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Irina Engeness
Østfold University College, Halden, Norway
ORCID: https://orcid.org/0000-0001-5948-4992
Magnus Nohr
Østfold University College, Halden, Norway
ORCID: https://orcid.org/0000-0002-7647-2886

Assessment as Learning: Use of Reflection Videos in the Massive Open Online Course to Enhance Learning and Digital Identity Among Pre- and In-Service Teachers in Norway

ABSTRACT: This study examines teachers' experiences of their engagement with the reflection videos in the Pedagogical Information and Communication Technology (ICTPED) Massive Open Online Course (MOOC) aimed to develop Norwegian teachers' professional digital competence. The study also considers how teachers' engagement with reflection videos might have enhanced their digital identity.
Analyses of teachers' experiences draw on the cultural-historical perspective and, in particular, Galperin's conceptual contribution.
Mixed methods were used to analyse the data by providing evidence about the teachers' engagement with the reflection videos in 2016-2020.
Findings reveal that the teachers' engagement with the reflection videos contributed to the development of their conceptual understanding and their agentic capacity to learn online. In doing so, their digital agency might have been enhanced.

KEYWORDS: online learning, Massive Open Online Course, assessment, reflection videos, digital identity, Galperin.

Kontakt:	Irina Engeness Irina.engeness@hiof.no Magnus Nohr

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WHY IS THIS STUDY?

This study examines Norwegian teachers' experiences of the use of reflection videos[1] in the Pedagogical Information and Communication Technology (ICTPED) Massive Open Online Course (MOOC) aimed to develop teachers' professional digital competence (PDC). The study also provides an insight into how teachers' use of reflection videos may contribute to developing their conceptual understanding and enhance their digital identity.

Research reports that the identity teachers develop through engaging in the teacher-training programmes and their educational practice has a tremendous effect on students' learning (Beauchamp & Thomas, 2009; Friesen & Besley, 2013; Schutz et al., 2018). The key grounding for the development of teacher identity is sought in engaging in contextually situated sociocultural practices organised according to community norms and values (Martin & Sugarman, 2000; Suad Nasir & Kirshner, 2003). While sharing this perspective, Stetsenko (2017) believes that it can be further strengthened by capitalising on the dynamics of teachers' participation in community practices and on unique individual contributions to collaboratively *transforming* these practices as the grounding for both *identity* and *learning*. "Identity is about the search of a meaningful activity that can make a difference that matters to others and to ourselves and therefore constitutes the uniqueness of ourselves" (Stetsenko, 2017, p. 228). The significance of a teacher identity has even been more emphasised in the current educational climate of increasing teacher attrition, heightened accountability, and demand for teachers to develop their PDC required in technology-rich Norwegian classrooms (Aagaard & Lund, 2019).

Several attempts to conceptualise teachers' PDC (Brevik et al., 2019; Caena & Redecker, 2019; Ilomäki et al., 2016; Instefjord & Munthe, 2017; Kelentrić et al., 2017; McGarr & McDonagh, 2019; Mishra & Koehler, 2006) indicate that digitally competent teachers possess a wide range of knowledge, skills, and attitudes that are required

1 A detailed explanation of a reflection video is presented in 4.2 ICTPED MOOC

when using digital technology to perform tasks, solve problems, communicate, manage information, collaborate, and share content. However, the continuous emergence of new digital technologies requires teachers to constantly improve their PDC, and therefore, teacher PDC is of a transformative nature. Such a transformative nature inherently connects PDC with teacher digital identity.

Researchers explain teacher digital identity as a dynamic and ongoing process of sense-making, reinterpreting beliefs, values, and educational experiences urged by the new realities in the contemporary digital society (Gorospe et al., 2015; Robson, 2018). Teachers may develop their digital identity through engagement in online learning, and this engagement constitutes the pathway for teachers to acquire the digital tools that allow for developing educational practices and, thus, the pathway to becoming unique individuals and professionals (Avidov-Ungar & Forkosh-Baruch, 2018; Engeness, 2021; Ertmer, 2005).

However, how teachers learn in online environments with the aim of developing their digital identity is an under-researched area (Castaño-Muñoz et al., 2018; Engeness & Nohr, 2020; Kleiman et al., 2013; Laurillard, 2014; Vivian et al., 2014). Researches indicate that teachers appreciate engaging in collaborative learning activities, peer-assessment, participating in discussion forums, and sharing pedagogical ideas and useful resources (Laurillard, 2016). However, when involved in online learning, teachers may create their individual learning trajectories and, in doing so, develop their capacity in online learning and enhance their digital identity (Engeness & Nohr, 2020). Brandmo et al. (2020) argue that adequately designed assessment forms may stimulate students' self-regulated learning. While considering the importance of a self-regulating capacity in online learning (Littlejohn et al., 2016), assessment in MOOCs deserves particular attention.

Research has widely addressed the aspect of assessment in MOOCs (Chauhan, 2014; Daradoumis et al., 2013; del Mar Sánchez-Vera & Prendes-Espinosa, 2015). The benefits and limitations of the two scalable forms of assessment in MOOCs: multiple choice tests and peer-assessment have been debated (del Mar Sánchez-Vera & Prendes-Espinosa, 2015). However, how teachers experience their engagement with reflection videos as an assessment form to enhance their digital identity has been hardly considered. This study addresses this gap by examining the following research questions:

RQ1: How did teachers experience their engagement with the reflection videos as an assessment form in the ICTPED MOOC?

RQ2: How did teachers' engagement with reflection videos might have contributed to enhancing their digital identity?

LEARNING AND ASSESSMENT IN MOOCS – WHAT DO WE KNOW?

When learning in MOOCs, participants have to not only select the resources they need to engage with to achieve the desired learning outcomes, but to develop their understanding of how to interact with these resources (Littlejohn et al., 2016). In

doing so, the need for learners' self-regulating strategies comes to the fore, which can be described as a process where the learner activates and sustains their cognition, motivation, and behaviours towards the attainment of a learning goal (Brandmo et al., 2020; Schunk, 2014). Several strategies for self-regulation learning have been outlined, such as goal setting, identifying an approach to engage in learning, and self-evaluation (Zimmerman, 2002, 2008). It has been pointed out that explicitly teaching self-regulation strategies can have a positive effect on learners' attainments (Pintrich & Zusho, 2002) and that good self-regulators do much better than poor-self regulators (Panadero, 2017; Zimmerman & Pons, 1986). These findings corroborate the research on online learning, indicating the need for students to exhibit the qualities of self-regulated, self-directed, and self-sustained learners (Azevedo & Hadwin, 2005; Barnard-Brak et al., 2010; Serdyukov & Hill, 2013; Wang et al., 2013).

Several measures have been suggested to assist learners in developing their self-regulated capacity to learn. For example, such features of online courses as convenience and flexibility, a choice of assignment topics, a variety of implementation formats, social networking and virtual collaboration spaces, as well as self-paced study and continuous feedback may provide students with pathways to developing their autonomy (Engeness & Nohr, 2020; Serdyukov & Hill, 2013). In other words, the design of an online learning environment may contribute to enhancing students' capacity in self-regulated learning (Broadbent & Poon, 2015). To address these needs, MOOC design principles have been suggested to include (1) self-evaluation, (2) organising; (3) goal setting and planning; (4) keeping records and monitoring; (5) memorising; (6) reviewing records; (7) seeking information; (8) seeking social assistance; (9) self-consequences and (10) structuring personalising learning environments (Lee et al., 2019). However, teacher digital identity as a capacity to reveal the potential of digital technology and engage in meaningful interactions with digital technology may be developed (i) through engagement in online learning and (ii) by teachers' involvement in the design of digital environments. Such an engagement reveals how teachers may acquire cultural (digital) tools and thus the pathway to becoming unique individuals and professionals (Engeness, 2021). To facilitate teachers' participation and their meaningful contributions in online environments, Engeness (2021) suggested the following design principles: (1) identify the target concept, its essential characteristics, and the order in which these characteristics will be presented to teachers; (2) teachers' engagement in learning activities should follow a general approach of how knowledge is created in a particular subject area; (3) present an overview of the entire learning activity (for example, a structure of a MOOC, a module or an activity) for teachers; (4) present some resources in a materialised form (textual information, videos, audio files); (5) engage teachers in social interactions to develop their understanding of the target concepts and (6) provide feedback reflecting teachers' progress and indicating pathways for further improvements (Engeness, 2021a). The suggested design principles are intended to enhance teachers' digital identity and learning through their actions and interactions with digital tools to develop their gradual meaning-making of these tools. However, the argument about the impor-

tance of the MOOC design to enhance teachers' digital identity highlights the need to consider how different elements of a MOOC design may contribute to achieving this aim. Assessment in MOOCs may be considered as one of the MOOC design elements.

The two main types of MOOCs are xMOOCs and cMOOCs. While xMOOCs are instructivist and individualist, use classic e-learning platforms, and are based on resources, cMOOCs are connectivist and are based on social learning, cooperation, and use of web 2.0 (Fidalgo-Blanco et al., 2016). Concerning assessment in both x- and cMOOCs, mainly two forms of scalable assessment prevail: multiple choice tests and peer assessment (Chauhan, 2014; Daradoumis et al., 2013; del Mar Sánchez-Vera & Prendes-Espinosa, 2015; Littlejohn et al., 2016). Since xMOOCs adopt a traditional teaching model and largely rely on videos and automated assessment (Ross et al., 2014), the main aim is to assess students' learning in relation to content. This is achieved mainly through multiple choice tests. In contrast, in cMOOCs (constructivist MOOCs), peer-assessment is widely used with the suggested assessment rubric outlining the criteria for assessment (del Mar Sánchez-Vera & Prendes-Espinosa, 2015; Gamage et al., 2017; Meek et al., 2017). Although learners in x- and cMOOCs indicate their interest in knowing whether they are more likely to succeed or fail towards reaching their educational goals (self-regulated learning) and receive more varied feedback (Daradoumis et al., 2013), such feedback-giving is not scalable and challenging to provide by human online course instructors. Peer-assessment is recognised and appreciated by learners; however, it is effective when the students are provided with a well-designed assessment rubric and instructions indicating how to use it (Downes, 2013). In addition to multiple choice tests and peer assessment, portfolio assessment (Chen, 2017), network-based grading (Wu et al., 2016), and learning analytics (Lu et al., 2017) have been used as alternative forms of assessment in MOOCs. Although these forms of assessment are useful to reduce dropouts, help students to develop their understanding of the target concepts, facilitate social interactions in online environments and provide formative feedback indicating ways of further improvements, they hardly address the need to develop learners' self-regulating capacity and enhance their understanding of how to engage and advance in online learning. By developing such understanding, learners' digital identity might be enhanced. This study addresses this gap by examining teachers' experiences of their engagement with reflection videos as assessment forms in the ICTPED MOOC through the lens of the cultural-historical perspective.

THEORETICAL PERSPECTIVE

The central premises of the cultural-historical theory, developed in the works of Vygotsky, Luria, Leontiev, Galperin, Davydov, and others, may offer a useful perspective on how to enhance human learning and development. These premises aim at surpassing the Cartesian dualism between the objective (given) and the subjective (imagined) and underline that the development of human consciousness needs to be

studied in the context of practical activity (Miettinen & Paavola, 2018). The activity approach developed further by Vygotsky's followers (Davydov, 1988; Galperin, 1976; Leontiev, 1978) capitalises, among others, the *principle of activism,* which positions humans as central actors in the activities they engage in. Other principles of the cultural-historical approach consider object-orientedness, transformative nature of human consciousness, mediation, internalisation, and externalisation. From the perspective of activism, the development of human consciousness is seen as part of the larger practices aimed at making and remaking the reality by humans' meaningful contributions to the surrounding reality (Stetsenko, 2017). Therefore, the development of human consciousness is considered as a creative process of constructing human activities. By considering that teachers may develop their digital identity through engagement in online learning to acquire the digital tools that allow for developing educational practices, the structure of online activities would seem to be crucial. A particular emphasis on the need to construct human activities to enhance learning and development was suggested by Galperin. His argument is that any learning activity consists of *orienting, executive* and *control parts* (Engeness, 2021b). The *orienting part* of the action carries four main tasks or purposes: (i) evaluation of the present situation, (ii) identifying the potential of the cultural objects present in the situation for the actual needs of the learner, and iii) creating a plan of the action and iv) control of the action's execution according to the created plan. Sometimes, the control of the action's execution may turn into an evaluation of learners' understanding of the present situation (Engeness, 2021b). Galperin emphasised that these four components were crucial to the activity design. The *first component* (evaluation of the present situation) concerns constructing an image of the present situation by identifying the cultural objects that encapsulate knowledge to be revealed by learners during their interactions with these objects. Through interactions with the cultural objects, learners develop an image of the present situation. The *second component* concerns clarification of the potential of the available cultural objects for learners' needs, whereas the *third component* concerns creating a plan of action – how learners will interact with the cultural objects. This plan indicates how the action will be performed. Finally, the *fourth component* concerns (i) facilitation of the action during its execution and (ii) correction of the observed deviations. In summary, these four components of the orienting activity indicate that when engaging in the activity design, humans interact with two types of images: (i) images of the surrounding reality (images of the available cultural objects, their potential for the needs of the learner and a plan of action) and (ii) ideal images of the action (how learners will interact with the available cultural objects).

The executive part of the activity concerns performing the activity and its transformation from the ideal to the real plane. The control part ensures that the performing of the activity happens in accordance with the activity plan created in the orientation phase. If considerable deviations from the previously designed activity plan are noticed, the activity can be modified and adjusted according to the previously created ideal image. By engaging in such planning, learners develop their

understanding of the activity design process; they are able to validate their design and reflect if any corrections are needed to the designed activity plan. In doing so, learners develop their understanding of how to engage in the learning process and validate the achieved learning outcomes in relation to the selected criteria. Such an approach highlights how learners' self-regulatory capacity may be enhanced. Applied in MOOCs' context, such a capacity may indicate teachers' ability to learn online by revealing the potential of digital technology, engaging in purposeful interactions with technology, and making meaningful contributions. In doing so, teachers' digital identities might be enhanced.

Understanding learning activity comprising orienting, executive, and control parts will be used to examine teachers' experiences of their engagement with reflection videos as an assessment form in the ICTPED MOOC. Such use of Galperin's theory is innovative, and we are interested in exploring whether the lens of the three parts of the learning activity will help in our analysis of teachers' engagement with reflection videos as an assessment form in the ICTPED MOOC to develop their digital identity. In addition, Galperin's approach might be useful to examine how teachers' individual contributions by engaging with the reflection videos may contribute to transforming their practices as grounding for developing their digital identity and learning.

METHOD

Participants and setting

Data were collected through the questionnaire administered to all pre- and in-service teachers engaged in the ICTPED MOOC in 2016-2020. The questionnaire aimed to examine the teachers' learning experiences in the ICTPED MOOC. The questionnaire included the following: (a) general information about the teachers, (b) teachers' learning experiences in the ICTPED MOOC, and (c) course instructors' facilitating of the learning process in the ICTPED MOOC. The questionnaire included 33 questions; some questions applied a five-point Likert scale, and some questions required detailed answers. Table 1 shows the number of respondents to the questionnaire in 2016-2020, their professional background, and general evaluation of the ICTPED MOOC.

Table 1. The number of respondents to the questionnaire in 2016-2020 and their general evaluation of the ICTPED MOOC

Years	Number of respondents	Male/female mean (M)	Professional background (M)	General evaluation of the ICTPED MOOC mean (M) (SD)
2016–2020	430	Male M = 23.72% Female M = 76,28%	In-service teacher M = 73.4% Pre-service teacher M = 18.6% Other M = 8.0%	Very weakly satisfied M = 1.40% (0.89) Weakly satisfied M = 2.0% (1.41) Somewhat satisfied M = 4.80% (0.84) Strongly satisfied M = 41.20% (9.04) Very strongly satisfied M = 37.80% (21.82)

ICTPED MOOC

The ICTPED MOOC was first introduced in Norway in 2016. The course was developed by researchers and development specialists from Østfold University College. The ICTPED MOOC has a structure of an xMOOC; it is a built-in Canvas platform and aims to enhance the development of PDC with pre- and in-service teachers. The xMOOCs are defined as institutionally focused, largely reliant on video resources, and providing automated assessment through quizzes (Armellini & Padilla Rodriguez, 2016; Fidalgo-Blanco et al., 2016), and all of these elements are present in the ICTPED MOOC. The ICTPED MOOC comprises seven modules to be completed by the participants over the course of 20 weeks. Each module opens with an introductory video presenting learning goals and expected outcomes. Thereafter textual information (accessible as text on the page) and embedded research articles, complemented by relevant video and audio resources are introduced. Further, teachers engage in individual tasks, elaborate on the reflection questions, and solve multiple-choice quizzes at the end of each module (summative assessment). Figure 1 presents a typical structure of the modules in the ICTPED MOOC.

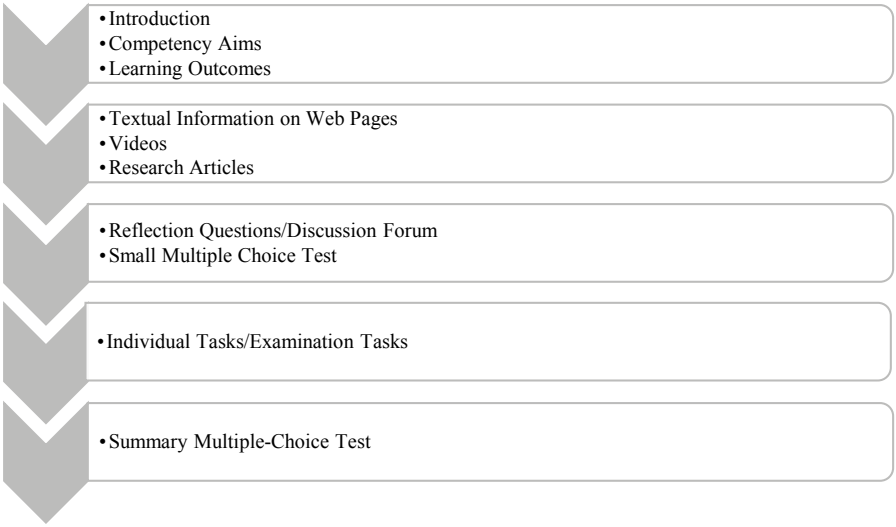

Figure 1. The structure of the modules in the ICTPED MOOC

Small multiple choice tests are used as formative assessments, and they are embedded in different places in the modules. Universal Design is integrated into the ICTPED MOOC, and audio files are embedded on every webpage. The teachers can also download every module as an audio file, a podcast, a flat pdf file, or an e-book. The list of the modules included in the ICTPED MOOC and the progress plan that the participants are to follow are presented in Table 2.

Table 2. Progress plan and the modules in the ICTPED MOOC

Module	Progress plan week
0. Pre-course	2
1. ICT and learning	3-4
2. Digital studying techniques	5-6
3. Multimodal Texts (examination module)	7-9
4. Cyber Ethics	10-11
5. Classroom management in digital learning environments	12-13
6. Assessment for learning	14-16
7. Flipped classroom (examination module)	17-21

In several modules, teachers are expected to give and receive feedback and submit examination assignments (in Modules 3 and 7). The examination assignment Flipped Classroom included in Module 7 is presented in Figure 2.

Examination Assignment: Flipped Classroom

The main goal of this examination assignment is to create a flipped classroom that can be used in your teaching practice. You may choose any topic relevant to the curriculum in English, and the topic of your choice should be specified in the assignment. Your flipped classroom should contain a combination of videos, textual information, and other resources. However, all resources used in your assignment should be self-produced. Remember to reference the sources you have used. Your flipped classroom assignment should be designed for three teaching hours.

You will need to submit the following two elements, which comprise the examination assignment (both elements should be submitted in Canvas):

1. A link to the flipped classroom assignment (log-on information must be enclosed if log-on is required)
2. A reflection video (maximum length of 10 minutes). In the reflection video, you should present in detail your flipped classroom assignment, providing reasons for the choices you have made. You should also argue for the pedagogical value of your flipped classroom: How will the students develop their conceptual understanding? The reflection video should be produced as a screencast with you as a narrator (talking head in the lower-right corner of the screen). You can submit your reflection video as a link or an mp4 file. The following tutorial offers practical advice about how to make a video (link to the tutorial).

Assessment Criteria

The following questions will be addressed by the course instructors evaluating your flipped classroom. Does your flipped classroom:

(a) contain competency aims and learning objectives students should achieve?
(b) demonstrate your ability to utilize a flipped classroom's distinctive features/benefits?
(c) demonstrate your ability to produce videos and other resources of an appropriate quality?
(d) introduce a learning design that indicates the sequence of activities in which students will engage?
(e) reflect on a teacher's role in the flipped classroom assignment?
(f) present your reflections about the pedagogical value, benefits, and limitations of the flipped classroom assignment?

How to Engage in the Examination Assignment

We suggest that you follow the steps outlined below to solve the examination task.

1. Read the task carefully and think about the topic for your flipped classroom—consider theoretical and practical resources that might be useful. Carefully read the assessment criteria.
2. Your group leader will arrange a collaborative meeting to share and discuss these ideas with other students. The aim of the meeting is to solve the examination task by engaging in discussions with your peers. You will present your ideas about your flipped classroom, resources that might be useful and discuss the pedagogical value of your flipped classroom.
3. Create a draft of your flipped classroom. Submit your draft to the course teacher to receive feedback on your ideas.
4. Create your flipped classroom and submit the following: (i) a link to the flipped classroom and (ii) your ten minutes reflection video.

Figure 2. Examination assignment: Flipped Classroom

On successful completion of the ICTPEDMOOC (evaluated to pass or fail), teachers are awarded 15 European credit transfer and accumulation system (ECTS) credits. Over 80% of teachers passed the ICTPED MOOC in 2016—2020. The open version of ICTPED MOOC can be accessed here: http://bit.ly/iktpedmoocopen.

Data and analysis

To address the research questions in the study, the following questions were included in the questionnaire administered to the teachers in the ICTPED MOOC in 2016-2020: *Q27 What is your experience of creating a reflection video as an assessment form?* (Applied on a five-point Likert scale); *Q28 Describe how was creating a reflection video useful for your learning?* (Teachers were to provide detailed descriptive answers) and *Q29 If you were to choose an examination form in this course, would you prefer to (a) create a product and make a ten minutes reflection video or (b) create a product and complete a written assignment?* However, in 2020, this question was modified to include another option (*c) create a product and make an oral presentation* (teachers had a choice between two options in 2016-19 and three options in 2020). In addition, the transcribed teachers' reflection videos were analysed by the research team.

The data comprised 430 teachers' responses to Q27, 28, and 29 and their reflection videos. The teachers' responses to the questionnaire were anonymous and voluntary. The project was approved by the Norwegian Centre for Research Data. Mixed methods (Creswell, 2012) were applied to analyse the data by providing quantitative and qualitative evidence about how reflection videos as a form of assessment contributed to teachers' learning in the ICTPED MOOC. To examine how reflection videos contributed to teachers' learning, their responses to Q29 and reflection videos were thematically analysed (Braun & Clarke, 2020; Castleberry & Nolen, 2018). The teachers' responses and reflection videos were imported to NVivo 12 and coded by employing an inductive approach to the thematic analysis (Braun & Clarke, 2020) without any predetermined categories (Patton, 2015). To uncover the thematic aspects, a detailed approach was applied in the analysis of the teachers' responses to Q28. By following the detailed approach, all sentences were individually examined with regard to the

significance of the phenomenon (Van Manen, 2016). When examining the teachers' reflection videos, a holistic approach that targets the underlying meaning of a large part of the text was used (Van Manen, 2016).

The codes identified by the detailed and holistic approaches were presented in the form of a descriptive label that directly described or was taken from the teachers' responses to Q28 or their reflection videos. These codes represented (i) teachers' reflections about how the designed videos contributed to their learning in the ICTPED MOOC and (ii) aspects addressed in the reflection videos. Thereafter, the codes were put into context with each other to create themes that represented a bigger picture of the examined phenomenon (Braun & Clarke, 2020). The single codes from the open coding process were grouped into larger themes to represent patterns of teachers' elaborations of how creating reflection videos contributed to their learning in the ICTPED MOOC. These themes are presented in 5.0 Findings. Once the themes were identified, they were examined through the lens of the assessment criteria in the examination assignment *Flipped Classroom*. To ensure the reliability of the results, a thematic analysis of the teachers' responses to Q28 and their reflection videos was conducted by the research team.

FINDINGS

Analysis of teachers' responses about their engagement with reflection videos

The teachers' experiences of their use of reflection videos are first analysed by examining their responses to *Q27 What is your experience of creating a reflection video?* (Table 3).

Table 3. Teachers' experiences of their use of reflection videos as assessment form

Years	**2016**	**2017**	**2018**	**2019**	**2020**	**Mean (M)**
Very weakly satisfied	2.94%	0%	0%	0%	1.63%	M=0.91% SD=1.33
Weakly satisfied	10.29%	5.88%	3.57%	9.35%	4.07%	M=6.63% SD=3.05
Somewhat satisfied	11.76%	21.57%	13.10%	18.69%	15.45%	M=16.11 SD=4.03
Strongly satisfied	36.76%	37.25%	54.76%	46.73%	50.41%	M=45.18% SD=7.90
Very strongly satisfied	35.39%	31.37%	27.38%	24.30%	28.46%	M=29.38% SD=4.21
Cannot answer	2.94%	3.92%	1.19%	0.93%	0.00%	M=1.79% SD=1.59

The data show that the majority of teachers were strongly (M=45.18% SD=7.90) and very strongly satisfied (M=29.38% SD=4.21) with creating reflection videos in the Flipped Classroom examination assignment.

Table 4 presents the teachers' responses to *Q29 If you were to choose an exanimation form in this course, would you prefer to (a) create a product and make a ten minutes reflection video or (b) create a product and complete a written assignment* (data from 2016-2019) and (*c) create a product and make an oral presentation* (data from 2020).

Table 4. Teachers' preferences for examination forms

Years	2016	2017	2018	Mean (M)	2020
Product & written assignment	22.40%	16.30%	13.30%	M=17.95 % SD=3.98	8,30%
Product & reflection video	77.60%	83.70%	86.70%	M=82.05% SD=3.98	79.30%
Product & oral presentation					12.4%

The mean and the standard deviation were calculated by using the data collected in 2016-2019. Since an additional category was introduced in 2020, these data were not included in the analysis. However, the data collected both in 2016-2019 and in 2020 show that the majority of teachers preferred creating a product (learning outcome) and a reflection video in the Flipped Classroom examination assignment rather than engaging in a written assignment or an oral presentation. These findings indicate the need to qualitatively examine teachers' reflection videos and their experiences of creating reflections videos.

Analysis of teachers' reflection videos

The holistic thematic analysis (Braun & Clarke, 2020; Castleberry & Nolen, 2018) of the reflection videos identified that the teachers: (1) *created a setting* by introducing the topic for their Flipped Classroom, presenting the target students' group, identifying the learning objectives and referring to relevant competency aims; (2) *presented an overview* of their Flipped Classroom and identified the used assessment forms; (3) *reflected on how videos used in the assignment were created*, their length and what technology was needed to create the videos; (4) *reflected on the teachers' role* in the Flipped Classroom; (5) *presented students' feedback* from engaging in the Flipped Classroom (which was largely positive); (6) *discussed benefits and limitations* of the created Flipped Classroom and (7) *identified ways for further improvement* of the assignment. In addition, the majority of teachers expressed their willingness to use a Flipped Classroom approach in their further pedagogical practice. In doing so, the teachers integrated and thoroughly reflected on the assessment criteria presented in the text of the examination assignment (Figure 2) in their reflection videos.

Analysis of teachers' experiences of creating reflection videos

The detailed thematic analysis of the teachers' responses to *Q28 Describe how was creating a reflection video useful for your learning?* (teachers provided detailed descriptive answers) revealed several themes that indicate teachers' experiences of their engagement with the reflection videos. Estimated in NVivo 12, the percentage coverage of these themes is as follows: prioritising important aspects in the reflection video (36.85%), understanding own learning process (28.29%), positive experience of creating reflection videos (21.81%), and other reflections (10.66%). In what follows, we examine teachers' experiences of their engagement with reflection videos in detail.

Prioritising important aspects in the reflection video

The teachers indicated that they made thorough considerations about what to include in the reflection videos (Figure 3).

I had to really think through what to include in the reflection video. In doing so, I have become conscious of my choices. *I had to carefully plan for what I was going to say in my reflection video.* *The time limit contributed to me making priorities of what to include in the reflection video.*

Figure 3. Teachers' responses on prioritising important aspects in the reflection videos

The teachers reported that they had to make priorities of what aspects had to be included in the reflection videos. In doing so, they might have made thoughtful considerations about (i) which assessment criteria they had to reflect upon and (ii) how their Flipped Classroom corresponded to the assessment criteria outlined in the examination assignment. By engaging in such considerations, the teachers might have developed their understanding of the characteristic features of the Flipped Classroom approach and how well the designed pedagogical activity reflected these characteristic features.

Understanding of own learning process

The teachers indicated that by engaging with the reflection videos, they developed a good understanding of their learning process (Figure 4).

Through my engagement with the reflection video, I have become a more conscious learner.
I have developed a better overview of the target theory.
By explicating my reflections, I have developed a conscious understanding of the choices that I have made.
This is a great way to bridge theory and practice: create a Flipped classroom assignment based on the theoretical considerations and approaches.
By making an oral presentation for others, you develop your own understanding.

Figure 4. Teachers' responses about the role of the reflection video to develop their understanding of the learning process.

The teachers explicated that by engaging with the reflection videos, they developed a thorough understanding of the theoretical foundations of a Flipped Classroom approach and how to integrate the theoretical foundations into practice. In addition, the teachers reported they developed their understanding of the choices they have made, and, in doing so, they might have enhanced their capacity to compare the created assignment with the outlined assessment criteria. Such an approach might have contributed to teachers' conscious engagement in learning in the ICTPED MOOC.

A positive experience of creating reflection videos

The teachers expressed their positive experience of creating reflection videos (Figure 5).

It was very useful to create a reflection video. I wish I could make reflection videos in other assignments.

Filming myself while reflecting on my assignment was a very useful exercise. I could not stand seeing myself on the video at the beginning; however, this was a useful experience to get over such a feeling.

This is a fantastic opportunity to express my thoughts concerning the assignment I created.

Figure 5. Teachers' positive experiences of creating reflection videos.

The teachers' responses indicate their positive experience of creating reflection videos and willingness to engage in this form of assessment in the future. The teachers elaborated on the significance of creating a reflection video to overcome their insecurity about being filmed. In addition, they appreciated the opportunity to present the ideas and thoughts they invested in the designed Flipped Classroom. By engaging in such reflections, the teachers had an opportunity to make their learning process transparent both for the course instructors and for themselves. Such reflections might have contributed to the development of teachers' understanding of the learning process they engaged in while completing their examination assignments.

Other reflections

Individual teachers reflected on developing their digital competency, affordances, and limitations of the reflection video. These responses do not represent the patterns of the teachers' experiences concerning their engagement with the reflection video; however, by following a detailed approach to the thematic analysis (Van Manen, 2016), these responses were also analysed and grouped under the theme 'Other reflections' (Figure 6).

I have learnt how to create and edit a video. It was challenging to do it for the first time; however, it will be easier to do it other times.

By developing a screencast, the reflection video allows to present ideas and relate them to the created Flipped classroom assignment.

I am thinking too much about how I look in the reflection video.

Figure 6. Other teachers' responses concerning their engagement with the reflection video.

In summary, by engaging in creating reflection videos, the teachers directed their efforts at integrating the assessment criteria outlined in the Flipped Classroom. They also indicated that the reflection videos initiated their considerations about (i) the aspects that had to be prioritised in the video, (ii) enhanced their understanding of the learning process, and (iii) developed their positive attitude toward the reflection video as an assessment form. Individual teachers considered the affordances and lim-

itations of creating a reflection video and emphasised an opportunity to develop their professional digital competence.

DISCUSSION

The analyses performed in this study focused on examining the teachers' experiences of engaging with reflection videos in the examination assignment Flipped Classroom and how such teachers' engagement might have contributed to developing their digital identity. The following research questions were addressed: *How did teachers experience their engagement with the reflection videos as an assessment form in the ICTPED MOOC?* and *How did teachers' engagement with reflection videos might have contributed to enhancing their digital identity?*

The patterns of teachers' experiences of engagement with the reflection videos in the ICTPED MOOC are presented in Table 5.

Table 5. Teachers' experiences of their engagement with the reflection videos

Type of experience	Description
Prioritising important aspects in the reflection video	Reflections on the required assessment criteria and how the assessment criteria were addressed in the designed Flipped classroom
Understanding of own learning process	Reflections concerning (i) teachers' understanding of the theoretical foundations of the Flipped classroom approach and how to implement them in practice and (ii) justification of their choices and (iii) capacity to compare the designed learning outcome with the assessment criteria
Positive experiences of creating reflection videos	Reflections concerning (i) teachers' positive experiences of creating reflection videos and their willingness to further engage in this form of assessment, (ii) the significance of creating reflection videos to overcome the insecurity of being filmed, and (iii) an opportunity to present own ideas and thoughts behind the designed Flipped classroom
Other reflections	Reflections concerning (i) the need to develop teachers' professional digital competence, (ii) affordances, and (iii) limitations of reflection videos as an assessment form

First, the analyses revealed that when engaged with the reflection videos, the teachers directed their efforts at identifying the important aspects they had to include and elaborate upon. These aspects concerned the assessment criteria presented in the examination assignment and the teachers' reflections about how the designed Flipped Classroom integrated the required assessment criteria. By engaging in such considerations, the teachers might have developed their understanding of the key characteristic of the Flipped Classroom approach, and their conceptual understanding might have been enhanced. However, besides developing their conceptual understanding, the teachers reported that they enhanced their understanding

of the learning process by considering how theoretical foundations of the Flipped Classroom approach could be transferred into practice, justifying their choices, and comparing how their learning outcome (designed Flipped Classroom) matched the assessment criteria. In doing so, the teachers self-regulating capacity as independent learners in online environments might have been enhanced (Brandmo et al., 2020; Zimmerman, 2002; 2008). The teachers expressed their positive attitude toward engaging with reflection videos, and the majority of teachers preferred reflection videos to other forms of assessment in the ICTPED MOCC. Finally, the teachers reflected on the opportunity to develop their professional digital competence and considered the benefits and limitations of engaging with the reflection videos as an assessment form. In summary, the teachers' reflections indicate that their engagement with reflection videos contributed to the development of their conceptual understanding of the Flipped Classroom approach, and their self-regulating capacity in online learning might have been enhanced.

Second, Galperin's parts of a learning activity (orienting, executive, and control) might serve as a cue to reveal how teachers' engagement with reflection videos might have contributed to the developing their digital identity. In the reflection videos, the teachers explicated that they engaged with the theoretical foundations of the Flipped Classroom approach and considered how to transfer these theoretical premises into practice. Such considerations coincided with Galperin's aspects of an orienting part concerning the evaluation of the present situation and identifying the potential of the cultural objects present in the situation for teachers' actual needs. The resources presenting the theoretical foundations of Flipped Classroom could be considered as the cultural objects available for the learners. The teachers designed a Flipped Classroom and justified their approach to design (creating a plan of action) and reflected on how the designed Flipped Classroom correlated with the assessment criteria (control of the action's execution). These reflections highlight that by engaging in the design of their Flipped Classrooms, the teachers focused on constructing the *orienting part* of the learning activity. In the reflection videos, the teachers (1) introduced the topic for their Flipped Classroom assignment, identified learning objectives, and presented the target students' group; (2) presented an overview of their Flipped Classroom; (3) reflected on how videos were created; (4) considered the teachers' role; (5) presented students' feedback; (6) discussed benefits and limitations of the created Flipped Classroom and (7) identified ways for further improvement. In doing so, the teachers offered detailed reports on how the Flipped Classrooms were designed and used with their students – the *executive part*. Finally, by reflecting on how the designed Flipped Classroom corresponded to the assessment criteria, the teachers engaged in the *controlling part* of their learning activity. In summary, the teachers developed their understanding of how to design, perform and validate the quality of their learning process and outcome, and, in doing so, they developed their understanding of the learning process with digital technology. Such an understanding created positive premises for teachers' meaningful interactions with technology, and their digital identity might have been enhanced.

Third, the teachers expressed their positive attitude toward engaging with reflection videos and indicated their preferences for using this form of assessment in other ICTPED MOOC assignments. They emphasised the significance of creating reflection videos to overcome the insecurity of being filmed. The teachers considered reflection videos as a valuable opportunity to present their ideas and thoughts behind the designed Flipped Classroom. The majority of the teachers were strongly (M=45.18% SD=7.90) and very strongly (M=29.38% SD=4.21) satisfied with reflection videos as an assessment form, and they preferred reflection videos (M=82.05% SD=3.98) to other forms of assessment in the ICTPED MOOC. These findings indicate that reflection videos might be considered valid forms of assessment in MOOCs that are of pedagogical value and appreciated by learners.

In summary, the teachers reported that their engagement with reflection videos contributed to the development of their conceptual understanding of the Flipped Classroom approach and how this approach can be implemented in practice. In addition, teachers' engagement with reflection videos enhanced their considerations of the orienting, executive, and control parts of the action. Such an engagement might have contributed to the development of their understanding of how to design a learning activity with cultural (digital) tools. Finally, teachers' positive attitude indicates that reflection videos can be considered a valuable form of assessment in MOOCs that might enhance teachers' conceptual understanding, their understanding of how to engage in online learning, and, in doing so, contribute to the development of their digital identity.

IMPLICATIONS AND DIRECTIONS FOR FURTHER RESEARCH

There are several pedagogical implications considering using of reflection videos as an assessment form in MOOCs and online learning environments.

First, the teachers' engagement with the reflection videos contributed to the development of their conceptual understanding (Flipped Classroom approach) and their understanding of how to engage in the learning process. In doing so, their capacity as independent and conscious learners might have been enhanced.

The *second* and perhaps more profound implication is that assessment forms may affect teachers' learning in MOOCs and online environments. This study, therefore, raises the question about the need for the MOOCs developers' awareness of how assessment forms might facilitate teachers' independent and conscious online learning and their development as learners and professionals. By engaging with reflection videos, the teachers demonstrated their agentic engagement in their orienting (design), executive (implementing in teaching practice), and control (comparing with the assessment criteria) parts of the activity. Such an engagement may offer an approach to how to meaningfully interact and advance in online learning and, in doing so, may contribute to enhancing teachers' digital identity. Through interactions with the reflection videos and engaging in the orienting, executive, and control parts of the learning activity, teachers may develop their understanding of how to learn

online, and such a form of assessment carries a new function: not as an assessment of learning outcomes but as *a tool* for studying the essence of the learning process – *assessment as learning*. By engaging with reflection videos, teachers develop their understanding of the nature of online learning, and their digital identity might be enhanced.

The *third* implication is the cultural-historical principle of activism, and Galperin's considerations of how to design a learning activity to enhance learners' conceptual understanding and their understanding of how to learn appeared to be useful in the analyses of teachers' experiences of their engagement with the reflection videos in the ICTPED MOOC. We suggest that this approach might offer new pathways to use Galperin's theory in further research to examine educational practices in online environments which aim to enhance conceptual understanding and position learners as active agents in epistemic learning practices. Further research is therefore needed to examine how reflection videos as an assessment form may enhance students' conceptual understanding and their capacity to learn in MOOCs and online courses.

These findings, therefore, inform MOOCs and online course developers about how reflection videos may enhance the development of teachers' conceptual understanding and their capacity to learn online. They also emphasise the importance of awareness about how assessment may affect teachers' engagement in online learning, their agentic capacity to learn, and digital identity.

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