

6.6 Educating for Dialogue as a Pathway to Integrated Development of Disciplinary and Transversal Competences. A Pilot Implementation of the T-SEDA Approach with Vocational School Teachers

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Introduction

Discussions on vocational education systems highlight the importance of transversal competences, defined as essential skills for effective action across diverse contexts (Hart et al., 2021). Traditionally, Vocational and Professional Education and Training (VPET) aimed to produce professionals capable of responsible decision-making in both routine and unexpected situations (Cheetham & Chivers, 1998; Schoen, 1983; Winch, 2022). However, rapid changes in professional contexts and global challenges now demand innovative solutions, making the replication of procedures insufficient (Lotz-Sisitka et al., 2024; Plata & Addimando, 2023). In this context, fostering students' capacity to argue, explain reasoning, and adopt a critical stance is crucial for developing durable professional competence adaptable to changing scenarios.

Dialogic teaching enhances critical reflection, decision-making, and innovation within curricular learning (Alexander, 2019; Mercer et al., 1999; Rojas-Drummond et al., 2006; Teo, 2019; Wegerif, 2013). It is particularly suited for developing transversal skills vital in uncertain, rapidly evolving contexts, though its application in VPET is still limited.

This study explores the use of a dialogic teaching approach by selected VPET teachers through two pilot professional development courses. The Toolkit for Systematic Educational Dialogue Analysis (T-SEDA) (T-SEDA Collective, 2023) was chosen for its practical orientation and adaptability. The study investigates its use in VPET contexts, addressing the research question:

How does T-SEDA support VPET teachers in fostering transversal skills through educational dialogue?

Key findings from pilot courses are presented.

A contribution is made to discussions on the promotion of critical thinking and argumentation in VPET by showing how T-SEDA supports teachers in designing instructional practices that develop students' ability to actively seek others' perspectives, ask questions, articulate ideas verbally, draw connections, express agreement and disagreement, and justify their viewpoints, while pursuing subject-related teaching goals. Areas for development are also highlighted, in particular the need to further support VPET teachers in tailoring T-SEDA tools for monitoring subject-specific learning objectives.

Dialogic teaching and transversal competences

Communication and collaboration are core social skills identified in transversal competency frameworks (WEF, 2015). These skills involve clearly expressing ideas, justifying them, considering others' perspectives, listening, and integrating others' contributions. Educational dialogue fosters critical thinking and argumentation by exchanging ideas constructively. Despite its constitutive role in human experience – see, for example, the linguistic and philosophical theories of Bakhtin and Buber – dialogue remains challenging and is often replaced by disputative or unfocused talk. This issue is amplified in digital contexts, where easy expression

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coexists with difficulty in understanding and evaluating information (Carr, 2010; Nardi, 2015).

Dialogic pedagogies develop communicative competence by promoting respectful consideration of opinions and critical argumentation. They view dialogue as both a tool and an object of learning, encouraging a “dialogic stance” in classrooms (Boyd & Markarian, 2011), meaning a disposition to promote collaborative investigation, respectful challenging, and reasoned argumentation.

Forms of discourse that support a dialogic stance have been ethnographically studied. Mercer et al. describe exploratory discourse, emphasizing verbalizing, modeling, and ground rules to engage students in high-quality discussions where ideas are collectively elaborated through interthinking (Littleton et al., 2004; Mercer et al., 2004).

Educational dialogue encompasses classroom talk that fosters learning through its dialogic nature. It involves open-ended questions, extensive student contributions, enhancement of ideas (one’s own and other’s), enhancement of differences between ideas deepening the points of view and explaining the reasons, and meta-discussions on conversational practices (Howe et al., 2019). Alexander (2020) identifies principles and repertoires for dialogic teaching, and recommends forms of teaching that integrate a full range of relationships and groupings, types of teaching talk and functions of classroom talk.

At the curricular level, dialogic pedagogy has proven valuable in achieving subject-related goals more quickly and effectively (Alexander, 2020; Howe et al., 2019). It also promotes transversal skills such as argumentation, critical thinking, and innovative problem-solving by educating students to consider different perspectives and elaborate ideas (Alexander, 2019). Studies in humanities and sciences in secondary schools (e.g., Frijters et al., 2008; Rapanta, 2021) show that dialogic teaching strengthens transversal competences without compromising disciplinary learning. As much of the research on dialogic teaching has focused on general education, its potential in vocational contexts remains underexplored (for a rare study on dialogue teaching in the vocational sector see Zaho et al., 2023, although it is not focused on transversal skills).

This study was based on the belief that by adopting dialogue approaches, VPET teachers can not only get students used to communicating and collaborating effectively, but also increase their understanding and awareness of what quality dialogue means and the conditions for achieving it, through attentive listening, explication of reasoning, questioning and inviting others to elaborate on ideas. Importantly, this metacognitive dimension can enable students to transfer the skills developed through curricular learning to life and professional situations.

T-SEDA

The inquiry approach to educational dialogue in this study is grounded on the work of the Cambridge Educational Dialogue Research Group (CEDiR), which resulted in the creation of a toolkit for systematic observation of classroom dialogue, known as T-SEDA (T-SEDA Collective, 2023). T-SEDA fosters a view of teachers’ professional development as predominantly self-directed (Hennessey et al., 2021) and emphasises their ability to assess the effectiveness of their own practice. Practitioners using T-SEDA are enabled to monitor classroom activities and adjust their planning based on systematically collected data. They conduct reflective inquiries aimed at identifying, evaluating and improving the dialogic aspects of classroom interactions (**Figure 1**).

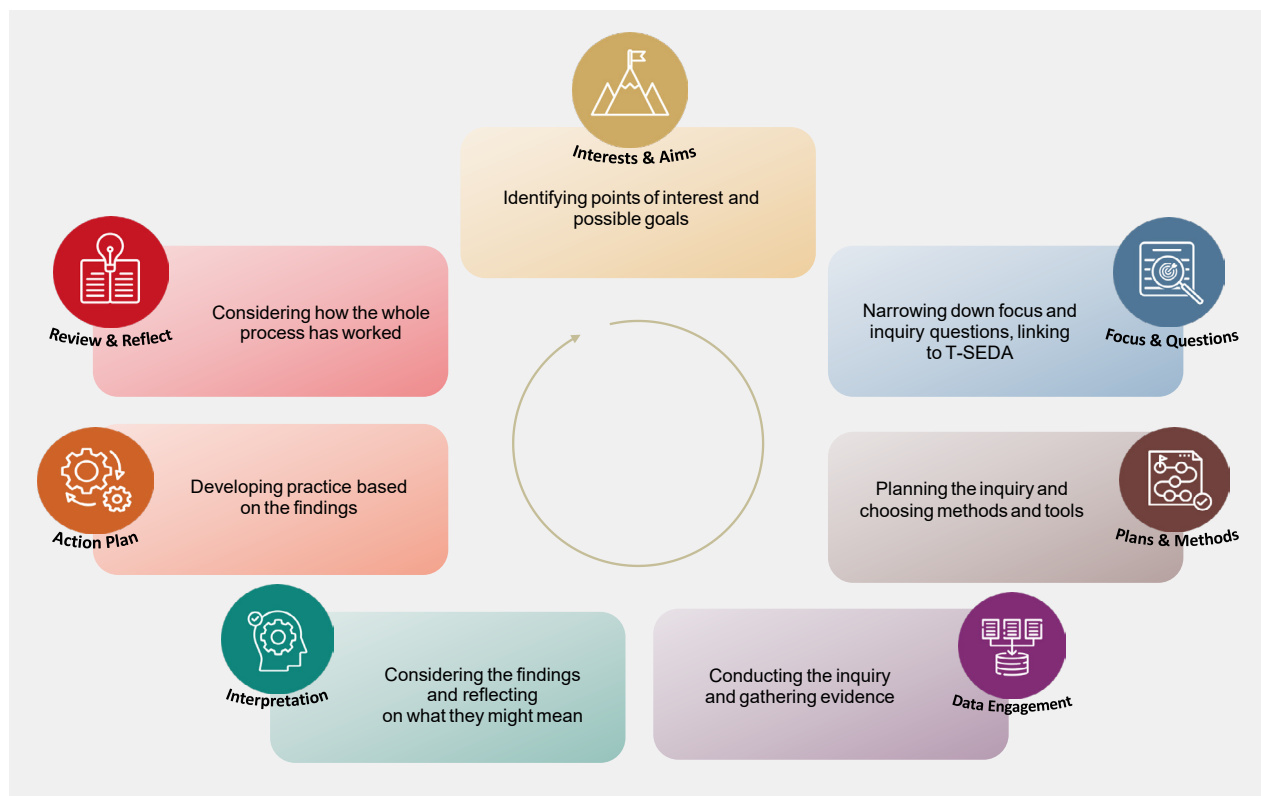


Figure 1
Reflective inquiry cycle

T-SEDA is based on an analytical model of productive dialogue for learning, consisting of a set of 10 codes representing dialogic moves (**Figure 2**).

IB · Invite building on ideas	CA · Coordination of ideas and agreement
B · Build on ideas	RD · Reflect on dialogue or activity
CH · Challenge/query	C · Connect
IR · Invite reasoning	G · Guide direction of dialogue or activity
R · Make reasoning explicit	E · Express or invite ideas

Figure 2
Dialogic moves

The assumption behind T-SEDA, supported by empirical research (Howe et al., 2023), is that the occurrence of the aforementioned moves is indicative of productive learning interactions. In the toolkit, the dialogic moves are extensively presented, together with other resources (**Figure 3**), including tools for the evaluation of dialogue during classroom interactions. These tools support live or recording-based evaluation of dialogue. Consistently with theoretical assumptions, the involvement of learners in the evaluation process is encouraged, through a subset of tools built for this purpose.

T-SEDA Auser's guide	<ul style="list-style-type: none"> · Introduction to educational dialogue · Example and tools that support reflection, on practice and planning an inquiry
T-SEDA Core Resources	<ul style="list-style-type: none"> · Self rating tools for educators & learners · Reflect cycle · Coding framework for classroom dialogue · Template for of observing and coding small group and whole group dialogue · 17 short videos + bank of lesson video clips
T-SEDA Additional Resources	<ul style="list-style-type: none"> · Guidance on ethnics, recording, transcribing · Examples of other practitioner's inquires · References to research on dialogue

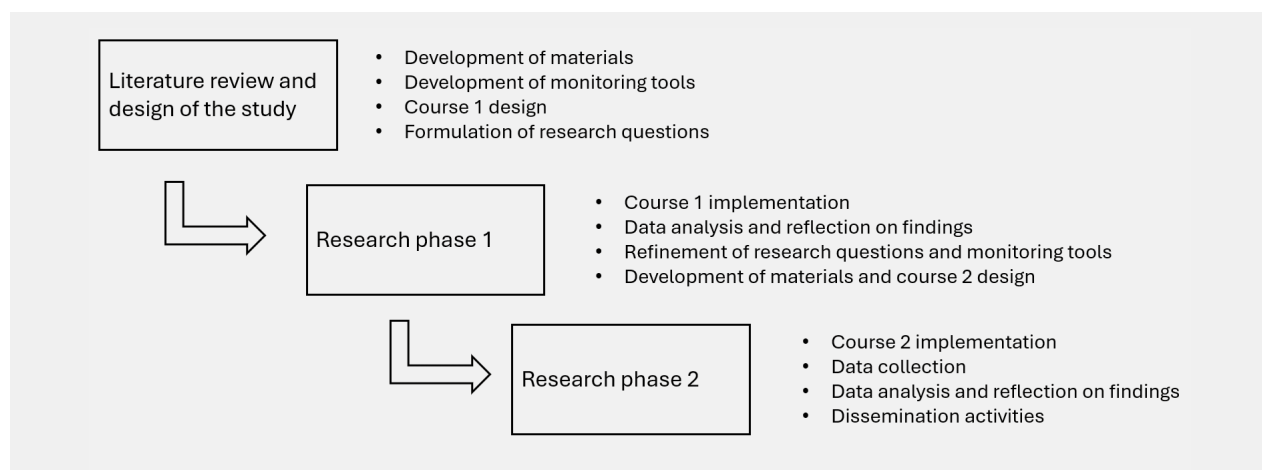
Figure 3
Toolkit content

T-SEDA has been translated into different languages and used by over 360 educators across different countries and educational levels (Calcagni et al., 2023; Hennessy et al., 2021). An Italian version was developed for this study (Cao et al., 2025).

Study methodology

The study aimed to evaluate the impact of introducing the T-SEDA dialogic inquiry approach to VPET teachers in Ticino, focusing on its sustainability within Swiss professional development programs. Following a Design-Based Research approach (Brown, 1992; Collins, 1992; Hennessy et al., 2021; Wang & Hannafin, 2005), two research phases were conducted (Figure 4). The first was based on prior research, while the second introduced additional support to address identified challenges, such as designing effective dialogic activities. Adjustments included structured planning tools and individual coaching. A key research focus emerged: exploring how T-SEDA dialogic teaching could help teachers develop transversal skills alongside specialized teaching. This focus stemmed from participants' reflective inquiries and feedback during the first phase.

Figure 4
Research design



Participant selection and course context

The first phase involved 6¹ teachers from different vocational subjects; the second included 14 General Culture teachers. The courses, designed and conducted by a SFUVET lecturer, first author of this paper, fostered peer support by involving teachers from the same institution and in the second, via participants teaching the same subject. Numbers were deliberately kept small in the first phase to increase in the second.

The participating teachers acted as co-researchers as they engaged in reflective inquiry to improve dialogic teaching and produced meta-reflections on their learning experiences, which were formally collected and treated as research data. The first author's dual role as lecturer and researcher required special attention, which was managed through collaboration within the authors' team, especially when reflecting on the findings, and by maintaining sufficient flexibility in the delivery of the courses, to prevent the research demands from interfering with the participants' learning needs in terms of content and pace of teaching.

¹ — One participant left the course for personal reasons. The research data include her early definition of interests and goals, corresponding to the first steps of reflective inquiry.

Monitoring tools and data analysis

Each phase was systematically evaluated to assess the effectiveness of the professional development provision in integrating the T-SEDA approach into teaching practice. Data sources (Figure 5) included teachers' artifacts – reflective inquiry journals, lesson plans, and sheets – created by the participants during the courses.

Participants were expected to:

- Identify developmental goals in dialogic teaching;
- Design dialogue-based activities;
- Observe these activities systematically;
- Analyze collected data to improve their practice.

The artifacts were analyzed to:²

- Classify inquiry goals;
- Identify frequently used T-SEDA codes;
- Assess the relevance of inquiry goals and codes for developing transversal skills;
- Evaluate the coherence between implemented dialogic activities and declared learning goals.

2 — This was done as part of a wider analysis based on a custom developed assessment grid. Reference is made here to the part of the analysis relating to the research question under consideration.

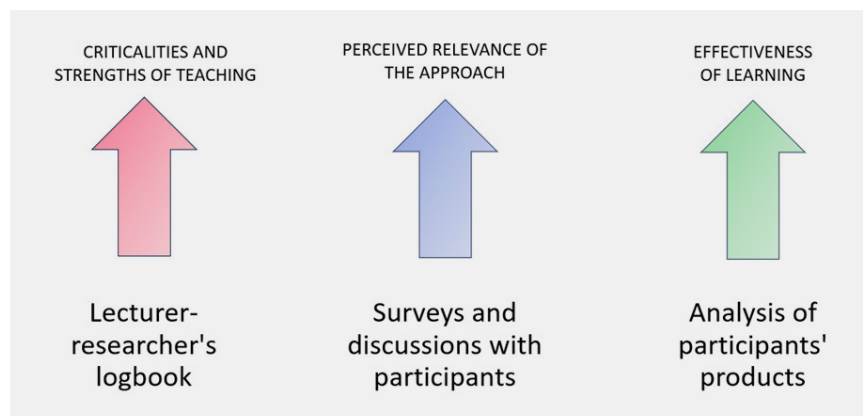


Figure 5
Data sources and expected information

Triangulation of data

Artifact analysis was triangulated with the subjective representations of the lecturer-researcher and of participating teachers collected through the lecturers' logbooks, the surveys, and the group discussions. The logbooks captured lecturers' own perceptions of the teaching process, while surveys provided quantitative and qualitative feedback on course structure and teaching transferability. Group discussions offered insights into the relevance and sustainability of T-SEDA-based reflective practices. Discursive data were processed using a Directed Content Analysis approach (Hsieh & Shannon, 2005).

In the first phase, triangulation clarified why participants struggled to complete their reflective inquiries. In the second phase, it confirmed interpretations from the artifact analysis and highlighted the potential of the T-SEDA approach to educational dialogue in supporting VPET teachers to develop both transversal and subject-specific learning goals.

Findings

All the participants identified their own development goals with regard to dialogic teaching, transferring the meaning of T-SEDA dialogic moves to their own teaching context. The personal objectives formulated by participants clearly illustrate the perceived relevance of dialogic teaching in fostering various transversal competences among vocational school students. Of the 20 reflective inquiries planned through the T-SEDA tools, 9 mentioned students' critical and argumentative skills when formulating initial interests and aims. Other expressed interests included making participation more inclusive, getting students to contribute extensively, increasing peer collaboration and making class discussions more productive for learning. When the focus of the questions was narrowed, teachers often targeted their students' ability to express their ideas verbally, justify their viewpoints, express agreement and disagreement, actively seek others' perspectives, ask questions, and draw connections. Table 1

B	R	Ch	IR	IB	C	Rif	G	Ca	E
10	9	4	4	4	3	2	2	2	2

Table 1
Occurrence of T-SEDA codes
in participants' inquiries

illustrates the occurrence of the T-SEDA codes in the goal setting of the 20 participants who completed the initial step of the reflective inquiry in the two courses.³

In course 1 the reflective inquiry cycles were not completed. Triangulation of the data made it possible to attribute part of the cause for this failure to teachers' difficulties in designing dialogic activities. This led to the introduction of more scaffolding in the second research phase, that, on the other hand, provided the opportunity to assess the transferability of the T-SEDA tools for the observation and evaluation of targeted competences in vocational school classes.

In course 2, all the participants completed a reflective inquiry cycle and each teacher was able to relate the data collected to their own teaching decisions, deriving insights on how to better support students' argumentative and critical skills by restructuring the dialogic activities undertaken. The introduction of the ground rules for discussion and modelling practices based on the use of sentence initiators were perceived by research participants as particularly useful. As repeatedly mentioned in group discussions, these strategies were seen as effective in supporting students' ability to argue their point of view.

At the beginning, when we talked about sentence starters and things like that, I almost thought: *Is it really necessary? Is it really worth insisting on them, writing them down for the students?* But actually, yes, it is. At first, it felt a bit artificial, during the first activity, you have these rules to follow. But as time goes on, even without always writing them down, I noticed that some students really try to use them and have slightly improved their way of discussing. So, there has been an increased awareness on both sides, the teacher's and the students'.

A difficulty was found in a few cases in assessing how productive the dialogue was for learning, as reflected in individual interviews and group discussions. Some T-SEDA tool adaptations were suggested to better track productivity as a function of teaching content. The idea of using graphic organisers to visualise the elaboration of ideas also emerged, to better track the development of knowledge.

Discussion

The more frequently targeted T-SEDA codes were B and R; other frequently targeted codes were CH, IR, IB. These codes appear particularly significant with respect to the exercise of critical and argumentative skills. Focusing on them when teachers explain learning activities, as well as when interactions are assessed and self-assessed, encourages students to justify their reasoning, articulate their ideas clearly and engage constructively with different perspectives. Using T-SEDA, VPET teachers can design their own means of monitoring important transversal skills such as critical thinking and argumentation, and thus guide learners more consciously and purposefully to develop them as part of their professional competence.

The question of how to evaluate the productivity of dialogue for learning involves integrating subject-specific and transversal objectives in the design of dialogic activities. It points to the possibility and need to adapt T-SEDA tools to local teaching design and learning goals, and thus achieving an integrative and intentional approach to the development of transversal skills. This approach is *integrative* in the sense that learners' critical and argumentative skills develop as they engage with

3 — More than one code can be selected when formulating inquiry questions.

subject content. It is also *intentional* because the dialogic process explicitly encourages ongoing reflection – by both teachers and students – on the conditions and forms of high-quality dialogue, where critical thinking is exercised and ideas are clearly justified. Tailoring T-SEDA tools to specific learning objectives enhances the integration of transversal skills’ development into content learning.

The T-SEDA reflective cycle is designed to be teacher-led, with teachers monitoring each stage of it. This is a challenge for the implementation of T-SEDA inquiry, since its potential effectiveness in the integrated development of subject and transversal competences depends on the teacher’s ability to identify objectives, design dialogic activities, select observation tools, interpret data and plan future actions. This process requires investment from teachers, support and appropriate contextual conditions. However, it is also an important strength that was highly appreciated by the participants in the study as well as by other practitioners who have used it in different contexts (Calcagni et al., 2023). The sustainability and facilitation needs of reflective inquiry on dialogue in VPET settings have been explored in this research, and the results are reported in an upcoming paper (Piccini et al., in press). Specifically, scaffolding forms and tools have been identified that facilitate the integration of reflective inquiry on dialogue in the context of professional development programmes that comply with highly standardised VPET regulatory frameworks, balancing external guidance – mainly for the design of dialogue activities – and teacher autonomy in defining the subject of inquiry and interpreting the data collected.

Conclusions

Globally, the study paves the way for the T-SEDA approach, as applied in the given professional development context, to enhance the capacity of VPET teachers to integrate high quality dialogue into the classroom, facilitating the development of students’ transversal skills. The integrative and intentional approach promoted by T-SEDA seems to meet the concerns of teachers who, on the one hand, are increasingly asked to assume a role of responsibility for the development of core skills such as critical and argumentative thinking and, on the other hand, express fears about sacrificing subject content in favour of transversal skills.

Our findings suggest ways to offer more support for dialogic inquiry in VPET, including collecting local examples of relevant dialogue moves for future teacher development; this is underway for a new course on the Camtree⁴ global platform. The coding scheme is being extended too, including specific keywords and examples for VPET subjects. Further development will also involve working with teachers familiar with the educational dialogue approach to assess students’ development of target competences.

⁴ — <https://camtree.org>

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