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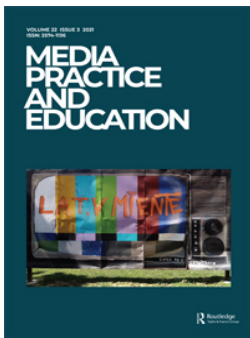
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Phenomenon-Based learning of multiliteracy in a Finnish upper secondary school

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ABSTRACT

Multiliteracy is one of the central civic skills that should be focused on in the domain of 21st century education. In this case study, our goal was to design and test a pedagogical model for phenomenon-based learning of multiliteracy, and to find out how multiliteracy could be comprehensively supported in the context of upper secondary school. The data consisted of a questionnaire for students, their written reports, and teacher interviews. Based on the findings, critical factors for the successful implementing of phenomenon-based learning of multiliteracy were found out, and the pedagogical phenomenon-based learning of multiliteracy (PLM) model was developed.

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Introduction

In Finland, multiliteracy is a central civic skill that should be developed in all disciplines. As a multi-layered competence, multiliteracy is understood as an umbrella concept for various literacies; its definition is close to how media literacy is defined in the international research literature (Palsa and Ruokamo 2015; Palsa and Mertala 2020). Multiliteracy is the ability to obtain, combine, modify, understand, produce, present and evaluate information in different modes, in different contexts and situations and by using various tools. In other words, multiliteracy refers to the competence to interpret, produce and make a value judgement across a range of different texts and can be comprised of verbal, visual, auditory, numeric and kinaesthetic symbol systems and their combinations (FNBE 2016). According to the Finnish national core curriculum (Finnish National Board of Education (FNBE) 2014, 2016), students need multiliteracy to understand, produce and evaluate different forms of information, interpret the world around them and perceive its cultural diversity, understand diverse modes of cultural communication and build their personal identity. Also, the curriculum emphasises and links cross-curricular competencies to subject-specific objectives and defines competencies as comprising knowledge, skills, attitudes, values and ethics (FNBE 2016).

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Finland is a relevant case to study, since it has a high-performing school system and teacher education system (Sahlberg 2021) and has recently invested in promoting students' multiliteracy through national core curricula and development programmes. In upper secondary education, the context of this present study, multiliteracy is one of the cross-curricular competence areas, which means that 'cross-curricular themes are taken into account in the teaching of all subjects as well as in the upper secondary school culture' (FNBE 2016, 56). For example, when the teacher defines subject-related learning goals, multiliteracy competence objectives should also be defined. Thus, promoting multiliteracy is part of all teachers' work practices, regardless of the subject area. To promote multiliteracy, teachers are encouraged to cooperate with other teachers and experts outside schools and to build connections and collaboration between subjects (FNBE 2016; Hobbs and Moore 2013; Rasi and Kangas 2018). Promoting students' multiliteracy, however, is not limited to promoting only subject-specific and cross-curricular competencies. It also means educating students in accordance with upper secondary education's central values, such as equality and equity, well-being, democracy, participation, agency and togetherness (FNBE 2016).

It is essential to consider how cross-curricular modules can be built and design teaching to promote students' multiliteracy in the upper secondary school context, where teaching usually follows domain-specific and subject-bound structures. In recent years, several practical and research-based initiatives (see, e.g. Sulkunen et al. 2019) have been realised to support Finnish upper secondary school students' multiliteracies. One example of a practical initiative is the Literacy Movement, which is an ongoing government programme aiming to promote the literacy and multiliteracy of Finnish residents, especially children and young people (see, e.g. <https://lukuliike.fi/the-literacy-movement/>).

However, more research evidence and practical examples of how to best promote multiliteracy in teaching (Kulju, Kupiainen, and Jyrkiäinen 2018; Rasi, Kangas, and Ruokamo 2019), as well as pedagogical models for building cross-curricular modules to promote multiliteracy in education are needed. Concerning teaching methods in multiliteracy development, participatory pedagogies and collaborative, creative, playful and multimodal media production practices have recently been called for (see, e.g. Tuominen and Kotilainen 2012; Kupiainen 2013; Song 2017; Cannon, Potter, and Burn 2018; Ranieri 2019). Also, the principles of inquiry-based learning have been applied to the teaching of multiliteracy (Veijola et al. 2018) and media literacy (Martens and Hobbs 2016).

Inquiry-based learning is a form of active learning that gives students the ownership and agency of learning and link their learning to their personal interests (Lonka 2018). It usually starts by posing questions, problems or scenarios. Inquiry-based learning fits well with cross-curricular activities, which we call phenomenon-based learning. By phenomenon-based learning, we mean cross-curricular learning activities in which a phenomenon is explored in light of different viewpoints and school subjects through the lenses of varying disciplines. Finland's current curriculum (FBNE 2014, 2016) advocates a phenomenon-based approach in response to the critique that traditional schooling involves too much theoretical and fragmented learning instead of being linked to real-world issues and problems (Lonka 2018; Niemi 2020). Phenomenon-based learning provides a good starting point for teaching multiliteracy because it begins with students' real-life phenomena or topics of special interest to them (Hobbs and Moore 2013; Rasi,

Kangas, and Ruokamo 2019). However, it requires a lot of support from the teacher, especially in the beginning of the process (Lonka 2018).

Even though there is research on media literacy and multiliteracy practices (e.g. Hobbs and Moore 2013; Palsa and Ruokamo 2015; Vorobel, Kim, and Park 2020), no available research focuses *comprehensively* on upper secondary school students' multiliteracy, as conceptualised in the current research (see also Kulju, Kupiainen, and Jyrkiäinen 2018). Instead, research has targeted particular aspects or components of multiliteracy or its sub-concepts, such as media literacy or news literacy (see, e.g. Martens and Hobbs 2016). This current study focuses on multiple aspects of multiliteracy and explores its manifestation and promotion from the viewpoints of students and teachers. The aim is to better understand the current state of multiliteracy teaching in the upper secondary school context and to develop pedagogical tools for promoting the multiliteracy of upper secondary school students.

This study targeted the following research questions: (1) How is multiliteracy manifested in students' coursework? (2) What are the critical factors in successful phenomenon-based teaching and learning of multiliteracy? (3) What kind of pedagogical model best supports the design and implementation of phenomenon-based teaching of multiliteracy?

Multiliteracy in upper secondary school

Multiliteracy is a multi-layered and complex competence. It entails cognitive, skill-based and affective components that include knowledge, skills, attitudes, values and ethics (Binkley et al. 2012; FNBE 2016). Multiliteracy is thus an umbrella term encompassing concepts such as media literacy, visual literacy (Kupiainen 2017) and advertising literacy (Zarouali et al. 2019). The prefix *multi* mainly refers to the multitude of different 'texts': 'Multiliteracy is based on a broad definition of texts according to which texts are entities expressed by systems of verbal, visual, auditive, numeric and kinaesthetic symbols and their combinations' (FNBE 2016, 60).

In the core curriculum for upper secondary education (FBNE 2016, 60), teaching multiliteracy should especially lead to critical media literacy skills and skills in responsibly seeking, selecting, using and sharing diverse text materials in information acquisition and studies, and shared media production competencies with others in different communication environments. Multiliteracy enhances the development of thinking and learning skills and develops critical literacy and language awareness. A goal in teaching multiliteracy at school is that students can use multiliteracy and the media for self-expression and interaction and learn to act responsibly in producing, using and sharing content. One aim is that the 'student is familiar with key norms related to copyrights and freedom of speech and can analyse ethical and aesthetic questions related to media' (FBNE 2016, 60).

Rasi, Kangas, and Ruokamo (2019) presented four dimensions of multiliteracy that can be applied in education: (1) use of diverse information sources, (2) critical assessment of information sources and information, (3) production, presentation and sharing of information by using diverse texts and (4) supporting the use of multiliteracy to promote good. These dimensions are based on the Finnish core curriculum (FNBE 2016) and theoretical conceptualisations of media literacy as competencies in *accessing, analysing,*

Table 1. Multiliteracy's key dimensions and activities.

Dimensions of Multiliteracy (FNBE 2016)	Teaching and Learning Activities that Promote Multiliteracy (Rasi and Kangas 2018; Rasi, Kangas, and Ruokamo 2019)
Use of diverse information sources How do you and your students acquire information? What kinds of information source do you use? What kinds of text do you use?	<ul style="list-style-type: none"> • Use of diverse information sources in addition to textbooks, especially those of particular interest and significance to pupils (e.g. social media, websites, TV programmes, movies, advertisements, magazines, games). • Verbal, visual, auditory, numeric, kinaesthetic texts and combinations of these.
Critical assessment of information sources and information How do you assess information, including textbooks? What aspects of information do you assess?	<p>Assessment of information sources and information in terms of:</p> <ul style="list-style-type: none"> • accuracy, reliability • viewpoints, motives, and values behind the information (e.g. economic, societal, cultural, political, scientific) • copyright and freedom of speech
Production, presentation, and sharing of information through diverse texts How and in what format do you and your students produce, present, and share information, knowledge and competences? Are there opportunities for shared media production?	<p>Production, presentation, and sharing of diverse texts:</p> <ul style="list-style-type: none"> • <i>verbal</i>: handwritten stories, mind-maps, online magazine • <i>visual</i>: photo collages, picture books, drawing • <i>auditory</i>: speech and audio files, radio drama, podcasts • <i>numeric</i>: percentages, frequencies • <i>kinaesthetic</i>: plays, pantomimes, dance performance • <i>combinations of these</i>: blog entries, games, video, animation
Supporting the use of multiliteracy to promote good How do you educate your students to use media to support equality and equity, well-being and safety, democracy, sustainable futures, and active citizenship?	<ul style="list-style-type: none"> • Use of digital technologies and media in versatile, responsible, and ethical ways for self-expression, interaction, and participation and involvement in society.

evaluating and producing media content and communication (Aufderheide and Firestone 1993). Thus, the classification combines (and partly overlaps) the subcategorisations of multiliteracy and media literacy. Also, related activities are integrated with the dimensions to provide practical examples of how to promote various types of multiliteracy.

The four dimensions of multiliteracy can be applied to the teaching of all upper secondary school education subjects or courses that integrate subjects. Given the broad and multidimensional character of multiliteracy (Palsa and Ruokamo 2015; Kupiainen 2017), it is useful for teachers to recognise and reflect on multiliteracy's various dimensions and activities for promoting different aspects of multiliteracy. Multiliteracy's key dimensions and activities are shown in Table 1.

Using diverse information sources means that besides textbooks, teaching and learning are based on diverse information sources, especially those of particular significance to students. Promoting the use of diverse information sources enables students to learn, for example, how to search for and access information from diverse sources by using relevant and diverse tools in a systematic, explicit and effective manner (UNESCO 2013). The second dimension of multiliteracy is the *critical assessment of information sources and information*. This means critically assessing the selected information sources (including textbooks) in terms of their accuracy, reliability, viewpoints, motives and values (see, e.g. Kellner and Share 2019), and in terms of copyright and issues about freedom of speech.

Information assessment is a key aspect of multiliteracy, for example, regarding recognising misinformation or disinformation. Likewise, textbooks used in schools have no

special status. Diverse information sources, such as digital and printed media as learning materials, reflect one's choices and *represent* the world from a certain viewpoint. Thus, the term *representation* also becomes relevant in studying multiliteracy. Representation is the culturalist assumption that the world is socially constructed and thus demands an exploration of the modes by which meaning is produced in a variety of contexts (Cereti 2019). As Cereti (2019) wrote, media literacy aims to develop students' ability to critically understand the strategies of the symbolic construction of reality, their ability to read the semiotic nature of media messages and their knowledge of media's role in spreading models and stereotypes.

The third dimension is the *production, presentation and sharing of information by using diverse texts* (see, e.g. Tuominen and Kotilainen 2012). Recent research shows that the dimension of production, presentation and sharing of information by using diverse texts has largely been ignored in teaching, and digital texts are not systematically produced at Finnish schools (Kulju, Kupiainen, and Pienimäki 2020), even though it is widely known that producing knowledge and media content plays an important role in today's media education (see, e.g. Kupiainen 2013; Rasi, Kangas, and Ruokamo 2019). However, as Barron (2019) reminded us, becoming a media maker requires that scholars, as well as teachers, understand the participatory nature of digital media if they hope to truly understand modern digital literacy. *Supporting the use of multiliteracy to promote good* entails that students, for their self-expression, interaction, participation and involvement in society (see, e.g. Hobbs 2010; De Kimpe et al. 2019), learn to use digital technologies and media in versatile, responsible, safe and ethical ways.

The concept of multiliteracy, because of its breadth, is also somewhat problematic (Palsa and Ruokamo 2015; Kupiainen 2017; Rasi, Kangas, and Ruokamo 2019). Some researchers understand multiliteracy as a set of various communication competencies, whereas in some cases it is understood as a pedagogical approach. Multiliteracy has mostly been studied in the context of teaching practices and pedagogical issues. The understanding of the meaning of multiliteracies in teaching dates to 1996, when the New London Group published an article dealing with the pedagogy of multiliteracies. In the Anglo-American tradition, multiliteracies are more often described as a pedagogical approach (pedagogy of multiliteracies) than as educational outcomes or abilities (Palsa and Ruokamo 2015).

Kiili (2012) studied upper secondary school students' online reading processes as individual and social practices and, in particular, how they locate and evaluate information and process content. Kiili concluded that some individual and collaborative readers had considerable difficulties locating information. Furthermore, the students more frequently evaluated the relevance of the information than its credibility.

A study by Horn and Veermans (2019) compared the critical thinking skills, especially from the viewpoints of information literacy and media literacy, of Finnish and US students preparing to enter or had already entered the International Baccalaureate Diploma Programme; this programme is offered in 157 countries worldwide for students aged 16–19 who have the aim of rigorous academic study (see, e.g. www.ibo.org). Horn and Veermans' study revealed that the Finnish students outperformed the US students in their understanding of the information producer and the quality of the evidence base of the presented information. The researchers argued that the Finnish curricula and the International Baccalaureate Diploma Program were able to better support students' critical

thinking by both facilitating it as a separate course and embedding it into subject coursework, whereas the US curriculum implicitly embeds only critical thinking into subject coursework.

A phenomenon-based approach to curricula, teaching and learning

The Finnish core curriculum for upper secondary education (FNBE 2016) emphasises the importance of cross-curricular work, which involves teachers who work with students studying the same *topic* or *phenomenon*. This approach to curricula, teaching and learning has been characterised as phenomenon-based (see, e.g. Kangas, Kopisto, and Krokfors 2016; Symeonidis and Schwarz 2016; Lonka 2018; Rasi, Kangas, and Ruokamo 2019). Phenomenon-based learning is based on the idea that knowledge is linked to real-life phenomena and that students can collaboratively create new solutions. In phenomenon-based learning, various phenomena of the world are analysed by going beyond one discipline (Lonka 2018). The information being processed and the knowledge being explored deal with students' lifeworlds and experiences, and topical societal issues – the target of exploration being, however, broader than a single case or problem (Rasi, Kangas, and Ruokamo 2019; Lonka 2018). For example, for students living in urban settings, homelessness (see, e.g. Hobbs and Moore 2013) could be the phenomenon explored. In our research case, students' perceptions, experiences and questions were starting points for phenomenon-based learning.

The phenomenon-based approach is linked to the theoretical discussion about the multidisciplinary integration of disciplines in which teaching and learning methods are organised around a common theme, phenomenon or problem, and each discipline explores it from its own viewpoint (see, e.g. Drake and Burns 2004). Multidisciplinary curricula and teaching do not inevitably involve synthesising knowledge and methodologies from various disciplines but may incorporate disciplines as noninteractive parallels (Yang 2009).

Phenomenon-based learning is not new in educational research. Many scholars have emphasised that teaching methods should link schoolwork to students' everyday lives (see, e.g. Vygotsky 1994). Nowadays, due to digitalisation and cultural and societal complexity, this is even more important. However, we still do not know enough about which pedagogical models are best suited for phenomenon-based teaching and learning.

Methodology

The central constructionist (also termed constructivist) premise of the present study is that the research participants actively construct their own views and learning, and that 'these processes are rooted in socio-cultural contexts and interactions' (Cohen, Manion, and Morrison 2018, 23). The current study is a case study (Yin 2018), which typically focuses on a phenomenon in its authentic context and uses various kinds of research data to explore the phenomenon from multiple perspectives. A justification for using the case study approach is its power to explore context-dependent experiences and knowledge. Case studies are widely used in educational research, as educational scientists study specific cases for understanding a phenomenon such as learning (Merriam and Tisdell 2016; Cohen, Manion, and Morrison 2018).

The present study draws on interpretive and constructionist perspective, meaning that the purpose is to describe, understand, and interpret how the participants themselves understand, experience and interpret the phenomenon in question (Merriam and Tisdell 2016), in this case, teaching and learning of multiliteracy in the context of the study. In line with the interpretive and constructionist perspective, the study employed research data that could be used for understanding the participants' perspectives, that is, a questionnaire for students, their written reports and teacher interviews.

In this current study's first phase, the two authors collaboratively designed a tentative pedagogical model intended for upper secondary school teachers to support them in designing and implementing teaching and learning practices to promote students' multiliteracy. Working with teachers, the authors then applied the model to practice and, based on the model, co-designed and co-piloted a cross-curricular upper secondary school course titled *Depictions of Sexuality*.

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Research design and participants

The case study was conducted as part of the DigiGO!—Digitalization in Teaching and Learning project, funded by the European Social Fund. This project involved one upper secondary school in northern Finland, which was chosen as the school partner for the present case study.

The *Depictions of Sexuality* course was offered to students as an optional course and was conducted in the fall of 2018. Nine students (aged 16–17 years) enrolled in the course; all of them and five teachers participated in the study. The course's starting point was to allow students to freely study the theme of sexuality. Cross-curricular subjects during the course included psychology, history, mother tongue and literature, health education and arts. According to the teachers, sexuality was perceived as broad enough to explore from the viewpoint of the students' own interests.

The students chose a phenomenon of their own interest in the theme of sexuality and explored its appearance in various information sources. The main learning goal was to promote students' multiliteracy skills. The aim was that after the course, the students understand what representation (Cereti 2019) and multiliteracy means, can search for information related to the chosen phenomenon from diverse and relevant sources and can critically evaluate the information. Because the emphasis was on exercising the students' analytical, critical and cultural literacy, all information sources, including textbooks, were considered equal. As coursework, the students produced an analysis of the phenomenon from the perspective of the chosen information sources and school subjects. Their research reports could be in the formats of an essay, oral presentation, video, blog or vlog. The course lasted five weeks (two hours per week), and classes were held in the afternoons. The steps of the course are described in [Table 2](#).

Table 2. Steps of the course Depictions of Sexuality.

Phases	Teaching and learning activities
1. Teachers find coteachers and determine the theme	The teachers designed the course, defined the learning objectives and evaluation criteria, and decided on the subjects involved in the course. The goal was that in the learning process, at least two subjects should be combined. University teachers participated in joint planning. The criteria for choosing the theme for the course were the following: the theme is based on the curriculum, relates to students' own lives, appears in textbooks, and is sufficiently open to students' own questions.
2. Students orientate to the theme (Week 1)	The course started by leading students to the chosen theme. During the orientation, the aim was to awaken students' interest in the theme and provide an opportunity to learn about it from the viewpoint of participating in school subjects. Teachers provided cognitive and emotional triggers (e.g. videos and newsletters) to stimulate students' own questions and generate discussions on the theme. University teachers gave a lecture on the concepts of multiliteracy and representation.
Students plan their work (Week 2)	Students planned their work and formulated their research questions regarding the theme. They also defined their information sources and the format with which they reported their analyses of the findings. Teachers guided the learning processes.
Students explore and critically assess information sources and information (Week 3)	Students explored and critically assessed the depiction of the phenomenon in the chosen information sources. The following criteria were offered for students to assess information sources and contents: (1) accuracy; (2) reliability; (3) viewpoints, values, and motives; (4) information underpinning; and (5) copyright and freedom of speech. The guiding question was as follows: How is the chosen phenomenon described in the information sources? Teachers guided the learning processes.
Students produce and share their analysis reports (Week 4)	Students produced an analysis and reported the representations of the phenomenon. They also presented their findings. The report could be in the format of an essay, oral presentation, video, blog, or vlog. The students got feedback on their coursework from the teachers, researchers, and other students.
Students elaborated on and assessed their learning processes (Week 5)	Students elaborated and reflected on their learning outcomes orally and in a questionnaire.

Data gathering and analysis

The research data consisted of a questionnaire for students ($N = 7$), their written reports ($N = 4$) and teacher interviews ($N = 5$). Collecting various types of data helped us to achieve a more versatile and complex understanding, and to use data triangulation (Cohen, Manion, and Morrison 2018; Yin 2018) which can improve the overall validity of the study (Denzin 1978). The triangulation of data means here using various data sources and respondent groups (Denzin 1978).

Table 3. The phenomena, sources of information, media and the format and length of the report.

Phenomena	Sources of information and media	Report
Sexuality and relationship	Movies <i>Kuutamolla</i> (2002) and <i>Valkoiset ruusut</i> (1943)	Written report 1,626 words
Dating in Islamic culture	Interviews of two male Muslims: www.islamopas.fi website and the article about the Islamic world	Written report 1,282 words
Sexuality and genre	Finnish rap music lyrics	Written report 1,386 words
Paedophilia	Sini Laitila's (<i>Papananaama</i>) YouTube video <i>Pedofilia ei ole väärin</i> and Nestori N's <i>Lapsikohteinen</i> blog	Written report 448 words

The questionnaire was completed at the end of the course and consisted of 17 open-ended questions devised by the researchers and related to the students' learning processes and guidance received during the course. Examples of the questions include: Why did you want to take this course? How do you understand the concept of 'representation'? What did you learn about multiliteracy during the course? Of the nine students in the course, five completed their reports on time. One report was done in a pair. The phenomena, sources of information, media and the format and length of the report analysed by the students are presented in Table 3.

The students' reports were analysed based on the existing literature on the areas of multiliteracy (see Table 1). For example, the dimension of the critical assessment of information sources and information in the students' reports was examined in light of Kellner and Share's (2019) critical media literacy framework. This analysis aimed to answer the first research question. Using *NVivo* software, we coded the sections of the student reports where they had looked at their information sources from these points of view: (1) Who is behind the texts? (2) How is the text structured linguistically? (3) How can different people and groups understand the text differently? (4) What values, perspectives or ideologies are included in, or lacking from, the text? (5) Why was the text produced and/or distributed? (6) Whom does the text present in a positive or negative light?

To answer the second research question, we gathered both questionnaire and interview data. Post-questionnaires and teacher-interview questions were created by the researchers based on multiliteracy dimensions and a preliminary understanding of the process of phenomenon-based learning of multiliteracy. In the post-questionnaires, we asked students to describe and reflect on their learning processes, the guidance they received during the course and their understanding of multiliteracy and its significance in life. The teacher interviews were thematic. The themes were related to collaboration within and beyond the school, integrating the subjects and the practical implementation of the course. The interviews lasted 27–49 min.

The transcribed interview data and open questionnaire responses were analysed using *NVivo* software. Investigator triangulation (Denzin 1978) was used in the data analysis to increase the study's credibility; that is, both authors engaged in different phases of the research process, by participating in its design, data collection, analysis and the reporting the findings. Analysis was based on agreed-upon criteria. As an analysis unit, we defined a unit of thought related to the theme whereby entities describing the same phenomenon formed one unit. Based on the data analysis results, we answered the third research question and designed a pedagogical model for the phenomenon-based learning of multiliteracy (PLM). In this study, the numbered R codes refer to reports, T codes refer to teachers and S codes refer to students.

Results

Multiliteracy in students' written reports

We asked 'How is multiliteracy manifested in students' coursework?' and analysed the emergence of the various areas of multiliteracy (see Table 1) in the students' reports to better understand how the phenomenon-based learning process of multiliteracy should be specifically supported. The results show that the information sources and

media selected by the students for analysis (see Table 3) well represented the dimension *use of diverse information sources*. The students used movies, experts, websites, musical lyrics and social media as information sources. However, no one during the course used textbooks as an information source. The *critical assessment of information sources and information* was manifested to varying degrees. In two of the reports (R2 and R4), the students briefly described the content of the information sources, and their critical analyses of the phenomenon seemed scant and inaccurate.

The site www.islamopas.fi has instructions on dating, such as how you should deal with issues related to dating in accordance with the Koran. The approach is very conservative and strict. (R2)

We were surprised to see how neutrally Nestori M. wrote about some issues. (R4)

Two reports (R1 and R3) showed signs of a *critical assessment of information sources and information*. Students' reports manifested the most indications as to which values, perspectives and ideologies are included or absent in the text (Kellner and Share 2019). We coded 19 text items in this category. For example, each student viewed his or her source of information as a mirror of his or her time, reflecting the social situation and gender roles.

Female rappers have started to deconstruct gender roles that are still clearly visible in society. The lyrics reflect frustration with the roles of men and women and the dichotomy of gender. For example, the rap duo SOFA criticised the conventionality of gender representations in their song, 'Tyttörukka (Poor Girl)'. (R3)

Also, in the movie *Kuutamolla (In the Moonlight)*, with the double meaning 'Clueless' in Finnish), Anna, who is friends with the main character, Iiris, becomes pregnant. The friend has brief relationships and one-night stands throughout the movie, and she is presented as a liberated and strong woman. This shows a clear difference between the movies in addressing women's sexuality and how it is presented. In *Valkoiset ruusut (White Roses)*, Ilona is presented as a warning example of what happens if you go to bed with the wrong man. (R1)

The abovementioned reports reveal other dimensions of Kellner and Share's (2019) critical media literacy framework. The students assessed why the text was produced and judged whether it was presented in a positive or negative light. They also pondered the context and reasons for the text:

The wartime movie is a trivial romantic froth that was probably exactly what the war-stricken Finns wanted to see back then. (R1)

The dimensions of multiliteracy *production, presentation and sharing of information by using diverse texts* rarely appeared in the coursework. The students were provided an opportunity to present the results of their analyses in, for example, blog, video or podcast format, but each student produced his or her report as a traditional, written report.

Successful phenomenon-based teaching and learning of multiliteracy

In this research, we were also interested in the critical factors of successful phenomenon-based teaching and learning of multiliteracy. The findings indicate that the successful implementation of PLM is affected by (1) teachers' and students' *interest and engagement in the learning of multiliteracy*, (2) *multiliteracy pedagogy* and (3) *structural factors*.

First, successful phenomenon-based teaching and learning of multiliteracy require interest and engagement in the multiliteracy learning process. The students reported that their interest was triggered by the interesting course theme and an opportunity for cross-curricular studies that touch on real life.

I wanted to take part in the Depictions of Sexuality course because I was interested in studying various phenomena related to sexuality and their representations that are strongly linked to society and the world around us. When I found out about this course, I thought it would prove useful and bring a welcome change to high school studies. I was especially interested in studying phenomena in a multidisciplinary manner from the viewpoint of different academic subjects. I also wanted to know what it might be like to be a university student. (S1)

The teachers reflected that their interest was especially triggered by an opportunity for cross-curricular work and the implementation of novel cooperation. During the course, some teachers realised that the sexuality theme had many connections to their subject areas. This can be interpreted as emerging identification processes in which intersecting sites and cultures are (re)defined in light of one another (Rasi and Kangas 2018; Rasi, Kangas, and Ruokamo 2019). Also, the teachers' interest in multiliteracy teaching increased, even though they felt the phenomenon of multiliteracy was not new.

We actually do practice comparing parallel or different texts on the same theme and practice, especially in the religion course, analysing news and so forth. But it was a good wake-up call for me that this could be emphasised more in various subjects and in various courses, and we could be asked to examine these phenomena from the viewpoint of multiliteracy. (T1)

Second, for successful learning, it seemed critical that the teachers could organise and actively guide students working to promote their multiliteracy. Thus, the teachers' roles, to some extent, differed from the traditional teaching of school subjects. A specific *multiliteracy pedagogy was needed*. The teachers felt the students needed a lot of support and guidance in selecting information sources, defining the phenomenon and conducting the analysis. Also, the students felt they needed more guidance and common discussions for doing the coursework. In particular, applying the concept of representation seemed difficult for the students, as one teacher described:

I noticed that she probably would've appreciated concrete help on what the representation is, and we did look into it together. She described what the interviewees had said, and I tried to help, in that the representation actually is exactly how this interviewee has described it so more time and effort could've been used for it ... They were sort of oral discussion meetings – especially the first time, we delimited the topic and, the second time, it is mostly the way in which the analysis is done, kind of. (T1)

However, the students reported that they had learnt to see things from different perspectives, to better understand the concept of multiliteracy and to be more critical and analytical of media and information sources. They felt that they were more multiliterate after the course, even though they also felt that the teachers did not always have enough skills or knowledge to help them. These findings indicate that the implemented multiliteracy pedagogy succeeded, at least to some extent.

In multiliteracy pedagogy, the teacher is a guide, a tutor and a representative of his or her discipline, but he or she need not be all-knowing. The teachers reflected that they were learners in the process, and sometimes they had to become familiar with the phenomenon chosen by the students. The teachers' learning processes were related to

the insights of PLM and the meaning of students' agency and ownership in the process, as the following quotation reveals:

I, myself, had to do some serious homework ... I'm lucky to have many colleagues who teach Islam, so I had to do a lot of homework myself to have something to give [to the students]. It really was part of it that I myself studied the topic and got a grip on it, and then we met twice ... I actually learnt immensely about the fact that ... it was a kind of starting point invented by the student herself. (T1)

The implementation of multiliteracy pedagogy also consisted of questions about teachers' cooperation and co-teaching. The teachers felt that there was no real cross-disciplinary collaboration during the course. The teachers guided the students mainly independently from the viewpoint of the school subject they represented, and there were no transdisciplinary discussions among the learners (cf. Drake and Burns 2004). Cooperation related to practical things, such as timetables, responsibilities, learning content and the literature. Also, the findings show that cooperation between upper secondary schools and universities was considered important. For example, multiliteracy lectures organised by university teachers were considered useful and even more desirable for upper secondary school–university cooperation.

Third, structural factors were critical in implementing successful phenomenon-based teaching and learning of multiliteracy. The structural factors referred to limited time resources for implementation and inflexibility for cross-curricular collaboration. Also, due to overlapping with national matriculation exams, implementing a course into the curriculum was felt to be a challenge:

Then there were some with the matriculation exams coming up. So, there were, let's say, challenges with scheduling. That was really the hardest part. (T4)

Also, structural factors related to subject-based timetables in upper secondary schools were considered limiting to the implementation of phenomenon-based learning and cross-curricular work:

Well, perhaps the mother tongue is now a subject whose topics can be related to many subject matters. But this [school] system is built in a way that is very subject-specific (T3).

The PLM model for promoting multiliteracy

To answer the third research question, 'What kind of pedagogical model best supports the design and implementation of phenomenon-based teaching of multiliteracy?' and based on the findings, we developed the PLM model. First, the developments focused on the concept of representation in the process (see also Martens and Hobbs 2016; Cereti 2019) and the presentation and sharing of the information produced by the students. The model regards understanding the concept of representation as a key learning goal and encourages the use of a variety of texts in producing and presenting analysed information, not only traditional written reports (see, e.g. Kupiainen 2013; Song 2017; Cannon, Potter, and Burn 2018; Ranieri 2019). Second, co-teaching by school teachers and between school teachers and university teachers is emphasised. Also, cross-curricular activities and subject interactions, essential elements in phenomenon-based learning, have been emphasised (see also Drake and Burns 2004). [Figure 1](#) illustrates the PLM model, its

steps and key contents. This pedagogical model is a tool for teachers to implement PLM in practice.

1. *Teachers co-design.* Teachers find co-teachers and collaborators and determine cross-curricular school subjects. The idea is that at least two school subjects are integrated. There are two requirements for choosing this theme: it must be based on (1) the curriculum and (2) the students' lives. Co-design includes design for the learning process, including the definitions of the learning goals, methods and evaluation criteria.
2. *Kick-off – students' orientation:* Orientation takes place during the first lesson(s). In the orientation, students focus on phenomenon-based learning and its theme. The aim is to create a shared vision of the learning process, methods and criteria. The purpose is to stimulate students' interest in the topic – for example, by providing them short lectures and discussion sessions to encourage them to ask questions.
3. *Planning.* At the beginning of the actual multiliteracy work, students plan their work and choose the phenomenon and their information sources. The aim is to guide the most relevant information sources for their projects. Students also formulate their research questions regarding their phenomenon of interest and draw up analyses and reporting plans.
4. *Checkpoint:* This is the stage at which teachers and students jointly evaluate analysis plans and how different subjects can be used in analysis and reporting. The purpose is to ensure that the learning objectives, understanding of multiliteracy and exploration of the phenomenon from different subjects are achieved.
5. *Exploration – searching for and analysing information:* Students search for and gather information about a selected phenomenon and critically assess and analyse how the

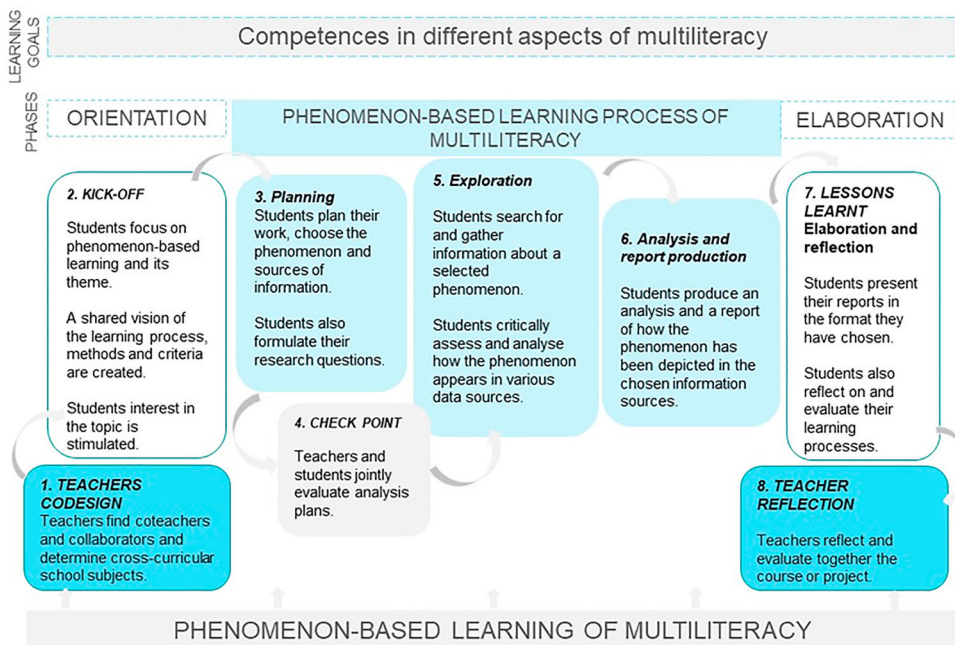


Figure 1. The pedagogical phenomenon-based learning of multiliteracy (PLM) model.

phenomenon appears in various data sources (see [Table 1](#)). The students also consider how the phenomenon's appearance in different information sources can be argued.

6. *Analysis and report production*: Based on exploration and assessment, each student produces an analysis report of how the phenomenon has been depicted in the chosen information sources. In this phase, students' media production skills are promoted, and they are encouraged to produce their reports in a format that fits the phenomenon best.
7. *Lessons learnt – elaboration and reflection*: During the final lessons, students present their reports in their chosen format. They also reflect on and evaluate their learning processes, especially from the viewpoint of multiliteracy and its dimensions.
8. *Teacher reflection*: This stage involves developing pedagogical practices and teachers' pedagogical thinking. It is important that teachers reflect on and evaluate the course or project together. They also collect feedback from students for the further co-development of methods and curricula.

Discussion and conclusions

This study's findings indicate that successful phenomenon-based learning of multiliteracy (PLM) requires arousing teachers' and students' *interest and engagement in the learning of multiliteracy*, implementation of *multiliteracy pedagogy* and addressing challenging *structural factors*. This study's results indicate that students' manifested multiliteracy in their coursework (see also Fortuna [2015](#); MaksI, Ashley, and Craft [2015](#); Martens and Hobbs [2016](#)). However, it seemed critical that their interest in the course and multiliteracy had been aroused.

In this case, a trigger was the theme of sexuality that awakened the students' interest in exploring a real-life phenomenon in which they were specifically interested. During the learning process, students were asked to analyse information and explore questions dealing with representations (Martens and Hobbs [2016](#)), which is not automatically an easy task. Indeed, as the results show, multiliteracy pedagogy, the guidance and support provided by the teachers and cross-disciplinary teacher collaboration are critical for the successful learning of multiliteracy. However, the findings also show that teachers need more knowledge about and experience in implementing cross-curricular activities and in comprehensively promoting students' multiliteracy (see also Kulju, Kupiainen, and Pienimäki [2020](#)). According to Cereti ([2019](#)), teachers are key persons in supporting students' multiliteracy by designing learning practices that focus on literacy activities and discussions about the relationship between reality and its representation in the media.

Furthermore, the course that the students participated in drew on conceptions of multiliteracy as a context-specific and situational competence (Rasi, Kangas, and Ruokamo [2019](#)) and on a phenomenon-based approach to curricula, teaching and learning (see, e.g. Halinen, Harmaja, and Mattila [2015](#)). The course was based on students' life-worlds: phenomena, topics, information sources and media of special interest to them. The pedagogical PLM model we developed provides a tool for these practices aimed at promoting students' multiliteracy and creative competencies. The PLM model is generic and needs to be further empirically tested and developed so that it can

provide more specific information about the teacher guidance process and the implementation of different aspects of multiliteracy (see [Table 1](#)). In general, the model can also be used for promoting other media-based educational initiatives in schools to prepare young people for the digitalised, globalised and multimedia world.

A limitation of our study is the small number of participants, so generalisations should be made with caution. However, as a case study aimed at designing a pedagogical model, we maintain that this study helps to better understand the complex phenomenon of multiliteracy in schoolwork and benefits the development of teaching practices beyond the school level (see, e.g. Collins, Joseph, and Bielaczyc 2004). Another limitation is that the university teachers involved in this study barely participated in guiding and supporting the students and, therefore, in the co-teaching practices.

However, with this present study, we have built a new form of cooperation between upper secondary schools and universities. This is in line with the ongoing reform of general upper secondary education in Finland, which capitalises on studies across subject boundaries and closer cooperation between upper secondary schools and higher education institutions (Ministry of Education and Culture 2019). This case study is a good example of teachers' cooperation with a research institute, as advocated by the present core curriculum for upper secondary education (FNBE 2016). Furthermore, it is a good starting point for collaboration by education researchers and organisations (see, e.g. Hobbs and Moore 2013; Rasi, Kangas, and Ruokamo 2019).

Finally, from the perspective of teacher education, it is important to recognise that some of the teachers who participated in our study reported that they considered themselves *learners* of multiliteracy, just as their students were (see also Kupiainen 2017; Rasi, Kangas, and Ruokamo 2019). Therefore, upper secondary school teachers, regardless of the subjects they teach, should be provided with support and training to promote their students' multiliteracy within preservice and in-service teacher education.

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