policy*, 21(5), 621–640. <https://doi.org/10.1080/02680930600866231>
- Morgan, D. L. (1997). *Focus groups as qualitative research*. Qualitative Research Methods Series 2nd ed. 16 Sage.
- Priestley, M., Biesta, G., & Robinson, S. (2013). Reinventing the curriculum: New trends in curriculum policy and practice. In M. Priestley & G. Biesta (Eds.), *Teachers as agents of change: Teacher agency and emerging models of curriculum* (pp. 187–206). Bloomsbury Academic.
- Priestley, M., Biesta, G., & Robinson, S. (2015). *Teacher agency. An ecological approach*. Bloomsbury.
- Qablan, A., Southerland, S. A., & Saka, Y. (2011). “My job isn’t to tell them what to think”: The fear of indoctrination and how it shapes education for sustainable development. *Electronic Journal of Science Education*, 15(2), <https://ejrsmc.icrsmc.com/article/view/7313>.
- Robertson, S., Mundy, K., Verger, A., & Menashy, F. (2012). An introduction to public private partnerships and education governance. In S. Robertson, K. Mundy, A. Verger, & F. Menashy (Eds.), *Public private partnerships in education: New actors and modes of governance in a globalizing world* (pp. 1–17). Edward Elgar Publishing.
- Röstlund, L. (March 8, 2021). *Skogsbolagens berättelse om skogen - lobby för 150 miljoner*. [The forestry companies' story about the forest – Lobby for 150 million (SEK)]. Dagens nyheter. <https://www.dn.se/sverige/skogsbolagens-berattelse-om-skogen-lobby-for-150-miljoner/>

- Seppänen, P., Thrupp, M., & Lempinen, S. (2020). Edu-business in Finnish schooling. In A. Hogan & G. Thompson (Eds.), *Privatisation and commercialisation in public education. How the public nature of schooling is changing* (pp. 101–118). Routledge.
- Simons, M., Lundahl, L., & Serpieri, R. (2013). Introduction. The governing of education in Europe: Commercial actors, partnerships and strategies. *European Educational Research Journal*, 12(4), 416–424. <https://doi.org/10.2304/eej.2013.12.4.416>
- Spring, J. (2015). *Economization of education: Human capital, global corporations, skills-based schooling*. Routledge.
- Swedish Consumer Agency [in Swedish *Konsumentverket*]. (2004). *Sponsoring in school – Guidelines for developing local policy* (Konsumentverket).
- Swedish National Agency for Education [in Swedish *Skolverket*]. (2018). *Curriculum for the compulsory school system, the pre-school class and the leisure-time centre 2011*.
- Swedish Research Council [in Swedish *Vetenskapsrådet*]. (2017). *Good Research Practice*.
- Vaughn, S, Schumm, J. S., & Sinagub, J. M. (1996). *Focus group interviews in education and psychology*. Sage.
- Williams, A, & Katz, L 2001 The use of focus group methodology in education: Some theoretical and practical considerations. *International Electronic Journal for Leadership in Learning*, 5(3).
- Zacharia, Z., & Barton, A. C. (2004). Urban middle - school students' attitudes toward a defined science. *Science Education*, 88(2), 197–222. <https://doi.org/10.1002/sce.10110>