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School-Based Curriculum Development in German Vocational Schools

The Role and Relevance of Teachers' Curriculum Literacy

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Abstract Teachers at vocational schools in Germany are responsible for further developing the prescribed curriculum frameworks in a site-specific manner. This can be regarded as a form of School-Based Curriculum Development (SBCD), resulting in school-specific curricular products and elements. This necessitates a significant degree of professional responsibility and demands a high level of professional competence. However, the competences necessary for mastering SBCD have not yet been conceptualised. In this article, we address this theoretical gap by adapting the concept of curriculum literacy (CL) in line with the assumptions of SBCD. By outlining perspectives on curriculum reception, adaptation, and development, we examine the role and relevance of teachers' CL in SBCD and propose a framework for teachers' CL in German vocational schools. The framework could provide a valuable perspective for future (empirical) research examining the characteristics of teachers' competences in SBCD and can be of use in teacher education in vocational education and training (VET).

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1 Introduction

School-Based Curriculum Development (SBCD) has been described as "a slogan for devolution of control, for grass-roots decision-making, and as a representation of the polar opposite of centralized education" (Marsh et al., 1990, p. IX). More specifically, it refers to "the planning, design, implementation and evaluation of a program of students' learnings by the educational institution of

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which those students are members" (Skilbeck, 1984, p. 2). Debates about SBCD could also be observed within German vocational education and training (VET). This applies in particular to developments in vocational schools within the dual apprenticeship system (*Berufsschule*) (Bastian, 2008; Sloane, 2001, 2003; Tramm & Naeve-Stoß, 2020), which can be traced back to the curriculum reforms introduced in the mid-1990s, known as the 'learning field concept' (*Lernfeldkonzept*) (Bader, 2000; Standing Conference of the Ministers of Education and Cultural Affairs [KMK], 2021; see Chapter 2.2).

This curriculum reform presents at least two significant challenges: Firstly, SBCD in German vocational schools is a response to centrally provided yet open curriculum frameworks (*Rahmenlehrpläne*) issued by the (federal) state. As these frameworks remain abstract, they offer limited guidance on the practical implementation of teaching and learning processes (Sloane, 2001). Secondly, the learning field curriculum is oriented towards real-world occupational situations and problems (Bader, 2000; Bruchhäuser, 2001). Consequently, the traditional organisation of school subjects is dissolved. Instead, teachers from different subject areas must collaborate to implement the learning fields of the curriculum framework together (Buschfeld & Kremer, 2010; Ertl & Kremer, 2006; Tramm & Naeve-Stoß, 2020). Thus, the implementation of the prescribed learning field curriculum has content-related, structural, organisational, and personnel-related implications (Bader & Müller, 2002). The associated need for design and the scope for shaping it lead to differing curricular products.

SBCD in vocational schools can be understood as a comprehensive process of *productive curriculum reception (*Sloane, 2001, 2003*)*. This process seeks to enable practical implementation and results in school-specific curricular products, such as school-based curricula, scope- and sequence plans, and the development of authentic learning scenarios (Bastian, 2008; Sloane, 2001, 2003). In this sense, the given curriculum framework is not a detailed or binding prescription but rather a communicative instrument that offers orientation and enables curriculum work to be carried out on site (Sloane, 2001). Accordingly, SBCD is conceived as an opportunity that encourages teachers to cooperatively engage in curricular interpretation and contextual adaptation (Klafki, 1975; Kuzmanovic, 2003). As a result, teacher cooperation becomes essential (Sloane, 2004, 2007; Sloane & Tramm, 2010; Tramm & Casper, 2021) and teachers have to become "initiators of curriculum decision making as well as implementers of their own group decisions" (Young, 1979, p. 123).

Based on the theory of didactic analysis (Klafki, *1995)*, "teachers are curriculum makers because they interpret and transform national curriculum guidelines to create meaningful encounters between students and content" (Deng, 2025, p. 73). Therefore, they have to identify the educational substance of the curriculum content (Klafki, 1995). This also applies to the area of vocational education. The curriculum frameworks for vocational schools outline competence goals at an intermediate level of abstraction, but they do not prescribe educational substance, meaning, or significance. As a result, SBCD emerges as a form of professional practice in which teachers interpret and transform the occupational competences outlined in the curriculum guidelines into meaningful learning scenarios. Furthermore, VET is responsible for addressing the tension between qualification – defined as outcome-oriented objectives aimed at mastering work-related tasks and situations – and education – understood as the overarching goal of developing occupational competence (Ertl & Sloane, 2006). This seems to require "Didaktik/curriculum thinking aimed at unlocking and actualizing the educational potential" (Deng, 2025, p. 70) inherent in the competences outlined in the curriculum framework. This in turn demands an analytical and discursive approach to engaging with the curriculum (Tramm & Naeve-Stoß, 2020).

Thus, the tasks and the target dimension in the context of SBCD are defined; however, there is only limited guidance on how these tasks may be addressed in practice. Interpreting given curriculum frameworks and developing school-specific curricula remains a challenge for teachers, as it is complex and requires a high level of professional competence (Sloane, 2004; Tramm & Casper, 2021). Moreover, it is crucial that teachers recognize SBCD as part of their own professional practice. This becomes even more significant when one considers that Germany is more didactics-oriented than curriculum-oriented (Deng, 2025; Westbury, 2000), which has implications for teacher training, perceptions of the purpose of schools, and teaching practices (Tahirsylaj et al., 2015; Tahirsylaj, 2021; Westbury, 2000). In countries like Germany, that are more influenced by didactic teaching and learning theory (e.g. Denmark, Finland, Norway, Sweden, Austria, and Germany), teachers use the prescribed curriculum framework as a starting point for independently justifying and planning their lessons (Künzli et al., 2013). Due to their focus on the didactic planning and justification, teachers in didactic-oriented countries tend not to consider the (further) development and adaptation of curricula in the sense of systematic long-term plans to be a genuine part of their work (Riedl & Schelten, 2013). This orientation is an obstacle to joint school-based curriculum development (Kremer & Sloane, 2001; Sloane, 2001). The limited engagement with curriculum development is also reflected in teacher education: not only does lesson planning continue to be prioritised in academic teacher education (Klusmeyer & Söll, 2021; König & Rothland, 2022), but curriculum-related competence is often treated merely as a subordinate dimension within models of teacher knowledge and professionalism (e.g. Baumert & Kunter, 2006). The standards for teacher education in Germany (KMK, 2022) also broadly ignore this perspective. This seems particularly problematic because the legitimisation of SBCD must be conveyed through the teachers' qualifications (Rülcker, 1976). The inability to interpret curricula and a lack of professional development are, in turn, key problems in the implementation of curricula (Karakuş, 2021).

At this point, the following synthesis can be made:

- The necessity of cooperative SBCD is often presented as a logical consequence of the curriculum reform in vocational schools.
- Cooperative SBCD is also addressed normatively in models of curriculum implementation and analysis in vocational schools.
- SBCD must not be arbitrary or without clear direction. Instead, the significant educational-theoretical demands must be emphasised.
- The resulting professional responsibility and the related high requirements on teachers' professional competences must be noted.

Acknowledging the previous reasoning, we argue that the analysis of the curriculum framework and the interpretation of competence objectives should not only be the responsibility of individual teachers preparing lessons. They should constitute a central element of cooperative SBCD in vocational schools. At the same time, there is a gap in describing SBCD as a field of professional practice for teachers and in providing helpful guidance based on such a perspective. Against this background, it is necessary to both reflect on practices of SBCD in German vocational schools and conceptualise the demands and competences associated with it. Both constitute the objectives of this paper.

In line with these objectives, the concept of *curriculum literacy* (Dilek & Taşgın, 2023; Marek et al., 2024; Steiner et al., 2018) could offer a valuable lens. In the United States – commonly characterised as a curriculum-oriented system – the concept has gained attention in research in general education, where curricular requirements are specified down to the level of concrete teaching materials, referred to as High-Quality Instructional Materials (Marek et al., 2024). As Tran and O'Connor (2023) point out, even in such curriculum-oriented systems, the focus of curriculum research is beginning to shift – at least partially – from the effectiveness of the curriculum itself to the effective use of the curriculum. Therefore, in its original conception, *curriculum literacy* (CL) "includes the skills related to the awareness of all activities in the meaning, implementation, and evaluation dimensions of the curriculum" (Dilek & Taşgın, 2023, p. 48).

We employ the concept in line with the assumptions of SBCD and *productive curriculum reception* in German vocational schools. In short, we conceptualise *Curriculum Literacy (CL)* as the ability to design, implement, and evaluate site-specific curriculum products tailored to a particular educational track at school level. This constitutes a form of *School-based Curriculum Development (SBCD)* that is grounded in teachers' professional stance, characterised by a capacity for critical reflection on curricular foundations, an attitude that fosters teacher cooperation and the ability to create curricular products, such as annual plans and learning scenarios. Such work requires professional knowledge (declarative, reflective, and procedural) of the curriculum and its subject content, the relevant occupational field, the learners concerned, and the specific characteristics of the school context.

In this sense, the aim of this article is to *(1) outline the role and relevance of teachers' CL in SBCD* and to *(2) propose a CL-framework for teachers in German vocational schools.* To this end, we first set out the foundations for SBCD in Germany, grounded on open curriculum frameworks (Chapter 2). We then highlight theoretical perspectives on curriculum development in German vocational schools (Chapter 3). Next, several praxeological approaches to curriculum use, interpretation and adaptation through teachers will be outlined (Chapter 4). In Chapter 5, we explain CL using the concept proposed by Marek et al. (2024) and present our revised and expanded proposal for CL in vocational schools in Germany as an initial draft. The paper ends with concluding remarks (Chapter 6).

2 Foundations of SBCD in German Vocational Schools

2.1 Curriculum Revision and Open Curriculum

After the discussion on curriculum revision in German general education in the late 1960s and early 1970s was characterised by a scientific, rationalistic program of closed curricula (Robinsohn, 1967), the German Education Council (*Deutscher Bildungsrat*) heralded a trend reversal towards open curricula with the 'structural plan for the education system' (1970) and the 'recommendations for the promotion of practice-oriented curriculum development' (1974). This was also linked to the analyses of innovation problems within closed curricula in the USA, England, and Sweden (Gerbaulet et al., 1972).

From then on, state guidelines should set out a framework of specifications and minimum requirements formulated at a medium level of abstraction. This was intended to allow for interpretation and decision-making in each school. The aim of open curricula was thus to fulfil the requirements of school practice in the best feasible way and to overcome the problem of outdated or

rigid curricula (Brinkmann, 1975; Deutscher Bildungsrat, 1974). Consequently, open curricula only specify learning objectives and, at most, allocate content and references to procedures and resources, which are intended to provide teachers with reliable guidance, but are not binding (Peterßen, 2006; Steindorf, 2000). As a result, curriculum development at school level became necessary (Deutscher Bildungsrat, 1974; Klafki, 1975).

According to Klafki (1975), the introduction of open curricula was also linked to educational and democratic motives. Teachers who are not given the opportunity to co-decide democratically on the objectives, content, organisational forms, methods, and media of their teaching cannot educate young people to make their own decisions and co-determine. The open curriculum model is therefore linked to the intention to make teachers the main drivers of curriculum revision (Deutscher Bildungsrat, 1974). There is also a reference to Dewey's reform pedagogical tradition (Klafki, 1975). Dewey (1916) strove for the democratisation of all areas of life, defining school as a miniature society in which not only is theoretical content taught, but the skills required to live and act in a democratic community are also developed. This requires active involvement in participatory learning, through which democratic participation is expressed. Therefore, it can be deduced that curriculum guidelines should also be open to criticism and modification. They should be viewed as normative hypotheses that can and should be adapted to different situations and revised and supplemented during the process of implementation and evaluation (Rülcker, 1976). The requirement for such open curricula, in turn, is that they must define and justify points of view and learning objectives clearly enough to necessitate engagement and thus open up a communication process designed to be continued by teachers and learners (Deutscher Bildungsrat, 1974).

2.2 Learning Field Concept

Due to the introduction of learning field curricula for vocational schools (*Berufsschule*) in the sense of open curricula, a shift towards SBCD can be observed in VET (Bastian, 2008; Pahl, 2014; Sloane, 2001, 2003; Tramm & Casper, 2021). This curriculum reform originated in the 1990s, when questions were raised about the quality and role of the school-based component of vocational education. This coincided with a time when new pedagogical approaches (in particular concepts of situated learning) were proposed to improve learning processes in vocational schools (Ertl & Kremer, 2006). Criticism has focused on the curricular segregation of learning locations (school and workplace), which has led to a perceived lack of knowledge transfer and thus a deficit of legitimacy for vocational schools within the dual apprenticeship system (Ertl & Kremer, 2006; Tramm & Naeve-Stoß, 2020). In response, the Standing Conference of the Ministers of Education and Cultural Affairs (KMK) introduced a new curriculum design approach for vocational schools: the learning field concept.[1]

The fundamental idea of the learning field concept is to support students in competently dealing with vocationally relevant situations and problems. Following this idea, the curriculum is no longer structured around separated school subjects. Consequently, vocational teaching is no longer based on subject theory, which is explained using practical examples. Instead, it is based on the professional activities of skilled workers in the relevant occupations. These activities are organised

[1] So far, there are no reliable findings on the effects of the learning field concept on students' acquisition of competences (Seifried & Weyland, 2022). Some research findings on action-oriented teaching in the context of the learning field concept in industrial and technical VET show positive motivational effects, but the effects are inconsistent in terms of knowledge acquisition (Nickolaus, 2010, 2011). In contrast, in the business sector, the postulated advantages of action-oriented teaching methods are not consistently evident in terms of learning motivation, while positive effects on the development of problem-solving skills are present (Seifried & Sembill, 2010).

as learning fields that reference authentic occupational tasks and business processes. Essentially, learning fields comprise professional processes based on real-life work situations that have been adapted and didactically enriched (Ertl & Kremer, 2006; KMK, 2021; Tramm & Naeve-Stoß, 2020). This approach is also reflected in the naming of the learning fields, for example 'Documenting and evaluating value streams for accounting purposes' or 'Identifying and eliminating malfunctions'.

The curriculum frameworks (*Rahmenlehrpläne*) outline action-oriented competence goals for each learning field of an apprenticeship, articulated in abstract terms. Furthermore, the frameworks specify the total number of teaching hours (between 40 and 120) for each learning field, as well as providing recommendations for their chronological positioning within the educational track (*Bildungsgang*) (KMK, 2021). In this way, the centrally developed curriculum frameworks provide the necessary scope to quickly take up technological and economic developments and integrate them into VET, but also to take local/regional requirements into account (KMK, 2017, 2021). The learning field concept is therefore in line with the tradition of open curricula (Pahl, 2014; Sloane, 2001; Wilbers, 2025).

As a result, it remains unclear how the curricular requirements are to be translated into concrete teaching and learning units, as well as into instructional materials. Consequently, teachers must further specify the content of the framework and develop an educational track tailored to the specific school context (Ertl & Sloane, 2006; Sloane, 2003; Sloane & Tramm, 2010). The transition from a subject-based structure to subject-integrated learning fields, along with the complexity of the vocational references and the openness of the curricula necessitates SBCD (Sloane, 2001; Tramm & Naeve-Stoß, 2020; Wilbers, 2025) and – as we intend to emphasize - teachers' curriculum literacy.

2.3 Implementation of the Learning Field Curriculum

The learning field curriculum reform not only implies the introduction of new curricula but also has a direct and far-reaching impact on school organisation due to the changed curricular structure and the shift in normative objectives (Kremer & Sloane, 2001; Naeve-Stoß, 2021). Therefore, also the organisational and personnel conditions for implementation were discussed in academia. Early research in pilot projects identified five key implementation factors (Kremer & Sloane, 2001; Kremer, 2003; Sloane, 2004):

- *School organisation:* The learning field concept is situated within the context of expanded school autonomy and requires new models of cooperation and management. Internally, this requires the establishment of decentralised, autonomous working groups in educational tracks, which make independent decisions about teaching and cooperation (see Chapter 3.1 & 3.2).
- *Teachers' attitudes and skills:* Teachers are a decisive factor in promoting or hindering innovation in schools. The willingness to participate in change processes is just as important as the ability to design such processes. The skills and attitudes of teachers as proponents of the learning field concept are therefore crucial conditions for success. To this end, teachers need in-depth knowledge of macro-didactic planning and the design of complex teaching and learning processes. Thus, SBCD increases the demands placed on the vocational teaching profession. Bader and Müller (2002) particularly note that curricular work within the learning field concept places increased demands on vocational teachers' didactic professionalism, as they are expected to act across subject boundaries despite their subject-specific training.

- *Openness and structure of the curriculum:* The scope for action that comes with the openness of the curriculum makes teachers feel uncertain, while the systematic structure is sometimes seen as less valuable in terms of subject knowledge. Furthermore, many teachers reject open curricula because they provide little guidance on what to teach.
- *Examinations:* A key implementation problem lies in the discrepancy between curricular autonomy and standardised, often knowledge-oriented examination formats. Examinations effectively act as a hidden curriculum and can undermine the implementation of the learning field concept (see Chapter 4.3). On the one hand, it is therefore necessary to develop new examination procedures within schools, but on the other hand, the examination practices of the chambers must also be changed.
- *Teachers' perception of learners:* Teachers sometimes consider action-oriented learning in learning fields to be too demanding for learners in vocational schools. In practice, there is often the problem that action competence is already assumed rather than developed.

3 SBCD in German Vocational Schools – A Normative-Theoretical Perspective

Most vocational schools in Germany – even if there are exceptions – offer a variety of educational tracks (*Bildungsgänge*) or qualification pathways in one institution, each governed by its own curriculum. Typically, each teacher is affiliated with more than one educational track simultaneously. The cooperative-didactic and organisational work of teachers who work within the same educational track can be conceptualised as *Bildungsgangarbeit (*Bader & Sloane, 2002; Buschfeld, 2014; Keiser, 2004; *Sloane, 2007)*, which we translate into *educational track-based teacher cooperation* (ETTC). This form of cooperation represents an essential operational and pedagogical aspect of teachers' practice, which is also legally enshrined for vocational schools in some German federal states (e.g. North Rhine-Westphalia, Lower Saxony, Saxony-Anhalt).

In the following, we examine normative-theoretical perspectives on SBCD at the level of ETTC. On the one hand, this highlights the approaches that have been discussed in academic discourse. On the other hand, it also reveals aspects that have received little attention so far – particularly regarding the competences required of teachers engaged in curriculum work. We begin by examining the reception of curricula at the school level and their productive interpretation (*produktive Lehrplanrezeption*) (Chapter 3.1). This leads to the concept of ETTC, which integrates and structurally anchors the productive engagement with curricula within the school setting (Chapter 3.2). With a particular focus on curriculum interpretation, we then turn to existing approaches to curriculum analysis (Chapter 3.3).

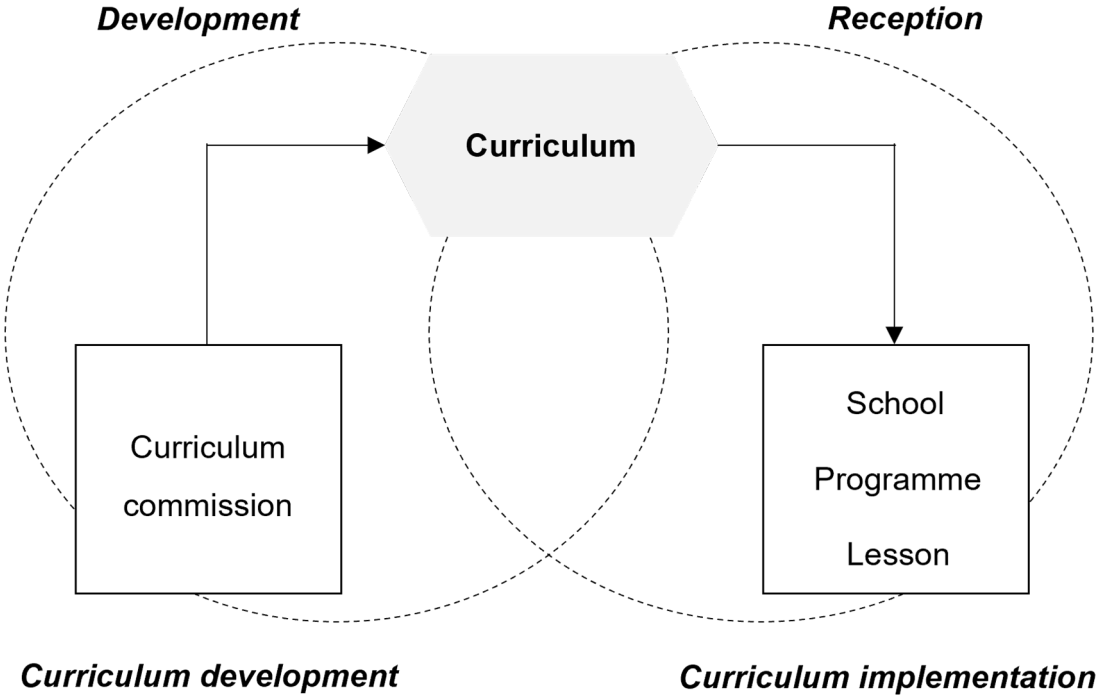
3.1 Productive Curriculum Reception (produktive Lehrplanrezeption)

Sloane (2001, 2003) argues that open curriculum frameworks are intended to shift away from a production-oriented perspective of curriculum development at the macro level. Instead, the reception of curricula – their use and adaptation – along with the actors involved at the meso (school/educational track) and micro (teaching) levels, come into focus. Sloane (2001, 2003) therefore introduces the concept of *productive curriculum reception* (*produktive Lehrplanrezeption*). This approach assumes that a curriculum framework defines general objectives, which must subsequently be specified and contextualised by the respective educational institution (Sloane, 2001). Concrete teaching scenarios or instructional sequences cannot be derived directly from the

abstract guidelines of the framework (see Chapter 2.2). Instead, open curricula require further specification, and school-based curricula need to be developed. Consequently, the central question is no longer what the curriculum framework should look like, but what happens to the curriculum at the school level (Sloane, 2001, 2003, 2007). Considering this, a key question arises: What curricular decisions do teachers make – and what motivates those decisions? Following Klafki (1975, 1984), it is crucial to understand curricula as a medium of communication. Developers (e.g. curriculum commissions) and users (e.g. groups of teachers) use them to communicate with each other about educational goals and content (Figure 1). According to this perspective, a curriculum is not a closed and detailed binding specification, but rather a communication tool that provides orientation so that curriculum work can be carried out on site (Sloane, 2001, 2003). Thus, the curriculum framework is an open offer for teachers to interpret and adapt according to their school's needs and conditions (Brinkmann, 1975; Kuzmanovic, 2003).

Reception is therefore not only linked to the understanding and interpretation of curriculum guidelines but also involves a creative and constructive process (Sloane, 2001, 2003). Implementation is thus not conceived as a naive act of adoption or transfer, but rather as a complex and reflective process through which curricula are developed and shaped at the school level (Sloane, 2003). This highlights the interpretive authority of teachers and their central function in SBCD (Kelly, 2004). This raises the question of how teachers receive and analyse curricula (Chapter 3.3) and how corresponding processes are anchored in schools (Chapter 3.2).

Figure 1: Productive Curriculum Reception



Note. Adapted from "Schulnahe Curriculumentwicklung" by P. F. E. Sloane, 2003, bwp@ Berufs- und Wirtschaftspädagogik – online, 4, p. 3 (https://www.bwpat.de/ausgabe4/sloane_bwpat4.pdf). Translated from German by the authors.

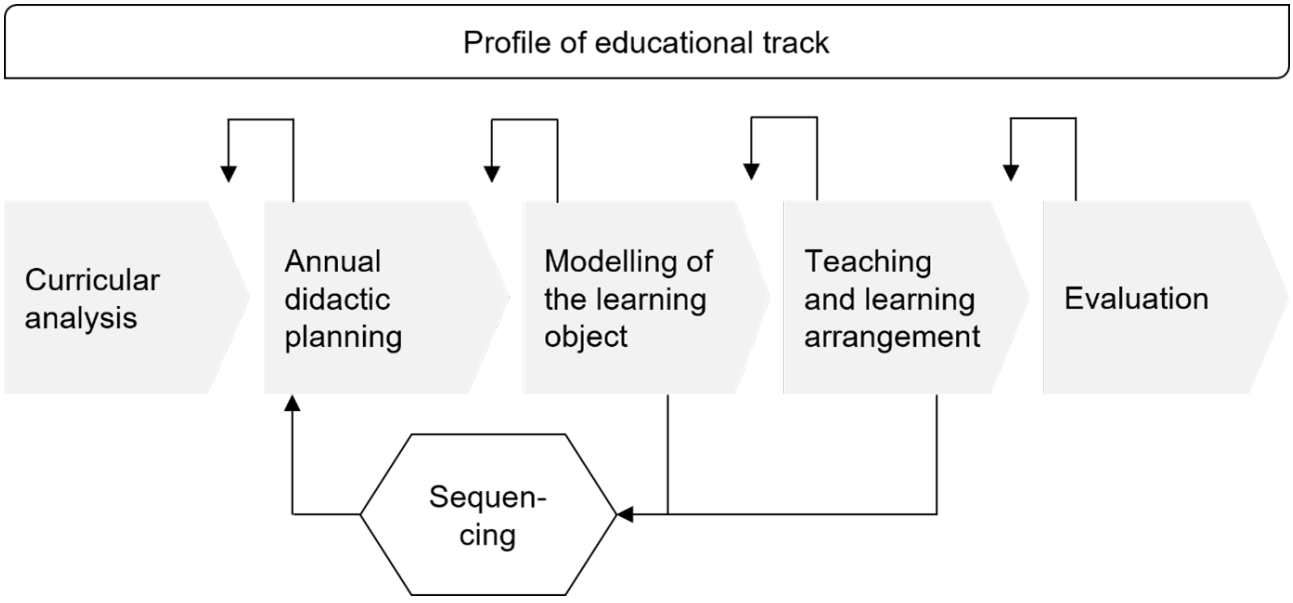
3.2 Educational Track-based Teacher Cooperation (ETTC, *Bildungsgangarbeit*)

3.2.1 Conceptualisation

In vocational schools, *productive curriculum reception* is normatively attributed to teacher groups working at the level of educational tracks (Bader & Sloane, 2002; Berben, 2008; Frehe & Kremer, 2018; Kremer & Sloane, 2001; Sloane, 2001, 2003, 2004, 2007, 2021). An educational track represents a meso-level of teacher practice, situated between whole-school structures and individual classroom instruction (Bader & Sloane, 2002; Buschfeld, 2002). It serves as the primary setting for communication and cooperation among teachers (Buschfeld, 2002; Keiser, 2004). According to Sloane (2004, 2007), this is not only linked to the organisational structure of vocational schools, but also to the institutionalisation of pedagogical and didactic discourse surrounding school-specific curriculum products such as school curricula, sequencing plans, and the development of authentic learning scenarios.

In summary, the concept of ETTC integrates the requirement for SBCD into the perspective of school development and embeds this organisationally at a level between school and class. ETTC adopts the perspective that teachers' pedagogical work extends beyond the planning, implementation, and evaluation of individual lessons. Instead, it encompasses the conceptual development, organisation, realisation, and evaluation of teaching and learning sequences over a longer period (Sloane, 2007, 2010). Thus, ETTC can also be understood as a process-oriented approach to SBCD (Buschfeld, 2014). In this context, Sloane (2007, 2010, 2021) outlines a theoretical model that conceptualises *productive curriculum reception* as a sequence of interrelated process steps (Figure 2).

Figure 2: Model of Educational Track-Based Teacher Cooperation



Note. From "Bildungsgangarbeit in beruflichen Schulen – ein didaktischer Geschäftsprozess?" by P. F. E. Sloane, 2007, Zeitschrift für Berufs- und Wirtschaftspädagogik, 103(4), p. 482 (https://res.bibb.de/vet-repository_747812). Translated from German by the authors.

In Sloane's model (2007, 2010, 2021), teachers are required initially to develop a site-specific orientation or profile for the educational track conceived as a guiding framework. The central questions are: What is the overarching goal of this educational track? What are the intended competences learners should have developed by the end of the program? And which specific contextual factors need to be considered – such as local industries, industry-specific characteristics, target group, and composition of the teaching team? This educational track's profile serves as a foundation and point of reflection for making curricular decisions. How curricula are received and interpreted on site is crucial for (1) curricular analysis. We will therefore elaborate on this later in the following chapter. (2) Annual didactic planning then requires the alignment and connection of the learning fields as well as the arrangement of the concretised learning objects (learning scenarios) in learning fields. These learning fields, in turn, consist of one or more interconnected (3) learning scenarios. The starting point for their development lies in real-life professional, societal, and personal situations and problem constellations. The challenge for teachers is to design authentic learning scenarios from the learners' perspective. Subject-specific content must be detached from its disciplinary logic and related to a real-world problem. Also, they need to be interwoven with the annual didactic plan and its sequencing. The next step is to change the perspective and focus on how the teacher is planning to support the learning process within the authentic learning scenario. This stage of (4) planning complex teaching and learning arrangements closely resembles traditional lesson planning and includes the structuring of the lesson, the selection of social interaction formats, media, materials, and other instructional elements. The fifth step, (5) evaluation, is intended to assess both the organisational effectiveness of the educational track and the individual learner's progress and outcomes.

In ETTC, teaching teams cooperate in discursive and responsive ways (Sloane, 2007). Planning does not follow a fixed sequence but evolves through feedback between steps. It is discursive because teachers must negotiate shared approaches – always provisional due to ongoing evaluation and the need for flexibility. Overall, *productive curriculum reception* and therefore ETTC imply intense communication and institutionalised cooperation between teachers (Sloane, 2003, 2004, 2007; Sloane & Tramm, 2010). The teachers should participate in the productive genesis of school-based curricula to achieve a shared understanding of the curriculum and to align their individual activities with the common goal of student learning (Tyler, 1973). Teachers are thereby partially released from their role as experts for a single subject and elevated to members of a group of teachers in which they contribute their competences and ideas (Sloane, 2001, 2007).

3.2.2 Empirical Insights

In evaluations of early pilot projects of ETTC within vocational schools (Deisenroth & Köbbing, 2004), almost two-thirds of the teachers surveyed stated that cooperation in educational tracks was necessary for the implementation of the learning field concept. At the same time, only half of those surveyed considered this cooperation to be effective in its current form. Other studies on ETTC in the context of the learning field concept (Tenberg, 2006) also showed that the majority of respondents working in such cooperative structures (*Bildungsgangteams*) express satisfaction and would not want to do without teamwork. The collegial exchange of information, the relief provided by the division of tasks and motivational factors resulting from greater responsibility are rated positively. On the other hand, the effort required for cooperation, coordination and the distribution of tasks, which is sometimes perceived as unfair, are rated negatively.

The few studies available that refer explicitly to the ETTC model of Sloane (2007) to analyse cooperative SBCD (e.g. Bader, 2020; Koschmann, 2013) show that although the steps outlined are applied, there are also significant limitations. For example, curriculum analysis is often only carried out implicitly. The sequencing of learning areas is often based on resource planning and existing lesson plans rather than didactic requirements. Although didactic annual plans are developed, these often do not meet the requirements of didactically sound distribution planning. Learning scenarios are often developed in smaller groups and then compiled afterwards.

When designing teaching and learning arrangements, in turn, teachers often act autonomously. More intensive forms of cooperation occur in particular when institutionalised conditions (time resources, specific opportunities for cooperation, digital filing system) are created and the composition of the teams is voluntary. The case study on SBCD by Berben (2008) in turn suggests focusing on the development of learning scenarios at the outset, which automatically highlights the need for an overview and curricular integration in a curriculum for the educational track. The multiple case study by Büker (2021) also shows that the more teachers are involved in these cooperative developments, the greater the acceptance of the developed products.

3.3 Curricular Analysis in SBCD

As a central part of *productive curriculum reception* in educational tracks, it is important to consider how the curriculum framework is analysed at school level. Curricular analysis is the initial examination of the relevant educational resources (Sloane, 2007). Essentially, it is a hermeneutic process used to interpret the meaning of curriculum frameworks (Tramm & Naeve-Stoß, 2020) in terms of the selection and arrangement of educational content (Klafki, 1995; Sloane, 2007). The aim is to understand and clarify the curricular requirements in order to plan and structure the educational track (Sloane, 2007; Tramm & Krille, 2013). This requires an analytical and discursive approach that treats the curriculum text seriously and attempts to reveal its underlying structures. At the same time, it should uncover implicit assumptions, contradictions, gaps, digressions and, if necessary, ideological distortions, all with critical intent (Tramm & Naeve-Stoß, 2020). Therefore, teachers should analyse the curriculum framework cooperatively to relate their (different) patterns of experience and interpretations to one another (Sloane, 2003). A joint curriculum analysis is essential for developing a collective understanding of goals and tasks and for the systematic planning of cooperation, clear responsibilities, and the uniform orientation of all members of the educational track (Koschmann, 2013).

Even though the importance of curriculum analysis is constantly emphasised, there are only fragmented approaches for vocational schools that take their specific characteristics into account. Therefore, it is necessary to consider concepts from the field of general education: In general didactics, curricular analysis is usually regarded as an integrative part of an individual teacher's lesson planning. Hence, the didactic analysis of the curriculum is “the core of preparation of instruction” (Klafki, 1995). Klafki (1995) therefore developed a procedure of didactic analysis as an aid for teachers planning lessons. Although teachers are required to follow the current curriculum guidelines, they should understand the considerations of the curriculum designers and then critically examine the extent to which the prescribed contents of education (*Bildungsinhalte*) actually provide the necessary educational substance (*Bildungsgehalt*). In this understanding, teachers “must re-enact the pedagogical decision made by the curriculum designers and embedded in the curriculum contents” (Klafki, 1995, p. 17).

Peterßen (2006) outlines some fundamental considerations about the procedure of curricular analysis: The first step in approaching the curriculum should emphasize comprehension and interpretation, not decision-making. Therefore, the curriculum analysis should concentrate on (1) information about the nature and structure of the curriculum, including questions of structure, scope, and relationships to other guidelines. In the next step, (2) general notes and information of the curriculum will be considered, referring to global objectives addressed in preambles, individual subjects and grade level. Finally, (3) specific information in the curriculum about the objectives and content and their relationship to other subjects and the education system should be emphasised.

According to Klafki (1995) and Peterßen (2006), didactic analysis of the curriculum is the responsibility of individual teachers when preparing lessons. In vocational schools, due to the learning field curricula, however, this perspective must be supplemented by a further step of *productive curriculum reception* in teacher teams. Within the VET discourse, practice-oriented explanations can be found in the works of Tramm and Krille (2013) and Tramm and Naeve-Stoß (2020). However, there are currently no empirical based descriptions of the concrete application of curricular analysis in the learning field concept. The approaches should therefore be viewed more as suggestions for how to proceed.

As part of the curricular analysis, both the overall structure of the curriculum as well as the specific curricular function of each learning field must be examined in order to develop a comprehensive understanding of the underlying occupational profile. This entails identifying the key functional areas of the occupational activity, determining the expected level of complexity or autonomy at which the activity is to be performed, and specifying the associated professional tasks (Tramm & Naeve-Stoß, 2020). Put simply, curricular analysis must address the question of (a) what should be taught – in the form of concrete competences and knowledge – and (b) for what purpose, based on real-world problems, processes, and situations (Tramm & Krille, 2013). To this end, it is necessary to analyse which work and business processes and professional situations are central to the respective learning field. Subsequently, the required competences to address these occupational demands must be identified, along with the underlying knowledge base that supports or is embedded in those competences. It must also be clarified what the specific function and distinct focus of each learning field is within the overall curriculum framework and how it contributes to the learners' competence development process. Thus, an iterative process unfolds between the identification of (1) professional tasks and situations, (2) the required competences, and (3) the underlying knowledge bases – characterised by frequent shifts in perspective (Tramm & Krille, 2013; Tramm & Naeve-Stoß, 2020). Since knowledge is related to situations and subject-specific knowledge is abstracted from situations, there is a constant negotiation and balancing of curricular principles in the analysis of learning field curricula (Tramm & Krille, 2013).

Overall, perspectives on SBCD highlight the "centrality of the teacher" (Kelly, 2004, p. 8) and the relevance of teachers' competences in cooperation, deliberation, analysis and curriculum construction. Sloane (2004, 2007) therefore specifically mentions conceptual-reflective and cognitive-conceptual competences, as well as competences in mutual exchange, dialogue, and discourse as part of pedagogical professionalism. In addition, teachers must also be able to think in responsive planning models in order to establish feedback loops between analysis, annual planning, lesson development, and evaluation (Sloane, 2007). Moreover, Koschmann (2013) notes the importance of teachers' attitudes toward cooperation and the didactic principles underlying curriculum development in vocational schools (e.g. situation and action orientation). However, the current perspectives on SBCD tend to neglect a systematic consideration of the competences

required for such curriculum-related work. This is what we try to capture under the concept of *curriculum literacy* (CL). The high level of professionalism required becomes even clearer when different perspectives on the use, interpretation and adaptation of curricula are considered as follows.

4 Curriculum Adaptation Through Teachers – A Praxeological Perspective

In addition to theories and models outlining how SBCD should ideally proceed, scholars have developed a variety of theoretical approaches to describe curriculum adaptation and the several influences that come into play in curriculum implementation. These approaches are particularly useful for understanding how teachers receive and develop curricula at school level. This includes different *curriculum implementation levels* (Chapter 4.1), the *null curriculum* (Chapter 4.2), the *hidden curriculum* (Chapter 4.3) as well as *curriculum adaptation patterns* (Chapter 4.4). While the individual concepts display a certain affinity, they each place emphasis on different specific aspects. Together they provide, in a sense, a praxeological perspective on how teachers carry out curriculum work in practice. In doing so, they emphasise the importance of teachers' decision-making in the implementation process and the level of professionalism required of them.

4.1 Curriculum Implementation Levels

Curriculum theory acknowledges that curricula cannot be directly integrated into teaching. Instead, different levels of implementation must be recognised and distinguished (van den Akker, 2013; Vollstädt, 2003). Clarifying these implementation levels is valuable when trying to understand the problematic efforts to change the curriculum or its use by teachers. A common broad distinction is between the three levels of the *intended*, *implemented*, and *achieved/attained* curriculum (van den Akker, 2013):

- The intended domain refers to the influence of curriculum policymakers and curriculum developers. The *intended* curriculum embodies the ideal vision and the formal/written intentions as specified in curriculum documents like standards, syllabi, and textbooks. It represents the knowledge, skills, and values that educators aim to impart to students.
- The *implemented* curriculum relates especially to the sphere of schools and teachers. It is the curriculum as interpreted by its users and integrated into the process of teaching and learning. It embodies what is taught in learning groups and classrooms. This just corresponds more or less to the *intended* learning objectives, content, and materials.
- The *attained* curriculum embodies the learning experiences and results as perceived by learners. It is the knowledge and skills students demonstrate as a result of their learning experiences. This level is sometimes referred to as a *tested* curriculum (Tahirsylaj, 2021).

This distinction highlights that adaptations are occurring at every level. In the concept of open curricula, these adjustments are factored in and incorporated into the official curriculum. As Vollstädt (2003) assumes, the transition from the *intended* to the *implemented* curriculum is influenced by teachers making individual adjustments and by adaptations taking place at the institutional and personal level. Due to collegial discourse and the suitability to local conditions, products of school-based curriculum development can be more binding for teachers than

government guidelines (Buschfeld & Kremer, 2010; Vollstädt, 2003). Thereby, curricular agreements and decisions on site are of great importance. This reflects the interpretation and adaptation that takes place at school level within SBCD and supports the theory of *productive curriculum reception* (Sloane, 2001, 2003).

4.2 Null Curriculum

The concept of a *null curriculum* was introduced by Eisner (1985). He suggests that all schools teach three types of curricula: the *explicit*, the *implicit*, and the *null* (Flinders et al., 1986). The *explicit* curriculum refers to the *intended* learning objectives, content, and materials (see Chapter 4.1). The *implicit* curriculum includes values and expectations that are not included in the *intended* curriculum but which students nevertheless learn as part of their school experience (see Chapter 4.3). The *null curriculum* refers to that which is not taught. It indicates things that students do not have the opportunity to learn. So, the null curriculum exerts an influence through its absence. Eisner (1985) defines it as "the options students are not afforded, the perspectives they may never know about, much less be able to use, the concepts and skills that are not part of the intellectual repertoire" (p. 107). The *null curriculum* provides an alternative viewpoint from which decisions regarding the inclusion or exclusion of content can be made. It therefore offers a theoretical tool to explore what is not offered to students and the potential pedagogical significance and impact of such neglect (Flinders et al., 1986). Eisner (1985) also argues, in terms of educational theory, that what is not taught can be just as important for education as what is taught. He claims that ignorance is not simply a neutral void. It has consequences for the kinds of options one can consider, the alternatives one can examine, and the perspectives from which one can view a problem.

This perspective yields important implications for *productive curriculum reception* in vocational schools. First, it is essential to ask which elements (e.g. social skills, technical innovations) have been omitted in the curriculum framework. Second, attention must be given to what teachers intentionally or unintentionally leave out when developing the school-based curriculum – and why. Third, there needs to be awareness of the consequences of such omissions (see Chapter 4.4). These considerations underscore the importance of adopting a critical stance toward the prescribed curriculum. It becomes evident that identifying and reflecting on its gaps and limitations in a group of teachers is a crucial part of curriculum-related professional practice.

4.3 Hidden Curriculum

The term *hidden curriculum* has been used in quite different ways in curriculum studies. "The more common and influential usage refers to student learning that is not described by curriculum planners or teachers as an explicit aim of instruction even though it results from deliberate practices and organizational structures" (Boostrom, 2010, p. 439). This curriculum is *hidden* in the sense that it is not included in institutional information of expected learning outcomes, and it may not even be perceived by teachers as an intended outcome of their instruction (Jackson, 1968). Based on this understanding, Kärner and Schneider (2024) provide a scoping review of the constituting elements of the *hidden curriculum*. The overview reveals different reproduced norms (e.g. conformity, temporal rhythmising), roles with specific attributes (e.g. teacher power, student recognition), and media for norm transmission (e.g. teaching materials, routines and rituals).

The term *hidden curriculum* was also adopted in German educational sociology and critical school research, where it is referred to as *heimlicher Lehrplan* (Zinnecker, 1975). However, in didactic discourse the term is often used with a slightly different connotation. The *heimliche Lehrplan* encompasses all elements teachers draw upon for lesson planning that compete with or diverge from the formal (intended, explicit) curriculum framework (Tenberg et al., 2020). These may arise from a deliberate rejection of the official curriculum or simply for pragmatic reasons such as time constraints or reliance on pre-existing lesson materials. The openness of the curriculum framework, combined with teachers' interpretive authority, leads to a relativization of the formal curriculum's significance through various influencing factors. These include the teachers' latent assumptions and value attitudes, theoretical knowledge, individual educational and professional experiences, and a pragmatic orientation towards examinations or textbooks (Tenberg et al., 2020).

The orientation towards chamber examinations is particularly significant in German vocational schools within the dual apprenticeship system (Euler & Hahn, 2014; Sloane, 2001), which is also confirmed by some qualitative studies (Besand, 2014; Schmidt, 2026) and implementation research in context of the learning field concept (Kremer & Sloane, 2001). Accordingly, experiences with content and requirements from examinations serve as an important filter for selecting and structuring learning objectives for lessons (Euler & Hahn, 2014). The examinations therefore also constitute a curricular reference for lesson planning. Considering this, formal curricula often appear to function merely as 'pseudo-regulations for teaching' (Sloane, 2001, p. 189). Thus, the examinations should also be regarded as an implementation hurdle for the learning field concept (see Chapter 2.3). For this reason, it seems necessary to consider the potential risks associated with curricular freedom. This highlights once again the importance of collegial negotiation processes when it comes to curricular decision-making (Sloane, 2003, 2004).

4.4 Curriculum Adaptation Patterns

Especially in curriculum-oriented countries, teachers are reconciling their teaching responsibilities with the requirements and limitations imposed on them by local and national governments. Therefore, the state curriculum design determines what teachers should, can, and want to do with the curriculum documents. The interactions between teachers and the formal curriculum generate the enacted curriculum through their adaptations. A distinction is made between *omitting*, *extending* and *replacing or revising* instructional activities (Troyer, 2017; Yazıcılar Nalbantoğlu et al., 2021). These can be observed in several studies (e.g. Bümen & Holmqvist, 2022; Troyer, 2017; Yazıcılar Nalbantoğlu et al., 2021). According to Bümen and Holmqvist (2022), the three *curriculum adaptation patterns* can be understood as follows:

- *Omitting* means that teachers leave out parts of the formal curriculum or teaching materials because they consider them impractical or unnecessary – also other reasons are conceivable (lack of perceived expertise, individual interest, etc.). Consequently, they may not cover certain topics or omit activities from the textbook or workbook.
- When teachers incorporate new content or expand instruction by integrating additional resources, this is considered an act of *extension*. This may involve the use of alternative textbooks supplementary workbooks, or the development of custom worksheets alongside the prescribed curriculum materials.

Teachers can also *replace or revise* the formal curriculum or materials in terms of format, duration, and order. This occurs when teachers allocate more or less time to a topic than specified in the curriculum or when they change the order of topics in the official curriculum.

These curriculum adaptation patterns can also be applied to SBCD in German vocational schools, even though such a transfer remains conceptually limited. Teachers in vocational schools likewise *omit* certain content or competence objectives – often because they perceive them as outdated or irrelevant. Thus, omitting content can contribute positively to the quality of the school-based curriculum, but it can also have adverse effects, depending on the rationale and consequences of the omission. Introducing new content or supplementing existing teaching resources is a fundamental aspect of teachers' professional practice in VET. This is particularly relevant given the rapid changes in the economic and professional world and the resulting shifts in occupational requirements. The concept of *productive curriculum reception* (Sloane, 2001, 2003; see Chapter 3.1) explicitly encourages teachers to engage in such practices. Furthermore, teachers are expected to make informed decisions regarding the focus areas and the specific profile of the school-based curriculum. From the perspective of SBCD in VET, replacing or revising content appears to be a common and legitimate practice. It is often considered entirely appropriate to substitute certain competence objectives outlined in the curriculum with others, particularly in response to the specific needs or learning conditions of a given learner group.

5 Framework for Teachers' Curriculum Literacy

As the theoretical reflections indicate, teachers are granted considerable professional autonomy and responsibility to engage in *productive curriculum reception* and to make well-founded curricular decisions. However, the necessary competences seem to be underrepresented in current models of professional teacher competence. Baumert and Kunter (2006) have established the dimensions of (1) general pedagogical knowledge, (2) subject-matter content knowledge, and (3) pedagogical content knowledge as central competence dimensions. However, Shulman (1986, 1987) identifies further relevant dimensions in his reflections on knowledge growth in teaching on which the concept of Baumert and Kunter (2006) is based, including curriculum knowledge, knowledge about learners and knowledge about the educational context. We aim to highlight these competence dimensions as important aspects of professional teacher competence. Therefore, the focus is on identifying a curriculum-related knowledge and action base that interacts with other competence dimensions.

In this regard, we intend to conceptualise this bundle of competences under the term *curriculum literacy* (CL). Furthermore, we seek to employ the concept of CL within the context of SBCD and *productive curriculum reception* in vocational schools in Germany and thereby address the systemic and curricular particularities of vocational education. For this purpose, we use a competence-theoretical approach (Bleck et al., 2022) in which competence areas and knowledge dimensions are defined, that are important or necessary for mastering these tasks. Therefore, we are guided by the model for CL in initial teacher preparation (Marek et al., 2024), which we will present first (Chapter 5.1), before introducing our concept based on the theoretical reflections so far (Chapter 5.2).

5.1 Curriculum Literacy in Initial Teacher Preparation (Marek et al. 2024)

Before examining the concept of CL, we briefly approach the underlying terms. The term 'literacy' is widely used in academic discourse, in particular in combination with other concepts like AI literacy, financial literacy, or health literacy (Hug, 2019). Hence, the term moves beyond its original meaning of reading and writing ability and can be understood as basic knowledge or competence of a particular domain. Thus, 'literacy' is a multidimensional construct that describes the ability to understand, critically reflect on, and apply information in a particular field in order to participate actively and responsibly in it. In this paper, literacy refers to the field of 'curriculum'. As has already become apparent, we use 'curriculum' in a broad sense from a didactic reception perspective. A curriculum is a framework for organising the goals, contents, and learning processes of education within a particular educational context. However, it is of limited value to consider the terms in isolation, as they can only be understood in relation to each other. To apply this specifically, the concept of CL is based on the use and implementation of curricula and curriculum materials in curriculum-oriented countries. According to Aslan (2019), CL can be defined as

> understanding structure and characteristics of the curricula; revealing the relationship among the dimensions of the curriculum-acquisition/ target, content, learning-teaching process and assessment as well as understanding the consistency between these dimensions; determining whether these dimensions are prepared in line with the requirements of the age and whether educators are prepared considering the cultural characteristics of the curriculum. (p. 974)

More concisely, CL "includes the skills related to the awareness of all activities in the meaning, implementation, and evaluation dimensions of the curriculum" (Dilek & Taşgın, 2023, p. 48). Thus, it is a matter of consciously applying the curriculum materials and the corresponding curricular decision-making skills (Steiner et al., 2018). So, even if high-quality curriculum materials are available, teachers need the ability to make "pedagogically fruitful use" of those materials (Cohen et al., 2003, p. 125). This, in turn, corresponds to Klafki's (1995) approach to the didactic analysis of curricula as the core of preparation of instruction (Deng, 2025).

Due to the assumed importance of CL and its development in teacher education, Marek et al. (2024) surveyed literature related to curriculum, curriculum literacy and teacher education in curriculum-oriented countries and proposed a model for CL in initial teacher preparation. The model focuses on four guiding questions: (1) *What* materials and practices align with learning trajectories set out in state or national standards? (2) *How* is the curriculum selected, curated, created, evaluated, and enacted? (3) *Who* engages with the curriculum regarding the role of teachers' identities in shaping enactments of curriculum, and (4) *why*? This last question considers the connection of materials to learners' communities, languages, cultural practices, and histories. Furthermore, the model covers three dimensions, each of which integrates knowledge components and practice – the latter understood as an applied method or strategy.

- *Teacher Identities*. Knowledge: Understanding how one's personal beliefs, experiences, and identities influence one's curricular decisions. Practice: Reflecting critically to cultivate curriculum-focused commitments.

- *Learners and Communities*. Knowledge: Understanding educational realities and curriculum-related inequities that impact learners and communities. Practice: Contextualizing curricular decisions.
- *Materials*. Knowledge: Understanding quality as academic rigor, cultural responsiveness, and localised meanings of quality. Practice: Evaluating instructional materials along multiple dimensions of quality.

The framework of Marek et al. (2024) acknowledges the role of teachers and their identity in the implementation of curricula. It also emphasises the different prerequisites and conditions of learners. Furthermore, the curriculum material is set as a central foundation that must be understood and evaluated. However, the framework does not address the need for school-based development of curricular products and elements or the requirement for cooperative discourse among teacher groups. Of course, the model cannot capture the specific conditions of German VET. However, the model proposed by Marek et al. (2024) may serve, in its basic orientation, as a foundation for developing a more specific framework for SBCD in German vocational schools, as teacher identities also emerge as highly relevant in this context.

5.2 Curriculum Literacy in German Vocational Schools

In our draft of CL for vocational schools in Germany, we retain the central dimensions of the model proposed by Marek et al. (2024) while introducing some modifications that seem better suited to our context as well as expanding the dimensions.

Since the curricula relevant to vocational schools in Germany are considered open and do not contain specific instructional materials, we rename the dimension 'Materials' as *(I) 'Curriculum*'. In our understanding, this can include official curriculum frameworks and supporting materials as well as other curricular products and references.

The dimension *(II) 'Teacher Identities*' highlights the aspect of understanding how teachers' personal beliefs, experiences, and stances influence curricular decisions. We retain this dimension and interpret it particularly regarding the cooperative and critically reflective attitudes and dispositions required of teachers in the context of their curricular work.

With the dimension 'Learners and Community', Marek et al. (2024) highlight the importance of the learning subjects and the educational realities they experience. This emphasizes that curriculum development must also be undertaken from the learners' perspective. For vocational education, it is additionally essential to consider the occupational field as well as the regional and institutional specificities. Against this background, our proposal includes the dimension *(III)* '*Learners and Site-Specific Conditions*', which we further differentiate into the sub-dimensions '*Learners*', '*Vocational Schools*' and '*Occupational Field*'.

In line with Marek et al. (2024), also within our conception of CL, professional knowledge constitutes a central component. In this context, we build upon the established distinction in cognitive psychology (Anderson et al., 2004) between *(a) declarative knowledge (knowing that)* and *(b) procedural knowledge (knowing how)*. To this framework, we add a further metacognitive dimension (Veenman et al., 2006) on an intermediate level, which we term *(c) reflective knowledge (knowing why/when)*. In summary, the identified dimensions and types of knowledge result in the following matrix (Table 1).

Table 1: Teachers' Curriculum Literacy in German Vocational Schools

	I. Curriculum	II. Teacher Identities	III. Learners and Site-Specific Conditions		
			Learners	Vocational School	Occupational Field
a. Declarative Knowledge					
b. Procedural Knowledge					
c. Reflective Knowledge					

In the following, we will provide a more detailed account of the three dimensions and illustrate them with *examples* of specific competence requirements.

I – Professional knowledge concerning the dimension 'Curriculum':

- *I a – Declarative knowledge:* Knowledge of curricular foundations, structures, competency goals, and occupational profiles (curriculum-based knowledge), as well as curriculum-theoretical knowledge, including familiarity with theories of curriculum analysis, sequencing, development and the documentation of an annual curriculum plan.
- *I b – Procedural knowledge:* Ability to interpret and further develop curricular products in a site-specific, context-sensitive, and cooperative manner, ensuring coherence, multidimensionality, creativity, and pragmatism, while critically balancing learners' needs, institutional constraints, and educational standards.
- *I c – Reflective knowledge:* Ability to critically and constructively revise curricula on the basis of knowledge of learners and site-specific conditions, with attention to educational potential, defined occupational profiles and focal areas, expected levels of demand, the timeliness and relevance of references to the professional world, learners' life-worlds and disciplinary knowledge (subject-matter content knowledge as well as vocational content knowledge), as well as to potential inconsistencies, omissions, ideological biases, and cultural requirements.

II – Professional knowledge concerning the dimension 'Teacher Identities':

- *II a – Declarative knowledge:* Knowledge of theoretical models of teacher cooperation, educational process design, project management, and the implementation of educational innovations.
- *II b – Procedural knowledge:* Ability to establish cooperation at the level of the educational track by distributing roles and responsibilities, to develop shared understandings of working methods and processes, and to create feedback loops and evaluation concepts.
- *II c – Reflective knowledge:* Ability to conceive curriculum work as a core element of professional practice and as an iterative process, to transcend disciplinary logics and integrate diverse perspectives, to recognize curriculum as a medium for communication, to assume responsibility

for curricular innovation, and to critically reflect on routines, attitudes, biases, and cultural challenges.

III – Professional knowledge concerning the dimension 'Learners and Site-Specific Conditions':

- *III a – Declarative knowledge*: Knowledge of the target group (e.g. biography, qualifications, strengths and weaknesses, and cultural diversity) and of the institutional context, including the role of the school, the teaching staff, available resources, and region-, occupation- or company-specific characteristics.
- *III b – Procedural knowledge:* Ability to apply diagnostic procedures, align curricular decisions with both identified learning needs and educational standards, develop organizational structures and networks, and continuously update practical and occupational knowledge.
- *III c – Reflective knowledge*: Ability to make curricular decisions in an unbiased manner and in the best interests of the learners, to integrate feedback from companies while critically examining its functionalist orientation, and to maintain awareness of the various competence domains within the teaching team.

These illustrative insights into (possible) competence requirements in the sense of CL make it clear that teachers' curricular work is highly demanding and multidimensional (Tramm & Casper, 2021). It also becomes evident that teacher teams are confronted with various fields of tension in which curricular decisions must be considered carefully and well balanced (e.g. individualisation – standardisation, lifeworld orientation – occupational orientation, subject-matter expertise – teamwork within the educational track). As an overarching competence, the cooperative weighing, negotiation and review of curricular decisions thus emerge as essential (Sloane, 2004; Tramm & Naeve-Stoß, 2020). The dimension of teacher identities plays a particularly significant role in this regard, requiring a fundamentally discourse-oriented, critically constructive, and cooperatively minded attitude.

Based on the theoretical reflections and the adapted CL dimensions, we conceptualise CL as follows: *Curriculum Literacy can be understood as the ability to design, implement, and evaluate site-specific curriculum products tailored to a particular educational track at school level. This constitutes a form of School-based Curriculum Development that is grounded in teachers' professional stance, characterised by a capacity for critical reflection on curricular foundations, an attitude that fosters teacher cooperation, and the ability to create curricular products such as annual plans and learning scenarios. Such work requires professional knowledge (declarative, procedural and reflective) of the curriculum and its subject content, the relevant occupational field, the learners concerned, and the specific characteristics of the school context.*

6 Conclusion

The aim of this article was to (1) *outline the role and relevance of teachers' curriculum literacy (CL) for VET teachers* and to (2) *propose a framework for CL in the context of SBCD at German vocational schools*. To this end, we illustrated the fundamentals of SBCD in Germany. We then presented different perspectives on curriculum development in German vocational schools and discussed approaches to curriculum use, interpretation and adaptation through teachers. On this basis, we proposed a framework guided by the model of Marek et al. (2024).

At this point, it should be emphasised that, although we have focused on competences for SBCD in vocational schools as part of the dual apprenticeship system, SBCD and thus CL likewise are necessary in other school types in the German VET system. This is particularly evident in the domain of training preparation (*Berufsausbildungsvorbereitung*) within the transition system (Frehe & Kremer, 2018; Frehe-Halliwell & Kremer, 2023). Furthermore, some principles of the learning field concept are also being transferred to other types of vocational schools. For example, they are fundamental for system-coordinated curriculum development in North Rhine-Westphalia (Buschfeld et al., 2013) and have recently been adopted in specialist schools for social services in Saxony (Stirner, 2026). This underscores the importance of CL for many areas of school-based vocational education.

Despite its draft status, the framework could be valuable in (initial) teacher education in VET, helping to promote and reflect CL development. It can therefore be used for the didactic education of teachers. Exploring the theoretical foundations once again encourages broadening the perspective on lesson planning to include the educational track and extend didactic considerations to curriculum work at school level (Sloane, 2021). Consequently, teachers' didactic work should be viewed more broadly as the cooperative development of curricula in vocational schools – for which they in turn need CL. This perspective must find its way into teacher education.

Furthermore, the literature on SBCD agrees that teachers' professional development and in-service training within schools are of great importance (Kelly, 2004; Lipsmeier, 2015; Skilbeck, 2005). "In short, there can be no curriculum development without teacher development" (Kelly, 2004, p. 118). That is why SBCD and teachers' professional development can be seen as two coupled processes. So, there is the assumption that teachers who indulge in group activity with the aim of improving their practice or revising the curriculum "undergo a process of professional growth" (Keiny, 1993, p. 37). That means SBCD not only creates the need for professional development in initial and in-service teacher training, but it also creates processes of professional development in curriculum practice (Keiny, 1993; Klafki, 1975; Sloane, 2004). So, although CL must be integrated into teacher training, it is also developed through the activities of teachers. However, this requires the establishment of conditions that enable teachers to undertake a cooperative curriculum practice in vocational schools. Therefore, it is crucial that teachers receive every possible support and the necessary institutional conditions and resources (Fullan & Pomfret, 1977; Karakuş, 2021; Kremer & Sloane, 2001).

With our draft of teachers' CL in German vocational schools, we have laid the foundation for a discussion that goes beyond merely pointing to the high competence requirements associated with SBCD. We put forward a theoretical and conceptual proposal for how CL could be differentiated within a competence framework. What our concept emphasises from a theoretical perspective, however, is the necessity of considering curriculum work within a broader context. In a broad understanding of curriculum work at school level (SBCD), it is about more than curriculum-based knowledge and curriculum-theoretical knowledge. The influence of the role, attitude, and routines – both as an individual teacher and as a member of a teacher team – has a significant impact on curriculum work. At the same time, vocational education must always consider both the needs of the individual learner and the demands of the profession, including the inherent subject-specific references. This complexity gives rise to tensions that teachers must be able to discern and respond to with careful consideration. Furthermore, it should be noted that CL becomes all the more significant in the present age in which living and working environments and professional requirements are changing rapidly (Garnitz et al., 2024; Lorenz et al., 2025), democratic values are increasingly being called into question (Donner & Hartmann, 2024), and teachers are entering

schools through alternative training pathways (Arndt, 2022; Geisler et al., 2025). These developments and their interrelations underscore the importance of CL for teacher education at all levels.

Even though there are some relevant implications arising from the considerations on teachers' CL, limitations for the proposed concept must also be noted. First, it can be questioned whether CL really involves different types of knowledge and competence dimensions, or whether other framings (e.g. the distinction between material and formal competence areas) might be more appropriate. In addition, the international CL debate – with its focus on dealing with instructional material and curricular decisions based on this – is only partially compatible with the debate on SBCD in German vocational schools, which is didactically oriented. Furthermore, the different theoretical perspectives on SBCD as well as the praxeological approaches are difficult to integrate into a coherent framework because they are based on diverse assumptions about the constitution of the curriculum. Thus, it was not possible to link to any other models of professional competences for teachers. And finally, no empirical findings could be integrated into the framework, as no evidence is available to date on the competences of teachers at vocational schools in the context of SBCD. Nevertheless, the conceptual reflections could incorporate some findings from small-scale qualitative studies and model project research on SBCD in the context of the learning field concept.

This leads to some desiderata in research and theory development. The proposed framework can be further developed by differentiating and describing the competence dimensions in more detail. Already in its current stage, the framework can be included in further theoretical reflections of the teachers' role in SBCD in German vocational schools. As has been pointed out, there is a lack of evidence on teachers' competences in SBCD in German VET. Therefore, future research could examine the characteristics of teachers' CL in vocational schools. The framework can be used as a foundation to develop an instrument for this purpose. Finally, design-based research studies would be particularly useful to design, systematically support, and evaluate (in-service) teacher training programmes for CL using the framework.

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