Italian Journal of Educational Technology
ISSN 2532-4632 (print) – ISSN 2532-7720 (online)
Accepted Manuscript Online
DOI: 10.17471/2499-4324/1442
https://ijet.itd.cnr.it

Online collaborative learning to promote teachers' evaluative thinking

Apprendimento collaborativo online per promuovere il pensiero valutativo negli insegnanti

SARA ROMITI[A*], FRANCESCO FABBRO[B], MARIA RANIERI[C 1]

[A] *National Institute for Evaluation of the Education and Training System, Rome, Italy, sara.romiti@invalsi.it**

[B] *Tor Vergata University of Rome, Italy, francesco.fabbro@uniroma2.it*

[C] *University of Florence, Italy, maria.ranieri@unifi.it*

* Corresponding author

HOW TO CITE Romiti, S., Fabbro, F., & Ranieri, M. (2025). Online collaborative learning to promote teachers' evaluative thinking. *Italian Journal of Educational Technology*. Accepted Manuscript Online. https://doi.org/10.17471/2499-4324/1442

ABSTRACT The study focuses on how to strengthen teachers' evaluation skills in a social and collaborative dimension. The introduction of collaborative learning modes was tested within an institutional teacher training programme via LMS. Indeed, Computer Supported Collaborative Learning (CSCL) is considered appropriate for developing reflective skills through peer exchange. The article examines the Valu.Elearn programme, aimed at in-service teachers to strengthen their evaluative competence. The study focuses on two collaborative e-activities. A total of 166 teachers and two tutors participated in these activities during the school year 2021-22. The Community of Inquiry was used as a framework for analysing the content of the forums, while the interactions between participants were examined using sociocultural discourse analysis. The findings highlight the potential and limitations of the online environment for promoting collaborative reflection on evaluation issues.

[1] Author contributions: All authors contributed substantially to the development of this article. Specifically, SR was involved in the research design, data analysis, and interpretation, and authored Sections 2.1, 4.1, and 5. FF contributed to the research design, data analysis, and interpretation, and authored Sections 2.2, 3 and 4.2. MR contributed to the research design, critically reviewed the manuscript, and authored Sections 1 and 6.

KEYWORDS Computer-Supported Collaborative Learning; Educational Dialogue; Community of Inquiry; Evaluative Thinking; School Self-Evaluation; Teacher Professional Development.

SOMMARIO Lo studio si concentra su come rafforzare la capacità valutativa dei docenti in una dimensione sociale e collaborativa. All'interno di un programma istituzionale di sviluppo professionale docente tramite LMS, è stata testata l'introduzione di forme di apprendimento collaborativo. Infatti, l'apprendimento collaborativo supportato dal computer (CSCL) risulta appropriato quando si vogliano sollecitare capacità di tipo riflessivo tramite il confronto tra pari. L'articolo esamina il programma di formazione Valu.Elearn, rivolto agli insegnanti in servizio per rafforzare le proprie competenze in ambito valutativo. Lo studio si concentra su due e-tivity di tipo collaborativo, che hanno coinvolto complessivamente 166 docenti e due tutor nell'anno scolastico 2021-22. Il Community of Inquiry è stato utilizzato come quadro di riferimento per l'analisi del contenuto dei forum, mentre le interazioni tra i partecipanti sono state esaminate attraverso l'analisi socioculturale del discorso. I risultati evidenziano opportunità e limiti della collaborazione online per la promozione di una riflessione condivisa sui temi valutativi.

PAROLE CHIAVE Apprendimento Collaborativo Basato sul Computer; Dialogo Educativo; Comunità di Indagine; Pensiero Valutativo; Autovalutazione di Istituto; Sviluppo Professionale Docente.

1. Introduction

In recent years, increasing attention is being paid to building evaluative capacity for school professionals to drive school improvement (Poliandri et al., 2022).

As a result of national strategies to promote quality assurance and internal evaluation at school level in many education systems, several programs have been developed to improve teachers' evaluation skills as part of their continuing professional development (CPD).

Although evaluative skills are considered strategic for managing educational institutions, their building represents a challenge, given the complexity of the factors involved and the lack of coverage of these topics in pre-service teacher education.

Evaluative skills typically encompass data literacy as their primary focus, along with related components such as setting a purpose, collecting and analysing data, interpreting results, and taking instructional action (Kippers et al., 2018, Poliandri et al., 2022). School-level evaluation also requires skills related to data-based decision-making (van der Scheer et al., 2017). This involves using data analysis to set challenging goals, elaborating strategies for goal accomplishment, and executing the chosen strategy. Finally, evaluating school activities and results requires exercising critical thinking in a social dimension and as part of a school-based evaluation, and thus involves thinking how the data fit into the overall understanding of achievement and culture of the school (Ryan et al., 2007).

In order to fill the gap and reach a wide audience, online and e-learning programmes for teacher professional development (PD) with a focus on evaluation are increasingly

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

delivered in different formats, including synchronous and asynchronous courses and blended learning. However, special attention needs to be paid to the instructional design of these courses so that participants are encouraged to develop high level skills.

Computer-Supported Collaborative Learning (CSCL) is seen as a key tool in educational technology for enhancing cognitive processes and learning through a dialogic approach (Ludvigsen & Mørg, 2010). For this reason, CSCL seems to be a powerful strategy to be adopted for teachers' CPD in the field of school evaluation.

This study discusses the affordances and constraints of an online collaborative environment to support the development of evaluative thinking, that is the ability to think how the data fit into the overall understanding of achievement and culture at school (Ryan et al., 2007).

2. Literature review

2.1. School Self-Evaluation and Evaluative Capacity Building

School self-evaluation (SSE) can be defined as an internal evaluation where the professionals that usually conduct the core-service of the organisation also implement the evaluation of their own school (Scheerens, 2003). SSE is recommended as a means for triggering school improvement and internal learning among school staff (Chapman & Sammons, 2013), although other and divergent purposes are often pursued, including consumer orientation and accountability (Scheerens, 2003; McNamara et al., 2022). The process underlying SSE implies a reflection on practice, made systematic and transparent, with the aim of improving pupil, professional and organisational learning (McBeath, 1999). This reflective process is linked to the notion of teachers' collaborative inquiry (Chapman, 2018; Godfrey, 2020), as well as that of data-informed decision-making (Schildkamp et al 2019, Young et al, 2018) and evidence-informed practice (Brown & Malin, 2022), as teachers are encouraged to use data and information to improve their practice at an individual and community level.

In recent years, state-mandated SSE have been developed in several European countries, where schools are required to carry it out on a regular basis (European Commission, 2015). Within this scenario, in Italy the National Evaluation System has introduced SSE combining different rationales, such as accountability, improvement and transparency (Mentini & Levantino, 2024).

Given the complexity of the SSE process, a key issue is how to build the evaluation capacity of school professionals.

Approaches to support SSE can be broadly divided into top-down programmes, bottom-up interventions and mixed strategies, promoting collaboration within and between schools. Top-down programmes are promoted at central level through the provision of external evaluation frameworks, indicators enabling schools to compare, guidelines and manuals for carrying on internal evaluation (European Commission, 2015). These types of support are designed to facilitate the local collection of data for mandated self-evaluation systems. As the SSE process is connected to collecting data, interpreting and using them for action, collecting and analysing different kinds of data

is crucial to understand school problems and develop a plan for action. However, the top-down approach is often challenging and complex for school staff to manage. In this regard, a main criticality is to move from data analysis to subsequent contextual evaluation and development of action strategies. Thus, data literacy needs to be integrated with other essential aspects of teaching, including general pedagogical knowledge and knowledge of educational contexts (Mandinach & Gummer, 2016), to support decision-making and improvement strategies. Above all, the difficulties faced by teachers in carrying on SSE are connected to a shortage of evaluation literacy, or capacity to "think evaluatively" (Ryan et al, 2007), as well as to engage in forms of reflective inquiry.

Alternative means of support engage teachers in school self-evaluation theory and practice, to develop their own context-sensitive evaluation models (McNamara & O'Hara, 2008). Such programs aim at increasing awareness of self-evaluation techniques, encouraging an exchange of experiences, engaging in practical activities related to self-evaluation (Barzanò, 2002). The experience of data teams - school teams supported by researchers for collecting and analysing data and using them for decision making and improvement - has highlighted that school teams can benefit from partnerships with external agents (researchers, other schools). While the teachers involved appreciate being guided through in this complex process, the question is how to reduce the need for external support and build up internal expertise (Lai & McNaugthon, 2013).

Lastly, programs that provide collaboration within and between schools offer opportunities for professional development and peer learning, combining practitioner knowledge with school-based data and evidence-based knowledge (Godfrey & Brown, 2019). These bottom-up approaches allow schools to reflect on teaching and learning processes and students' results, focusing on specific issues that are perceived as pressing for them, such as students' well-being, students' inclusion, and assessment strategies. Along these lines, school peer reviews are evaluations carried out by school practitioners with other schools in partnerships or networks. Peer reviews can provide feedback, critical friendship, validation of the school's self-evaluation or support other schools' improvement efforts. In this regard, school peer reviews and collaborative peer inquiry, engaging schools in forms of collaborative action-research, are considered as new frontiers for school evaluation (Godfrey, 2020).

2.2. Framing online collaborative learning

Generally, teachers' collaborative learning is key for school improvement (Brown et al., 2021). Concepts such as reflective professional inquiry and collaborative reflective inquiry concur to define teachers' collaborative learning for school improvement as a reflective inquiry process. However, online collaboration has specific characteristics and online networks of practice (Brown & Duguid, 2001) have loose ties compared to face-to-face communities of practice (Lave & Wenger, 1991). Online participation behaviours can be described as 'lightweight', operating through weak ties to a common purpose, especially when enacted through rule-based contributions, and only in specific contexts as 'heavyweight', operating through strong ties to community

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

members, enacted through internally negotiated, peer-reviewed contributions (Haythornthwaite, 2009).

A variety of approaches have been developed to assess effective collaborative interactions in online courses (Calvani et al., 2010). The Community of Inquiry (CoI) framework - based on the social constructivist paradigm - allows us to understand how people can learn collaboratively in an online environment (Anderson et al., 2001; Garrison et al., 1999; Garrison, 2009). This model represents a reference point for studying online collaborative learning (Khodabandelou et al., 2024). CoI is a process model of online learning which views the online educational experience as arising from the interaction of three presences: cognitive, social and teaching presence. Cognitive presence is a "process of practical inquiry distinguished by discourse and reflection for the purpose of constructing meaning and confirming understanding" (Garrison, 2009, p. 355). Rooted in Dewey's construction of practical inquiry and the critical thinking it seeks to foster (Dewey, 1933), cognitive presence is conceptualised as a cycle of "practical inquiry" resembling an ideal SSE process in which teachers are triggered by a real situation to inquiry systematically and critically their educational practices to improve them. More broadly, the process of practical inquiry values the interplay between experiential and evidence-based knowledge at stake in a situated, reflexive and participatory approach to SSE.

Garrison defines social presence as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop interpersonal relationships by way of projecting their individual personalities" (Garrison, 2009, p. 352). The function of social presence is to foster a sense of belonging that supports an environment in which learners can openly communicate with each other to negotiate different perspectives and confirm mutual understandings. Overall, such interpersonal and communicative skills are important also in a SSE process, in which the school staff is asked to discuss internally and with external experts and to communicate their action plan for improvement to the whole school community, including parents. Furthermore, practical inquiry into the SSE is inherently social as it does not take place in a social vacuum but rather in a network of social interactions ranging from peer learning to collaborative inquiry.

Teaching presence refers to "the design, facilitation and direction of cognitive and social processes for the purpose of realising personally meaningful and educationally worthwhile learning outcomes" (Anderson et al., 2001, p. 5). As far as SSE is concerned, teaching presence can be seen as the external support from experts, instructors and tutors to develop the evaluation capacity building of the school staff.

However, critical concerns have been raised about the emphasis placed on the social dimension of the CoI framework. According to Annand (2019), well-structured learning materials and support, together with opportunities for self-directed and self-paced learning, can provide an important alternative means of achieving deep and meaningful learning for adults. In light of these concerns, online collaboration on asynchronous platforms seems to be a valuable opportunity for adult learners, rather than a necessary means of achieving meaningful learning. The notion of critical thinking spreading from the CoI framework – with special regard to cognitive presence - has also been criticised,

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

with Kaczkó & Ostendorf (2023) highlighting the risks of reducing the complexity of multifaceted educational concerns through modelling and operationalisation.

This study goes beyond the Coi framework by proposing educational dialogue as a heuristic concept to identify relevant modes and functions of discourse patterns in asynchronous online discussions, as well as to evaluate the quality of the dialogues in relation to educational objectives of the PD programme. According to Baker and colleagues (2021) educational dialogue is the process of development of collective thinking in and by dialogue (Baker et al., 2021). In this regard, educational dialogue can be seen as declination of "collaborative learning" because "to engage in dialogue means to make thinking evolve together, which is also, by definition, a form of learning" (Ibidem, p. 587).

Mercer and colleagues (Mercer, 2000; 2004; Johnson & Mercer, 2019) identifies three modes of discourse to evaluate the quality of educational dialogues: disputational, cumulative and exploratory. Disputational mode is mainly characterised by disagreement and individualised decision making. Conversely, the cumulative mode of discourse is potentially more collaborative as control is shared and speakers build on each other's contributions, adding their own information and constructing a body of shared knowledge and understanding although they do not challenge or criticise each other's views. In the exploratory mode participants engage critically but collaboratively with each other's ideas. Exploratory mode is a process of reasoning through 'interthinking' (Littleton & Mercer, 2013) in which statements and suggestions are offered for joint consideration, challenge and elaboration of alternative hypotheses.

A further reading of educational dialogue drawn upon theories of knowledge building (Scardamalia & Bereiter 2014), which describe the creation and improvement of new ideas and adding value to a community by looking at the functions of online collaboration, which are distinguished into knowledge sharing, knowledge construction, and knowledge building/creation (van Aalst, 2009; Fu et al., 2016). Each function embodies a specific learning theory. Knowledge sharing is underpinned by an understanding of learning as the transmission of ideas, for example the peer exchange of good evaluation practices. Knowledge construction is involved in problem solving and construction of knowledge, for example the identification of criticalities in the teaching methods along with possible solutions to improve them. Knowledge building focuses on the online community as source of collegial support, inquiry, pursuit of communal goals and communal advance (Fu et al., 2016).

3. Context and methodology

This study was carried out in the context of a PD program, Valu.Elearn, developed by INVALSI for 500 teachers and school principals serving at primary or secondary schools in Italy during the School Year 2021-2022. The program was aimed at providing participants with knowledge and methodological tools to guide SSE. INVALSI, in collaboration with expert scholars on assessment and school evaluation and two companies delivering ICT services and e-learning, co-designed five online courses structured in 10 learning units each (Romiti et al., 2023a).

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

The courses were delivered in asynchronous mode through the LMS Moodle. A team of e-tutors guided trainees throughout their educational path and provided them with opportunities for collaboration, specifically in the e-tivities.

The present empirical research concentrates on two e-tivities conducted in a forum moderated by an e-tutor and reflect the pedagogical strategy of problem-based learning (Savery, 2006) as they simulate problem finding and problem-solving operations regarding assessment and evaluation in the school context. However, the e-tivities feature different collaborative design scripts, which prescribe or suggest how participants are expected to collaborate (Kollar et al. 2006).

In the first e-tivity, "Unfair assessments", learners were invited to describe in about 120 words an episode of unfair assessment at school, and to explain how they addressed – or how it could be addressed – the problematic situation and/or comment on the episodes and related solutions outlined by their colleagues. Hence, here collaborative inquiry was presented as an opportunity rather than an obligation to complete the task.

The second e-tivity, "Index for inclusion and evaluation" prescribed collaboration in small groups to complete the task. Teachers were asked to carry out a common evaluation of the quality of the inclusion in their respective schools based on some indicators drawn upon the Index for inclusion (Booth & Ainscow, 2011), with a focus on student assessment practices. To complete the task, participants were invited to post within two weeks their written evaluation in the forum.

Participants were recruited mainly from the schools involved in the PON Valu.E project (Expert School Evaluation/Self-Evaluation). Schools were casually sampled to represent all geographical areas (North, Centre and South) of the Country (stratified random sampling). As for the specific sample of this study, it consists of teachers and e-tutors engaging with the two e-tivities with at least one intervention in the forum. Overall, 146 teachers (130 females and 16 males, average age 52 y.o.) and 2 e-tutors (average age y.o. 44) actively engaged in the two e-tivities: 66 teachers and 1 male e-tutor carried out the first e-tivity and 80 teachers and 1 female e-tutor the second e-tivity. Overall, teachers located in schools across different areas of the Country were involved, specifically 36 from the North (24,7%), 51 from the Center (34,9%), 59 from the South (40,4%). Among them, 16 were serving in kindergarten schools (11,0%), 65 in primary schools (44,5%), 40 in lower secondary schools (27,4%) and 22 in upper secondary schools (15,1%). 3 teachers (2,1%) did not provide any information about their respective schools.

A mixed method to textual analysis including content and discourse analysis was adopted to investigate trainees' participation in the two collaborative e-tivities. In a nutshell, content analysis served the purpose of detecting to what extent the texts in the forum reflected a collaborative inquiry whilst discourse analysis was aimed at exploring how the interactions in the forum actually led to the development of an evaluative thinking through educational dialogues.

Specifically, the content analysis (Krippendorff, 2004) was carried out to answer to the research question "Do teachers inquire collaboratively to evaluate their school/educational practice?".

From this perspective, texts were deductively encoded based on the adaptation of the CoI framework, with the sub-dimensions of cognitive, social and teaching presence (table 1).

Table 1. *Codebook for the Community of inquiry.*

Category	Code	Code's description
Cognitive presence	Exploration	Exploration of the proposed topic/issue through the retrieval of information and ideas
	Integration	Reflective integration aimed at constructing meaningful interpretations or explanations
	Resolution	Resolution of the question posed through critical reflection
Social presence	Emotional expression	Expression of feelings and emotions
	Open communication	Participation in group discussion and interactions with other participants
	Group cohesion	Commitment to colleagues, group work and group identity
Teaching presence	Instructional design and organisation	Planning and design of the structure, process, interaction and evaluation aspects of the online course
	Facilitation of discourse	Facilitation of participants' discussion to identify areas of agreement and disagreement, as well as to increase critical understanding of the issue/topic

Following the coding approach used in previous studies (Poliandri et al. 2023), the sentence - understood as a single clause/proposition between one full stop and another - was taken as the minimum unit of analysis for the attribution of a code.

To obtain reliability on the coding scheme, two coders (the first and the second authors of this paper) encoded approximately 25% of the total number of interventions (O'Connor & Jaffe, 2020). Hence, Krippendorff's Alpha was calculated to measure the extent of agreement between coders with respect to the 8 sub-dimensions. Krippendorff's Alpha tests returned all reliability scores above 0.80, that is fully satisfactory (Krippendorff, 2004). The two coders then refined their shared understanding of the coding schemes by discussing and resolving disagreements. Next, all remaining interventions were coded by one coder (author 1 of this paper). Finally, the Coding Frequencies of the CoI (sub)dimensions were calculated. The entire coding process outlined above as well as the subsequent quantitative analyses were computer-aided with the software QDA Miner.

As mentioned above, also a discourse analysis (Mercer, 2004) of the exchanges in the forums was carried out. In this regard, the analysis was intended to answer the second research question, that is "How do teachers' educational dialogues support evaluative thinking?".

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

A coding scheme based on the classification of discourse modes by Mercer (2000) into cumulative, disputational and exploratory was employed (see Table 2). The scheme is used to identify the collaborative trajectories of the educational dialogues for school self-evaluation purposes.

Table 2. *Codebook for Educational Dialogues.*

Category	Code	Code's description
Discourse mode	Cumulative	Focusing on confirmation and repetition, and conflicting ideas being ignored and assimilated
	Disputational	Finding out 'who's right and who's wrong' and what's wrong with your idea
	Exploratory	Critical and constructive engagement with each other's ideas

In this approach, the embracement of the concept of collective thinking in and by dialogue (Baker et al., 2021) led to the consideration of the exchange - rather than the individual turn or message - as the smallest relevant unit of analysis.

Interaction logs were captured exclusively within Moodle (web forums). Although participants occasionally resorted to external channels (e.g. WhatsApp or ad-hoc video calls) for micro-coordination, ethical and technical constraints prevented us from collecting those exchanges. As a result, the dataset represents on-platform collaboration only. All participants' interventions in the forums along with related information such as ID participant, role (e-tutor or 'student'), number of words and date/time of each post were retrieved from Moodle as two separate Excel documents, one for each forum's e-tivity. The textual corpus for the analysis of the forum "Unfair assessments" consists of 15,760 words for a total number of 88 cases (or posts) examined. As for the forum "Index for Inclusion and evaluation", the corpus corresponds to 34,412 words and 138 cases. The first step in the analysis was to reduce the data by selecting online discussion groups containing at least one thematically related triadic exchange (Baker, 2021). Afterwards, one coder (author 2 of this paper) categorised each exchange according to its discourse modes (Mercer, 2000). Next, the results of coding were discussed and refined by the authors of this paper. This coding process was conducted manually on the Excel spreadsheets containing contextual information on the actors and the dynamics of the educational dialogues, including participant's ID and role (e-tutor or student) and date/time of the post.

4. Results

The results presented in the following sections attempt to answer the two research questions: do teachers inquire collaboratively to evaluate their school/educational practice? (4.1), and how do teachers' educational dialogues support evaluative thinking? (4.2).

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

4.1. Teachers' inquiry in the online community to evaluate school practices

When applying the CoI framework to e-tivity 1 (Forum "Unfair assessments"), the Cognitive presence was detected to a much higher degree (70%) compared to the other dimensions (Social presence 25%, Teaching presence 5%, see Table 3).

Within the Cognitive presence, we found sentences describing episodes of unfairness in students' assessment (code "Exploration"), sentences offering additional elements and knowledge base to deepen or better understand the cases (code "Integration"), and sentences showing possible ways to overcome or mitigate the problems raised (code "Resolution"). In order to explore the issue, participants recall their personal experiences as students, parents or teachers and present single cases or recurring situations that are perceived as unfair (19% of cases). The description of the case is often followed by an integration, where additional reflections are provided, drawing on general knowledge on educational matters, specific knowledge on student assessment, students' wellbeing and motivation, as in the example below:

"I think there is a very close relationship between the words fair/unfair and the motivation to learn, the enjoyment of going to school. Feeling undervalued by the teacher can have a negative effect on performance and can lead the student to abandon their studies or, worse, to lose faith in themselves."

Examples of Integration were found in the posts commenting on their own experiences as well as those commenting on the experiences of others. The sentences explaining why and how unfair assessment happens, and its consequences on students' learning, are reaching almost a third of the codes assigned (32%).

Finally, sentences expressing possible ways to overcome or reduce an unfair assessment have been coded as "Resolution" (19%). Most of them suggest introducing common criteria, specific tools or grids for student's assessment. Others recommend enhancing the dialogue with students in the classroom and within the teachers' staff.

To sum up, participants were engaged with a controversial issue - how to deal with an unfair assessment - and conducted an action-oriented practical inquiry, moving from personal experience, through the interpretation and explanation of why it occurs, to suggestions for overcoming the problem. This process can be seen as a small-scale SSE, examining a specific subject.

The Social presence was characterised by forms of social interaction between participants (code "Open communication", 17% of cases), and, to a lesser extent, by the expression of personal feelings and emotions ("Emotional expression" 8%). Communication was open when a genuine interest in engaging others emerged, which included agreeing or disagreeing with others. Furthermore, addressing the topic of unfairness led to the emotional expression of feelings such as irony, anger, or sadness, even using emoticons, exclamation marks and ellipses. We did not find sentences referring to the role of the group for sustaining participation and social interaction (code "Group cohesion"). This is most likely due to the instructional design of the e-tivity, which encouraged discussion between the participants, but without asking them to develop a collaborative project. The social dimension, although not large in number,

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

allowed for mutual exchange and recognition of each other's contributions, an important prerequisite for the implementation of SSE.

The Teaching presence is represented by sentences written by the tutor to introduce the task (code "Instructional design and organisation") and a few messages aimed at stimulating discussion (code "Facilitation of discourse"). To start the dialogue, the tutor has opened the threads with a standard message, explaining how to perform the task.

In five cases (2%), the tutor asked participants to better explain their thoughts or to comment on other's statements, assuming the function of moderator and facilitator of the discourse:

"*I would like to relaunch the discussion with all the participants in the group by asking them if they think that the solutions proposed by L. are adequate.*"

Nevertheless, in three out of five cases, the tutor's request for further reflection remains unanswered. This may be due to the participants' unwillingness to go beyond the task request to complete the e-tivity by engaging in further discussion, as well as to the need to get on with the subsequent tasks and not fall behind in the course.

In e-tvity 2 (Forum "Index for Inclusion and evaluation") the content analysis highlights a more balanced presence of the three components of the CoI framework (Cognitive presence 49%, Social presence 35%, Teaching presence 17%, see Table 4). In addition, almost all the sub-dimensions are present to a similar extent. In this respect, the sub-dimension "Facilitation of discourse" is an exception since it was not detected.

In the Cognitive domain, the sub-dimension "Exploration" (23% of codes) is characterised by texts presenting a thick description of inclusive practices and highlighting strengths and weaknesses in the schools where the teachers work. These texts are often organised in extended periods with several sentences or bullet points.

Although the texts were posted by single participants, in most cases they have been written in a collective form by a group of teachers. Indeed, several sentences refer to "our school" as the result of a collective analysis, while a few texts present individual views.

The sentences coded as "Integration" (13%) are aimed at the interpretation and explanation of school inclusion. Some discuss key concepts related to the topic (such as 'educational design' and 'feedback') or offer definitions ('inclusive education'). Others quote well-known educationalists (Hattie, Morin, Bruner, Booth and Ainscow) to move the debate forward or mention laws and regulations that support inclusive education.

Finally, with the code "Resolution" (13%) we coded a wide range of pedagogical practices and strategies to improve the quality of inclusion at school. The classroom practices refer to cooperative learning, self-regulation of learning, observation tools, educational assessment. In addition, strategies at school level are mentioned, such as common criteria for student assessment, PD programs, monitoring the inclusion process.

To sum up, in this e-tivity participants have critically reflected on the adoption of inclusive teaching practices for student assessment. They explored how their schools work on this issue, added explanations from their cultural background, and suggested strategies to improve inclusive practices at school level, reproducing the cycle of SSE.

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

The Social presence was also relevant, because participants were asked to work together to fulfil a common task. In particular, the sub-dimension "Group cohesion" emerges (18%). Social interactions took place not only in the forum, but also outside it, in online platforms for video meetings or in physical venues if the teachers belonged to the same school:

"*Given the impending deadline, I suggest we meet tomorrow afternoon around 17:30 on Meet or another platform.*"

When coming back to the forum for posting the synthesis of their work, members of the same group posted identical texts, in some cases signing it as a collective work. Social presence is also characterised by the expression of emotions and the sharing of personal information. Some teachers introduce themselves to other members or present aspects of their daily life, others express regret for being late with the task: ("*Dear all, I apologise for not being able to participate in the group work within the established times, but December turned out to be a particularly busy period both for school duties and for the issues related to Covid*").

Lastly, the sentences that show interaction with others such as expressing agreement, asking questions to colleagues or tutor, thanking, or greeting, were coded in "Open communication" (10%). In brief, the social dimension in this e-tivity emerges as a function for supporting collaborative processes of SSE, with special regard to group cohesion.

The Teaching presence is focused exclusively on introducing the participants to the task. The e-tutor posted the same standard message in each discussion group opened within the forum. The message consists of seven sentences giving some advice, practical information and support for the submission of the assignment. All these sentences were coded as "Instructional design and organisation". I this case, the absence of any attempt to facilitate participants' discussion did not prevent participants from organising themselves and completing autonomously the e-tivity.

The observed values in cognitive, social, and teaching presence between the two e-tivities are highly significant according to chi-squared test (p-value lower than 0,01). Therefore, we can say that the observed differences in the two e-tivities are not due to chance and the results are comparable (see Table 5).

If we compare the Cognitive presence in the two e-tivities, in both participants moved from their personal experiences at school to explore the problem, integrate it with their pedagogical knowledge and suggest ways to solve it.

Social presence in e-tivity 1 occurred when participants went beyond the individual task and expressed interest in others' points of view. Unsurprisingly, when the task did not require working on a common assignment, the group cohesion was absent. On the contrary, in e-tivity 2 group cohesion emerges as an important element for fostering social interaction. Overall, the social dimension was observed to a fair extent in both e-activities.

Finally, comparing the teaching presence, the tutors played their role in two different ways. While both tutors spent effort in introducing the task as a starting point for the development of the discussion, only in e-tivity 1 the tutor intervened to facilitate the debate by commenting on the teachers' contributions. This dimension is, however, weak in both e-tivities.

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

Table 3. *Content analysis results*, *e-tivity 1.*

Category	Code	Count	% Codes	% Codes per category
Cognitive presence	Exploration	45	19,10%	70,00%
	Integration	75	31,80%	
	Resolution	45	19,10%	
Social presence	Emotional expression	18	7,60%	25,00%
	Open communication	41	17,40%	
	Group cohesion	0	-	
Teaching presence	Instructional design and organisation	7	3,00%	5,00%
	Facilitation of discourse	5	2,00%	

Table 4. *Content analysis results, e-tivity 2.*

Category	Code	Count	% Codes	% Codes per category
Cognitive presence	Exploration	56	22,70%	48,70%
	Integration	33	13,40%	
	Resolution	31	12,60%	
Social presence	Emotional expression	16	6,50%	34,60%
	Open communication	25	10,20%	
	Group cohesion	44	17,90%	
Teaching presence	Instructional design and organisation	41	16,70%	16,70%
	Facilitation of discourse	0	-	

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

Table 5. *Content analysis results, e-tivity 1 and e-tivity 2.*

Category	E-tivity 1 Count	E-tivity 2 Count
Cognitive presence	165	120
Social presence	59	85
Teaching presence	12	41

Chi-square test, p-value 0,0000018.

4.2. Teachers' educational dialogues and evaluative thinking

Educational dialogues were identified in both e-tivities. However, the number of dialogues in the e-tivity "Unfair assessments" is double compared to those detected in the e-tivity "Index for Inclusion and evaluation" (see Table 6).

Table 6. *Discourse modes in the e-tivities.*

	DISPUTATIONAL MODE	CUMULATIVE MODE	EXPLORATORY MODE
E-tivity 1 "Unfair assessments"	1	1	2
E-tivity 2 "Index for Inclusion and evaluation"	0	1	1

The screening of participants' exchanges in the forum dedicated to the e-tivity "Unfair assessments" brought to the identification of four educational dialogues out of nine discussion groups. One dialogue is characterised by a disputational mode, one by a cumulative mode and two by an exploratory mode.

The online dialogue in disputational mode builds upon the discussion between two teachers discussing their conflicting views on interpreting learning outcomes according to the Gaussian curve. Here, one teacher asserts that such distribution indicates the unfairness of the assessment criteria ("*In my view, the forced distribution of results seems the most prevalent evaluation bias*"). Conversely, his/her colleague claims that this very same criterion makes assessment fair ("*I intervene to strike a blow for the bell distribution*"). Despite several exchanges on this topic the mode of the discussion remained highly conflictual, without evolving into the construction of a renewed knowledge. Notably, here the e-tutor did not intervene to moderate the discussion.

Conversely, three dialogues were more oriented towards knowledge construction/building, one in a cumulative and two in the exploratory mode. The dialogue in cumulative mode was identified in a discussion group involving seven

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

teachers. Here, all teachers' interventions focused on the issues raised in the opening post, namely the potential arbitrariness of the oral exams and the importance of dialogue between teachers and students for a fair and meaningful assessment. In this case the mode of discourse is cumulative as all participants motivate their agreement with the first intervention by adding their own confirmative observations.

Online educational dialogues in exploratory mode were detected in two discussion groups involving three and five teachers respectively. Unlike the previous dialogues, the teachers did not limit themselves to motivate their (dis)agreement with others' views. For example, the five teachers engaged critically in the process of co-construction of knowledge, dealing with how to assess an essay and the negative consequences of unfair assessments on students' motivation to learn. The following teachers' exchange well exemplifies the enactment of the exploratory mode of discourse, as to address the problems identified by the opening post (Teacher 1) some strategies (Teacher 2) and a further conceptual framing of the issue at stake (Teacher 4) are suggested.

Teacher 1: "*I heard a student complaining that he got a four for his Italian essay, even though there was no red mark in his paper. [...] What is assessed should always be stated to the students, and then I think it is unfair to enclose an individual's ability to express themselves in a number*."

Teacher 2: "*I agree with your analysis of the episode. In this regard, the use of an assessment grid not only helps the teacher to make an objective assessment of the examinations but also capacitates the children of the assessment given to them.*"

Teacher 4: "[...] *In pedagogical practice, a form of power is exercised that becomes unfair when, as in this case, the student is alienated from the process and reduced to a passive subject who is subjected to a judgmental action.*".

As for the e-tivity "Index for inclusion and evaluation", only two educational dialogues were detected. However, collaboration appeared not limited to two discussion groups. Indeed, several interactions in the forum show that teachers' discussion often took place outside the e-learning platform in synchronous mode, especially when in service at the same school (see section 4.1). In practice, many teachers choose to employ more immediate and familiar tools of collaboration before posting their collective evaluation report in the forum. Often one member acted as spokesperson of the group by publishing the required report. Consequently, most of the possible educational dialogues among teachers to complete the e-tivity could not be identified in our analysis.

On two occasions, however, educational dialogues were visible in the forum. They developed according to two different modes, cumulative and exploratory respectively.

A cumulative mode was identified in a discussion among five teachers from the same school. In this case, as it can be seen in the exchange below, teachers express their reciprocal agreement by adding some brief observations on the aspects identified by the first teacher.

Teacher 3: "*What do you think? You can download the file and add your reflections.*"

Teacher 4: "*I agree with the critical issues identified, particularly the need to use assessment to promote the development or improvement of self-assessment processes, especially in relation to learning styles and strategies.*[8]"

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

Finally, the educational dialogue in exploratory mode was identified in a discussion group involving the e-tutor and three teachers from the same school. In this case, the opening intervention by the e-tutor simply recalls the aims and the instruction of the e-tivity. Teacher's reply to the e-tutor is a preliminary analysis of strengths and weaknesses of the state of inclusion in their school. The next post by another teacher agrees on the preliminary analysis and provides further insights. The final post by a third teacher, critically integrates the previous contributions into their final SSE. Overall, in this educational dialogue the reflective and reciprocal engagement with each other's ideas is quite evident and productive of community knowledge advancement.

5. Discussion

In our study we have explored, through the lens of the CoI framework, how participants collaboratively inquire online to examine and evaluate their educational practices.

As emerged with the content analysis, generally in both e-tivities participants have mobilised key cognitive aspects related to the SSE process. Specifically, participants seem to have enacted practical inquiry (Garrison, 2007) projected into real educational settings rather than in abstract or decontextualized terms, in line with a school-based evaluation approach (MacBeath, 1999, Mc Namara & O'Hara, 2008). Thus, online activities helped teachers improve their evaluation skills and support data-based decision-making (van der Scheer et al., 2017), as well as encouraging evaluative thinking (Ryan et al., 2007). In this regard, we have provided evidence that in both e-tivities the main steps of the cycle of practical inquiry underlying the cognitive presence - exploration, integration, and resolution - have been largely developed.

Specifically, in the first e-tivity participants explained how and why unfair assessment occurs. This e-tivity has allowed participants to critically reflect on individual professional practices related to students' assessment. In the second e-tivity participants focused on what is being done at school level to promote inclusion and on highlighting strengths and weaknesses in school organisation. The SSE process has been simulated online, through an accurate description of the school inclusive policies, an integration with theoretical inputs aimed at a better understanding of inclusion, and a search for possible ways to enhance the quality of inclusion in their schools, adopting forms of reflective enquiry to address pressing educational issues (Brown et al., 2021). In this sense, a common strength of the e-tivities offered in asynchronous mode is that, overall, they have stimulated teachers' reflexivity on their educational practices, at individual or collective level, thus providing the foundation for school improvement (Chapman & Sammons, 2013).

Conversely, content analysis detected to a lower extent social and teaching presence, especially in the first e-tivity. As already mentioned, collaboration and dialogue were optional in the first case, while in the second case they were fundamental to achieving the task. From this perspective, the substantial balance between the cognitive and social components in e-tivity 2 seems due to the different instructional design of the e-tivity rather than to participants' higher willingness to collaborate. However, according to the

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

limitations discussed in the CoI framework (Annand 2019), it could be argued that limited interaction between learners did not prevent them from engaging in high level cognitive tasks or achieving meaningful learning.

Regarding the teaching presence, the role of the e-tutor as a facilitator of a reflective community was rather marginal. As communication was asynchronous, e-tutors provided soft tutoring, focusing on the initial instructional design, welcome, and final feedback. They provided learners with long, structured collective feedback, highlighting the strengths and weaknesses that emerged in the assignments (Romiti et al., 2023b). However, this final feedback was provided in a separate forum and is therefore not included in the present analysis. As we know, a strong facilitation role can enhance interaction and evaluative thinking (Calvani et al., 2010).

In the present research this occurred infrequently, and when the e-tutors attempted to encourage reflective thinking, they did not always received response from trainees. This highlights the challenges involved in facilitating discourse in asynchronous settings. Nevertheless, the minimal teaching presence did not prevent the participants' completion of e-tivities. This result is in line with other research findings, showing the absence of the tutor effect across a large number of MOOCs delivered via the EduOpen platform (Sannicandro et at., 2019).

Indeed, Sannicandro et al. (2019) found no significant differences in completion rates between self-paced and tutored courses. Our results confirm that e-tutors often fail to encourage greater participation among trainees in asynchronous courses. However, their minimal presence does not significantly impact the completion of courses designed to promote self-directed learning.

Similar mixed results related to the online learning collaboration are corroborated by the findings from the discourse analysis of educational dialogues. On the one hand, our study confirms that social interactions in formally organised online teacher communities are often limited or superficial, with a minority of participants actively interacting (Lantz-Andersson et al., 2018; Dille & Røkenes, 2021). However, it should be observed that in the second e-tivity several groups preferred to interact synchronously outside the e-learning platform, in an online or face-to-face meeting, as most groups were formed by teachers from the same school.

This finding seems to suggest the constrain of learning collaboratively in asynchronous mode, especially when the assignment requires working together on a complex task. Dense collaborative interactions naturally thrive on immediate feedback, so it is unsurprising that participants, although they could have relied on the institutional platform's tools, chose instead the applications they knew best.

This drift from the formal learning space has design and research implications that converge on how such "dense collaborative moments" might be captured. From a design perspective, instructors may either ask learners to document off-platform exchanges through concise reports and reflective summaries or restrict collaboration to the institution-approved tools such as wikis and chats.

Alternatively, they can integrate familiar external tools, for example Google Docs, directly into the platform, so that comments and revisions remain visible and attributable. On the research side, our lack of access to message logs and attendance

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

records from channels like WhatsApp or video calls almost certainly means we have underestimated the sheer volume of collaboration.

Despite this, the interaction patterns traced inside the LMS - where activities, assessment and facilitation actually took place - still tell us a great deal about how the instructional design shaped peer engagement. Future inquiries, therefore, should extend LMS analytics with consent-based data extraction from external tools or with participant diaries, creating a richer, more accurate map of the collaboration ecology.

On the other hand, the in-depth analysis of the educational dialogues in the digital forums shed light on their relevance in supporting collaborative processes of school self-evaluation. Specifically, in e-tivity 2 both educational dialogues were knowledge building-oriented as teachers inquired about the inclusiveness of their school and identified strategies to improve the inclusive function of evaluation in their respective contexts. Conversely, functions of educational dialogues in e-tivity 1 are more diverse as foreseen in the design script, thus ranging from knowledge sharing to knowledge construction for a shared evaluation of teachers' practices.

The limitations of the study are related to the qualitative approach adopted. Although a non-representative sample was selected, and the generalisability is limited, we have emphasised the potential transferability of the study (Lincon & Guba, 1985), providing sufficient information for readers to evaluate the relevance of the findings to other contexts.

6. Conclusion

Our study highlighted both affordances and constrains in the educational design of the e-learning platform to support collaborative learning, evaluative thinking and their relationship.

On the one hand, findings related to the cognitive dimension of participants' communication in the online forum can be seen as evidence of the evaluative thinking (Ryan et al., 2007). On the other hand, findings related to the social and teaching presence seem to question the assumption that online collaboration is key to support learning and evaluative thinking. Indeed, according to the content analysis based on CoI's categories, evaluative thinking was evident despite the scarcity of online interactions with peers and e-tutors. From this perspective, the necessity for sustained communication among learners to achieve deep and meaningful learning seems discarded (Annand, 2019).

Furthermore, if we consider the choice of some participants to communicate outside of the LMS, a second relevant issue emerges, that is the limit of the asynchronous communication to collaborate online, in a changing scenario where social media interaction and synchronous meetings are freely available and commonly used.

This suggests both the partial effectiveness of Learning Management Systems to support teachers' collaboration and the difficulty to detect the processes of collaboration that might take place somewhere else, via social media or offline.

Accepted Manuscript Online. DOI: 10.17471/2499-4324/1442

At the same time, the discovery of some exploratory dialogues through which participants constructively engage with each other's ideas shed light also on the opportunity to co-construct evaluative thinking in a Learning Management System.

Overall, our mixed results about the relationship between online collaboration and evaluative thinking suggest the importance of balancing individual learner agency with collaborative scripting (Wise & Schwartz, 2017) and attuning the needs and social media habits of the teachers with the needs of the collaborative endeavour of school self-evaluation. In this regard, future research could examine both the role of informal digital communication in online teacher training and the impact of structured tutor facilitation on teachers' engagement and evaluative thinking.

A follow-up investigation on these issues could be conducted by comparing the asynchronous online programme Valu.Elearn with a hybrid educational model that has already been tested by INVALSI to strengthen teachers' evaluative thinking (Giampietro et al., 2023).

The implications of the findings for teacher CPD on evaluation unfold on multiple levels.

For instructional designers, the evidence gathered indicates that the learning environment must become permeable to users' existing communicative practices. For example, LMSs should be integrated with the social tools most familiar to teachers - for instance the ability to open and comment on Google Docs directly inside the virtual classroom - so that they are not forced to migrate elsewhere for intense, decision-oriented exchanges. On this foundation a light collaborative script can then be layered, one that balances individual autonomy with micro-constraints such as reminders, shared rubrics and rotating synthesis roles, keeping the collective construction of evaluative thinking alive without smothering personal initiative.

For trainers, this translates into reinforcing a mediating role that goes beyond initial design and becomes metacognitive accompaniment: monitoring interactions, detecting any drift toward external channels, prompting short logs or real-time reflections and reintegrating them into the course's public space. Such type of tutorship keeps the learning trajectory visible, re-engages those on the fringes and turns tutor input into opportunities to make evaluation criteria explicit, preventing dialogue from dispersing in micro-chats inaccessible to the community.

For policy makers, finally, the lesson concerns the need to invest in flexible platforms - open to interoperability with third-party apps yet equipped with analytics that respect privacy through informed consent - and to fund CPD programmes that include collaborative design and online facilitation to build evaluation capacity.

7. References

Anderson, T., L. Rourke, D.R. Garrison, & W. Archer (2001). Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning Networks*, *5*(2), 1-17. https://doi.org/10.24059/olj.v5i2.1875

Annand, D. (2019). Limitations of the Community of Inquiry Framework. *International Journal of E-Learning & Distance Education*, *34*(2), 1-15.

Baker, M.J., Schwarz, B.B., & Ludvigsen, S.R. (2021). Educational dialogues and computer supported collaborative learning: critical analysis and research perspectives. *International Journal of Computer Supported Collaborative Learning*, 16, 583–604. https://doi.org/10.1007/s11412-021-09359-1

Barzanò, G. (2002). School Self-evaluation Towards a European Dimension. *European Journal of Teacher Education*, *25*(1), 83-100. https://doi.org/10.1080/0261976022000012886

Booth, T., & Ainscow, M. (2011). *Index for Inclusion: Developing Learning and Participation in Schools.* Centre for Studies on Inclusive Education.

Brown, J. S., & Duguid, P. (2001). Structure and Spontaneity: Knowledge and organization. in Nonaka, I. & Teece, D. J. (Eds.) *Managing Industrial Knowledge. Creation, Transfer and Utilization* (pp. 44-67). Sage Publications.

Brown, C., & Malin, J. (Eds.) (2022). *The Emerald Handbook of Evidence Informed Practice in Education. Learning from International Contexts*. Emerald Publishing Limited.

Brown, C., Poortman, C., Gray, H., Ophoff, J. G., & Wharf., M. M. (2021). Facilitating Collaborative Reflective Inquiry Amongst Teachers: What Do We Currently Know? *International Journal of Educational Research,* 105, Article 101695. https://doi.org/10.1016/j.ijer.2020.101695

Calvani, A., Fini, A., Molino, M., & Ranieri, M. (2010). Visualizing and monitoring effective interactions in online collaborative groups. *British Journal of Educational Technology*, *41*(2), 213-226. https://doi.org/10.1111/j.1467-8535.2008.00911.x

Chapman, C., & Sammons, P. (2013). *School Self-Evaluation for School Improvement: What Works and Why?* CfBT Education Trust.

Chapman, C. (2018). School-to-school collaboration: Building collective capacity through collaborative enquiry. In Eddy-Spicer, D. H., Connolly, M., S. D., & James, C. (Eds.) *The SAGE handbook of school organization* (pp. 540-561). Sage.

Dewey, J. (1933). *How we think*. Heath.

Dille, K. B., & Røkenes, F. M. (2021). Teachers' professional development in formal online communities: A scoping review. *Teaching and teacher education*, *105*, 103431. https://doi.org/10.1016/j.tate.2021.103431

European Commission/EACEA/Eurydice (2015). *Assuring Quality in Education: Policies and Approaches to School Evaluation in Europe*. Eurydice Report. Publications Office of the European Union.

Fu, E.L.F., van Aalst, J., & Chan, C.K.K. (2016). Toward a classification of discourse patterns in asynchronous online discussions. *International Journal of Computer-Supported Collaborative Learning, 11*, 441-478. https://doi.org/10.1007/s11412-016-9245-3

Garrison, D.R., Anderson, T., & Archer, W. (1999). Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education. The *Internet and Higher Education, 2*(2-3), 87-105. https://doi.org/10.1016/S1096-7516(00)00016-6

Garrison, D. R. (2007). Online Community of Inquiry Review: Social, Cognitive, and Teaching Presence Issues. *Journal of Asynchronous Learning Networks 5*(1), 61-72. https://doi.org/10.24059/olj.v11i1.1737

Garrison, D. R. (2009). Communities of Inquiry in Online Learning. In P. Rogers, G. Berg, J. Boettcher, C. Howard, L. Justice, & K. Schenk (Eds.), *Encyclopedia of Distance Learning, Second Edition* (pp. 352-355). IGI Global. https://doi.org/10.4018/978-1-60566-198-8.ch052

Giampietro, L., Pillera, G. C., & Poliandri, D. (2023). Pratiche di apprendimento collaborativo tra scuole: peer review e visiting a supporto dell'autovalutazione delle scuole. *Annali online della Didattica e della Formazione Docente*, *15*(26), 206-225. https://doi.org/10.15160/2038-1034/2768

Godfrey, D., & Brown, C. (2019). Innovative models that bridge the research–practice divide: Research learning communities and research-informed peer review. In *An ecosystem for research-engaged schools* (pp. 91-107). Routledge.

Godfrey, D. (2020). From peer review to collaborative peer enquiry: Action research for school improvement and leadership development. *London Review of Education*, *18*(3), 373–89. https://doi.org/10.14324/LRE.18.3.04

Haythornthwaite, C. (2009). Crowds, and Communities: Light and Heavyweight Models of Peer Production. In *Proceedings of the* 42nd *Annual Hawaii International Conference on System Sciences*, Waikoloa, HI, USA, 2009 (pp. 1-10). doi: 10.1109/HICSS.2009.137

Johnson, M., & Mercer, N. (2019). Using sociocultural discourse analysis to analyse professional discourse. *Learning, Culture and Social Interaction*, *21*, 267-277. https://doi.org/10.1016/j.lcsi.2019.04.003

Kaczkó, É. Ostendorf, A. (2023). Critical thinking in the community of inquiry framework: An analysis of the theoretical model and cognitive presence coding schemes. *Computers & Education*, *193*, 104662, https://doi.org/10.1016/j.compedu.2022.104662

Khodabandelou, R., Vahdani Asadi, M. R., Ghasemi, M., & Amerian, M. (2024). More than two decades of community of inquiry research: A comprehensive bibliometric analysis. *E-Learning and Digital Media*, 0(0). https://doi.org/10.1177/20427530241239418

Kollar, I., Fischer, F., & Hesse, F. W. (2006). Collaboration scripts: A conceptual analysis. *Educational Psychology Review*, *18*(2), 159-185. https://doi.org/10.1007/s10648-006-9007-2

Kippers, W. B., Poortman, C. L., Schildkamp, K., & Visscher, A. J. (2018). Data literacy: What do educators learn and struggle with during a data use intervention? *Studies in educational evaluation*, *56*, 21-31. https://doi.org/10.1016/j.stueduc.2017.11.001

Krippendorf, K. (2004). *Content analysis: An introduction to its methodology* (2nd ed.). Sage.

Lai, M. K., & McNaughton, S. (2013). Analysis and discussion of classroom and achievement data to raise student achievement. In Schildkamp, K., Lai, M.K., & Earl, L. (Eds.), *Data-based decision making in education: Challenges and opportunities* (pp. 23-47). Springer. https://doi.org/10.1007/978-94-007-4816-3_3

Lantz-Andersson, A., Lundin, M., & Selwyn, N. (2018). Twenty years of online teacher communities: A systematic review of formally-organized and informally-developed professional learning groups. *Teaching and Teacher Education: An International Journal of Research and Studies*, *75*(1), 302-315. https://doi.org/10.1016/j.tate.2018.07.008

Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation.* Cambridge University Press.

Lincon, Y.S., Guba, E.G. (1985). *Naturalistic inquiry*. Sage.

Littleton, K., & Mercer, N. (2013). *Interthinking: Putting Talk to Work*. Routledge.

Ludvigsen, S., & Mørch, A. (2010). Computer-supported collaborative learning: Basic concepts, multiple perspectives, and emerging trends. *The international Encyclopedia of Education*, *5*, 290-296.

MacBeath, J. (1999). *Schools must speak for themselves*. *The case for school self-evaluation*. Routledge.

Mandinach, E.B, & Gummer, E.S. (2016). What does it mean for teachers to be data literate: Laying out the skills, knowledge, and dispositions. *Teaching and Teacher Education*, *60*, 366-376. https://doi.org/10.1016/j.tate.2016.07.011

McNamara, G., & O'Hara, J. (2008). The importance of the concept of self-evaluation in the changing landscape of education policy. *Studies in Educational Evaluation*, *34*(3), 173-179. https://doi.org/10.1016/j.stueduc.2008.08.001

McNamara, G., Skerritt, C., O'Hara, J., O'Brien, S., & Brown, M. (2022). For improvement, accountability, or the economy? Reflecting on the purpose (s) of school self-evaluation in Ireland. *Journal of Educational Administration and History*, *54*(2), 158-173. https://doi.org/10.1080/00220620.2021.1985439

Mentini, L., & Levatino, A. (2024). A "three-legged model": (De) constructing school autonomy, accountability, and innovation in the Italian National Evaluation System. *European Educational Research Journal*, *23*(3), 321-346. https://doi.org/10.1177/147490412211482

Mercer, N. (2000). *Words & Minds: How We Use Language to Think Together*. Routledge.

Mercer, N. (2004). Sociocultural discourse analysis: analysing classroom talk as a social mode of thinking. *Journal of Applied Linguistics, 1*(2), 137-168. https://doi.org/10.1558/japl.v1.i2.137

O'Connor, C., & Joffe, H. (2020). Intercoder Reliability in Qualitative Research: Debates and Practical Guidelines. *International Journal of Qualitative Methods*, *19*. https://doi.org/10.1177/1609406919899220

Poliandri D., Perazzolo M., Pillera, G. C., & Giampietro, L. (2022). Un'opportunità di formazione sull'autovalutazione delle scuole. *Annali online della didattica e della formazione docente*, *14*(23), 169 - 184. https://doi.org/10.15160/2038-1034/2413

Poliandri D., Perazzolo M., Pillera, G. C., & Giampietro, L. (2023) Dematerialized participation challenges: Methods and practices for online focus groups. *Frontiers in Sociology*, *8*, Article 1145264. https://doi.org/10.3389/fsoc.2023.1145264

Romiti, S., Fabbro, F., & Mattarelli, E. (2023a). Valu.Elearn. Un programma di formazione online per accrescere la competenza valutativa del personale scolastico. *Lifelong Lifewide Learning*, *19*(42), 135-145. https://doi.org/10.19241/lll.v19i42.725

Romiti, S., Fabbro, F., & Mattarelli, E. (2023b). Collective feedback as a formative assessment practice in an e-learning platform for teachers' professional development. *Q-Times Webmagazine*, *2*(1), 563-576. doi: 10.14668/QTimes_15176

Ryan, K. E., Chandler, M., & Samuels, M. (2007). What should school-based evaluation look like? *Studies in Educational Evaluation*, *33*(3-4), 197-212. https://doi.org/10.1016/j.stueduc.2007.07.001

Savery, J. R. (2006). Overview of Problem-based Learning: Definitions and Distinctions. *Interdisciplinary Journal of Problem-Based Learning, 1*(1), 9-20. :https://doi.org/10.7771/1541-5015.1002

Sannicandro, K., Santis, A. D., Bellini, C., & Minerva, T. (2019). Analysis of completion and dropout rates in EduOpen MOOCs. *Italian Journal of Educational Research*, *12*, 27–42. https://dx.doi.org/10.7346/SIRD-2S2019-P27

Scardamalia, M., & Bereiter, C. (2014). Knowledge building and knowledge creation: Theory, pedagogy, and technology. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 397–417). Cambridge University Press.

Scheerens, J., Glas, C., & Thomas, S.M. (2003). *Educational Evaluation, Assessment, and Monitoring. A Systemic approach*. Swetz & Zeitlinger Publishers.

Schildkamp, K., Poortman, C.L., Ebbeler, J., & Pieters, J.M. (2019). How school leaders can build effective data teams: Five building blocks for a new wave of data-informed decision making. *Journal of Educational Change*, *20*, 283–325. https://doi.org/10.1007/s10833-019-09345-3

van Aalst, J. (2009). Distinguishing knowledge-sharing, knowledge-construction, and knowledge-creation discourses. *International Journal of Computer-Supported Collaborative Learning*, *4*, 259–287. https://doi.org/10.1007/s11412-009-9069-5

van der Scheer, E. A., Glas, C. A., & Visscher, A. J. (2017). Changes in teachers' instructional skills during an intensive data-based decision making intervention. *Teaching and teacher education*, *65*, 171-182. https://doi.org/10.1016/j.tate.2017.02.018

Wise, A.F., & Schwarz, B.B. (2017). Visions of CSCL: eight provocations for the future of the field. *International Journal of Computer Supported Collaborative Learning*, *12*, 423–467. https://doi.org/10.1007/s11412-017-9267-5

Young, C., McNamara, G., Brown, M., & O'Hara, J. (2018). Adopting and adapting: school leaders in the age of data-informed decision making. *Educational Assessment, Evaluation and Accountability, 30*, 133–158 (2018). https://doi.org/10.1007/s11092-018-9278-4