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To cite this article: Fenna Swart, Rick de Graaff, Jeroen Onstenk & Dubravka Knèzic (2018) Teacher educators' conceptualization of ongoing language development in professional learning and teaching, *Professional Development in Education*, 44:3, 412-427, DOI: [10.1080/19415257.2017.1345775](https://doi.org/10.1080/19415257.2017.1345775)

To link to this article: <https://doi.org/10.1080/19415257.2017.1345775>



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Published online: 14 Jul 2017.



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Teacher educators' conceptualization of ongoing language development in professional learning and teaching

Fenna Swart^a, Rick de Graaff^a, Jeroen Onstenk^b and Dubravka Knèžic^c

^aLanguages, Literature and Communication, Universiteit Utrecht, Utrecht, The Netherlands; ^bEducation and Innovation, Hogeschool INHOLLAND, Haarlem, The Netherlands; ^cFaculty of Education, Hogeschool van Amsterdam, Amsterdam, The Netherlands

ABSTRACT

Sociocultural and dialogic theories of education have identified the need to integrate both pedagogical content and language knowledge into teachers' professional development to promote effective interaction with students about subject content. In this intervention study, a meta-perspective on language was developed to understand how experienced teacher educators ($N = 29$) conceptualize ongoing language development in professional learning and teaching (referred to as language-developing learning in this study) as part of their pedagogical content knowledge. The data were analysed using content analysis. Language-developing learning was mainly conceived as teacher-oriented professional development. In this process, the language aspect was regarded not only as a tool that applies regulatory and explanatory language but also as a target that connects academic knowledge and interpersonally oriented language. The results increase our awareness of teacher educators' practical knowledge of academic and interpersonal language in specific disciplinary contexts of teacher professional development in higher education.

ARTICLE HISTORY

Received 14 October 2016
Accepted 18 June 2017

KEYWORDS

Professional development; teacher educator; language across content; participatory learning; Socratic dialogue

Introduction

In sociocultural theory, language is an important source of learning, as it is 'the most ubiquitous, flexible and creative of the meaning-making tools available' (Mercer and Littleton 2007, p. 2). Following Vygotsky (1978), learning is appropriated through social interaction and mediated by language. From this perspective, classroom interaction is of great importance. Within this context, participation in interaction is not only regarded as an important tool for learning but also defined as a type of learning by itself (Sfard 2001).

In socioconstructive theories that consider language as a cultural tool, only limited evidence of knowledge development has been produced (Mercer and Howe 2012). Studies have indicated that knowledge development becomes more actively constructed and exchanged through sociocultural interactions involving learners within specific social settings (Kumpulainen *et al.* 2014). In studies of conceptual change, Mason (2007) explained how research has been mainly based on a constructivist and cognitive theory of learning and development. Only recently has sociocultural theory become more influential. Greeno and van De Sande (2007) used both cognitive and sociocultural concepts,

CONTACT Fenna Swart  fenna.swart@inholland.nl

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such as ‘information and participation structures’ and ‘perspectival understanding’, respectively. From the perspective that concept development can be analysed only through common knowledge activity, Greeno and van De Sande (2007) identified conceptual change with conversational change and regarded knowledge as a shared attribute based on communities of practice. From recent studies of communities of practice, we know that learners are more likely to challenge their existing beliefs about concepts during processes of language learning within challenging communicative situations (Lantolf *et al.* 2015) where, for example, their use of language vocabulary is evaluated and compared with that in earlier stages of development. In a study of conversation analysis of classroom discourse, Ohta (2001) claimed that when learners work together, the group develops greater expertise than any of the individuals involved (p. 76). Swain (2000) made similar claims about ‘collaborative dialogue’ through the process that she termed ‘linguaging’ (Swain 2009).

Integrating the ‘teaching of language and content in the classroom in ways that can bring about the learning of both’ is a task that teachers should generally be able to achieve (Hoare *et al.* 2008, p. 254). Ongoing language development in the professional learning and teaching of teachers and of teacher educators is therefore essential to generate classroom interaction and subsequently stimulate mutual involvement between teacher and students.

Exploring ongoing language development in content-specific contexts is not new. Studies of language-oriented approaches of content learning were originally based on second- and foreign-language teaching (Snow and Brinton 1997, Echevarria *et al.* 2004) and aimed to support learners’ subject-specific vocabulary (Den Brok *et al.* 2010). This emphasis led to language-based pedagogies for teaching content in primary, secondary and vocational education (Echevarria and Vogt 2010, Love 2009, Mercer 2010, Gibbons 2009), defined as a way of teaching in which explicit language goals were established along with content-specific learning goals (Hajer *et al.* 2000). As a result of the preliminary positive learning outcomes, this language-oriented trend was further developed in teacher education whereby forms of language-based professional education were incorporated into the curriculum. In response to this development, there was a growing consensus regarding the importance of integrating language with content-specific content (Lyster and Ballinger 2011), based on the view that when content-specific meaning was constructed through participation in interaction, everyday language would progressively transform into forms of academic language (Gibbons 2009). Nonetheless, from a broader perspective, with regard to the workability in everyday classroom practice, the practicality of such an integrated approach for teacher educators largely remained unknown.

Teacher education has been considered a discipline with its own specific knowledge base concerning how students understand disciplinary concepts (Wenglinsky 2002, Darling-Hammond and Bransford 2005, Darling-Hammond 2006). This knowledge base has been called ‘pedagogical content knowledge’ (PCK) (Shulman 1986) and has been conceived from teacher educators’ interpersonal and academic practice and the use of dialogue as an integral part of their practical knowledge. This practical knowledge has also been characterized as teacher educators’ personal theory of classroom practice (Hen and Sharabi-Nov 2014) and described as interpretive and situational (Freeman and Richards 1996) based on their theoretical and experiential knowledge in classroom practice. Love (2009) argued that teacher educators need to develop an understanding of language and literacy in learning as part of their PCK. At the same time, a study found that teacher educators often appear unable to address the specific language and literacy demands of their disciplinary teaching in a conscious and explicit manner (May 2007). These developments have prompted calls to meet the needs of both prospective teachers and experienced teacher educators (Darling-Hammond 2006) by making changes to teacher education programmes and providing more opportunities for the language-oriented professional development of experienced teacher educators (Moats 2009).

Teacher educators can play a key role in refocusing teaching towards an understanding of language development for learning, i.e. in using the professional skills of academic and interpersonal language to enhance interactive and subject-specific classroom practice. For this purpose, it was necessary to understand how teacher educators conceptualize language-developing learning and teaching. We proposed that for teacher educators to develop this conceptualization, they must become aware of

their practical knowledge of language before they can facilitate student learning. Accordingly, we needed a meta-perspective on how teacher educators conceptualize their own language-developing learning for interactive classroom practice. With this consideration in mind, we aimed to explore the following question: ‘How do teacher educators conceptualize language-developing learning for classroom interaction?’

The current study was based on teacher educators’ practical knowledge of language, necessary for integrating content- and language-oriented pedagogies. In this context, teacher educators’ conceptualization of ongoing language development in professional learning and teaching was considered from three perspectives – the ‘agent’ and ‘process’ of learning and the ‘objective’ of language – guided by Love’s (2009) language approach in literacy pedagogical content knowledge (LPCK) and Sfard’s (1998) metaphors of learning. According to Sfard (1998), the acquisition metaphor (AM) represents learning as the acquisition and development of knowledge, whereas the participation metaphor (PM) signifies learning as an activity and interaction as an integral part of the community. In this context, the PM is considered a ‘linguistic turn’ (Brown 2005) in which learning occurs when the learner participates in various activities through language. In Love’s (2009) three-component approach, LPCK focuses on understanding how language can best be structured for effective learning through language strategies and forms to address subject content better for different subject areas.

In the current study, three perspectives were used to determine the learning orientations of participants indicated in the definitions: (1) for whom the learning was intended (agent of learning); (2) how learning was achieved (process of learning); and (3) for what purpose language was learned (objective of language learning). With this method, Love’s (2009) language approach and Sfard’s (1998) metaphors for learning directed our analysis of learning and interaction.

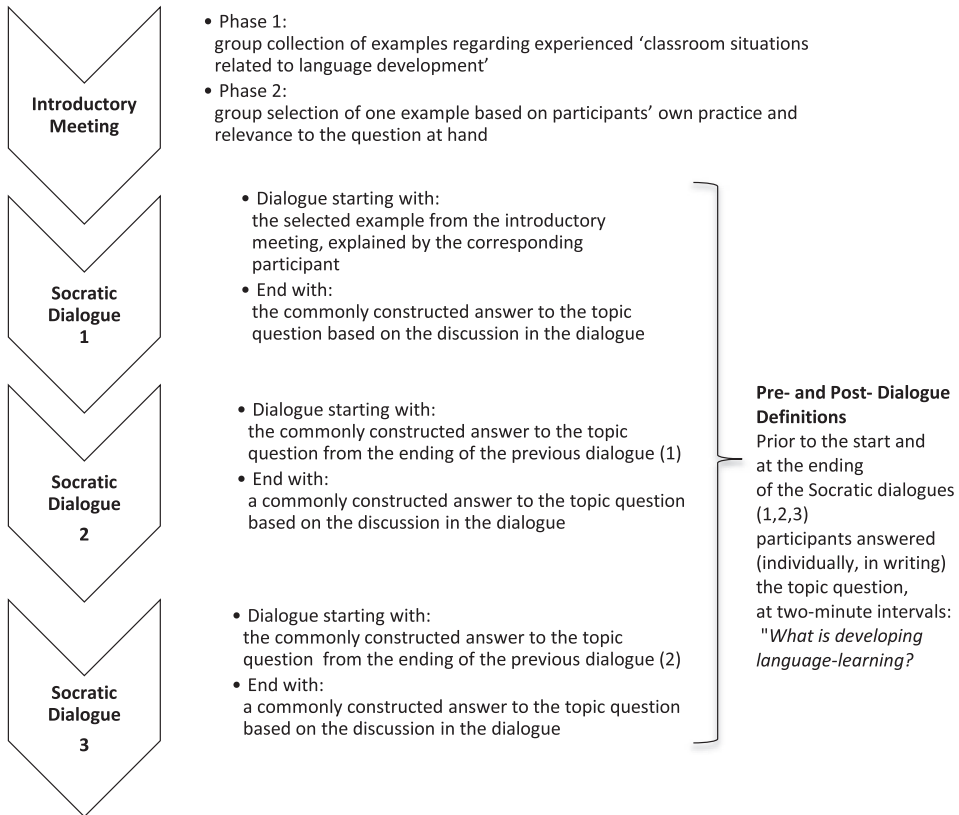
Method

Context and participants

This study was conducted with 29 teacher educators in four teacher-training institutes at universities of applied sciences in the Netherlands during the second phase of a 3 year professional development programme for language awareness and language-developing teaching. The type of sampling used was purposeful and non-probabilistic (Cohen *et al.* 2007). We selected four higher education teacher-training departments from a larger number that had been involved in previous research on this topic (Swart *et al.* 2016). This sampling resulted in four groups of volunteer teacher educators with a minimum of 2 years’ teaching experience in languages ($n = 10$), social sciences ($n = 14$) and sciences ($n = 5$) (Table 1).

Table 1. Study participants.

Group	Departments	Subjects	Female	Male	Total participants	Average work experience (years)
1	Social Sciences (SS)	Sociology (8)	4	4	8	14
2	Languages (L), Social Sciences	Language (Dutch) (8), Economics (1)	9	0	9	12
3	Sciences (S), Languages (L)	Technical Studies (4), Language (Dutch) (2)	3	3	6	19,3 years
4	Sciences (S), Social Sciences (SS)	Mathematics (1), Geography (1), Economics (1), History (1), Education (1), Religion (1)	1	5	6	14
Total	4	11	17	12	29	15

Table 2. Set-up of the intervention.

Intervention

We conducted a series of three Socratic dialogues with each of the four teacher groups. Previous research showed the Socratic dialogue to be a comprehensive method of generating concepts and connecting teachers’ teaching practice with the theoretical concepts that they learn (Knežić *et al.* 2013). In this study, Socratic dialogues were used in conceptual group discussions in which participants were asked, both as a group and individually, to answer the fundamental key question for the purpose of gaining new insights (Yang *et al.* 2005, Pihlgren 2008, Knežić *et al.* 2013) and experiencing the development of the common construction of knowledge (Mercer 1995). The intervention with each of the four groups involved one introductory group conversation and three Socratic dialogues. During the introductory group conversation, the purpose and procedure of the Socratic dialogues were explained. The dialogues focused on the question ‘What is language-developing learning?’ and were led by the first author as the group facilitator. Each of the Socratic dialogues lasted 1.5 h on average.

Instruments and procedure

The introductory conversations consisted of two phases: (1) a group collection of examples with regard to recently experienced ‘classroom situations related to language development’, followed by (2) a group selection of one example, based on two recognition criteria: participants’ own practice and relevance to the question at hand. The first dialogue started with the selected example. The second and third dialogues started with the commonly constructed answers from the previous dialogue. Before and towards the end of each dialogue, participants were asked (individually and in writing) to answer the same topic question: ‘What is language-developing learning?’ at 2 min intervals. The

responses collected at this stage were called the pre- and post-dialogue definitions. In the remaining 10 min, the participants jointly constructed an answer to the topic question (referred to as ‘commonly constructed answers’ in this study) based on what had been discussed in the dialogue. The dialogues were conducted by a facilitator based on agreed-upon rules about the use of listening comprehension techniques, such as taking short breaks between each speaker and paraphrasing before speaking to slow down the conversation and optimize listening to each other. The individually written pre- and post-dialogue definitions were collected by the researcher, and the commonly constructed answers were noted on flipcharts in view of the entire group (Table 2).

Analysis

The units of analysis, consisting of 174 pre- and post-definitions (29 ‘participants’ × 2 ‘pre and post’ × 3 ‘Socratic dialogues’) and 12 commonly constructed answers (4 ‘teacher groups’ × 3 ‘Socratic dialogues’) related to the topic question, were examined using content analysis (Boschhuizen 1982, Novak and Cañas 2008) with the aid of ATLAS.ti 7 (Scientific Software Development, Berlin, Germany).

The analysis was based on a coding scheme consisting of the three key aspects of language-developing learning: ‘agent’, ‘process’ and ‘objective’ (Table 3). The agent consisted of three sub-codes: (1) teacher (T), i.e. teachers’ own learning/(self-)awareness of learning; (2) student (S), i.e. the learning of the student(s) or other(s); and (3) teacher and students or others (TS), i.e. the learning of both the teacher and the student(s) and/or other(s) (colleagues or undefined). The process consisted of: (1) acquisition (A), focusing on knowledge development and enrichment through the acquisition of specific knowledge; (2) participation (P), focusing on knowing and learning by participating in various communities; and (3) acquisition and participation (AP), focusing on the combined form of both the development of knowledge and knowing as an integral part of the community. The objectives consisted of: (1) language-oriented learning (LL), meaning language as a target with a focus on academic and basic interpersonal communication; (2) subject-oriented language learning (SL), meaning language as a tool to transmit subject content with a focus on the manner in which interaction and communication occur with regard to the subject content; and (3) the combined orientation (LLSL), meaning language as both a tool and a target (Table 3). We first analysed the emphasis on learning in all individual pre- and post-dialogue definitions. Subsequently, we analysed the commonly constructed answers to the topic question compared to each group’s selected practical examples.

Three of the authors independently coded four rounds of both randomly selected (each one coded approximately 20%) pre- and post-dialogue definitions and the selected practical examples to determine inter-rater reliability (Cohen’s kappa). The units of analysis concerned the definitions for each session for each participant. The coding showed a sufficient level of inter-rater reliability, with Cohen’s kappa ranging from 0.64 to 0.82. Between the first and second rounds, the formulations of numerous criteria were refined to increase inter-rater agreement.

Results

This section discusses the outcomes of the analysis of the definitions and of each group’s commonly constructed answers. Selected examples were used both to compare the focus in the beginning situations (examples) with the focus in the final situations (commonly constructed answers) and to contextualize the obtained results.

Key aspects of language-developing learning

The key aspects of language-developing learning were determined by examining the explicitly or implicitly stated ‘agent’ and ‘process’ of learning and indications about the ‘objective’ of language. Below, we discuss each of these aspects as they emerged from the analysis of all pre- and post-dialogue definitions (Table 4).

Table 3. Coding aspects in language-developing learning.

Categories	Codes	Subcategories and explanation
Key aspects		Learning (1), Process (2) and Language (3) orientation focused on
1. (Agent of learning)	T	T (teacher) teacher/(his) own learning/(self) awareness of his learning
	S	S (student) learning of the student(s)/of (the) other(s)
	TS	TS (teacher and colleagues or teacher and student(s)) learning of both the teacher and the student(s) and/or the other(s) (colleagues or undefined)
2. Process orientation (Process of learning)	A	A (acquisition): focus on knowledge and enrichment through the acquisition of something; emphasized in the acquisition metaphor (AM) (Sfard 1998)
	P	P (participation): focus on knowing and community building by participatory learning via social processes and activities; emphasized in the participation metaphor (PM) (Sfard 1998)
	AP	AP (acquisition and participation): focus on individual and personal practical knowledge and collective knowing and development
3. Language orientation (Objective of language)	LL	LL (language-oriented learning)
	SL	SL (subject-oriented language learning): language as a tool; focus on the manner in which something is communicated with regard to the subject content, based on language-oriented learning (Swart <i>et al.</i> 2016) and emphasized in LPCK of Love (2009)
	LLSL	LLSL (language- and subject-oriented learning) Language as a tool and a target. Focus on language as both a target and a tool

Table 4. Key categories and abbreviations in language-developing learning.

Key categories	Abbreviations	Explanation
1. Agent	T	Teacher
	S	Student(s)
	TS	Teacher and colleagues or teacher and student(s)
2. Process	A	Acquisition
	P	Participation
	AP	Acquisition and participation
3. Objective	LL	Language-oriented learning
	SL	Subject-oriented language learning
	LLSL	Language- and subject-oriented learning

Table 5. Agent of learning across the four groups in three Socratic dialogues.

	G1	G2	G3	G4	Total	M	STd
S	2	2	0	0	4	1.00	1.00
TS	27	18	22	14	81	20.2	4.81
T	8	8	14	20	50	12.5	4.79
Total	37	28	36	34	135	33.7	3.49

Agent of learning

To determine learning orientation, we examined the ‘agent of learning’ that was indicated in the definitions. Table 5 shows a summary of the mean frequencies (M) based on the series of three Socratic dialogues (SD1, SD2 and SD3) per group (G1, G2, G3 and G4), together with the total frequencies and standard deviation (STd) with respect to learning orientation.

The results show that for the agent of learning, the main focus was on the learning of the teacher educator and colleagues (TS 81), for example, as indicated by a participant 1preST¹ during the first round of questions before the first SD (1preST):

Table 6. Process of learning across the four groups in three Socratic dialogues.

	G1	G2	G3	G4	Total	M	STd
A	7	14	9	15	45	11.3	3.34
AP	14	13	19	9	55	13.3	3.56
P	16	2	8	10	36	9.00	5.00
Total	37	29	36	34	136	34.0	3.08

Table 7. Objective of language across the four groups in three Socratic dialogues.

	G1	G2	G3	G4	Total	M	STd
LL	11	10	14	19	54	13.5	3.50
LLSL	12	17	10	9	48	12.0	3.10
SL	13	4	9	5	31	7.60	3.60
Total	36	31	33	33	133	33.2	1.80

Complementing knowledge of language through interaction with different people who express and share their views on language with me. There is little or no mention of students' learning process in the definitions.

The process of learning

To determine process orientation, we examined the 'way of learning' as it was described in the definitions. Table 6 shows a mixed image that, with respect to the process of learning, shows a combination of 'individual improvement and participatory learning' (AP: 55) through 'awareness and reflection' (A: 45) and, to a lesser extent, via 'participatory learning' only (P: 36). For example, as stated by a participant:

A cyclical interactive process aimed at improving my teaching. This calls for awareness, becoming aware, openness and reflection with others. (3poDD)

Objective of language

To determine language orientation, we considered the 'objective of language' indicated in the definitions. Table 7 shows that the primary focus is language-oriented learning (LL: 54), which involves pedagogically oriented target language and the combined form (LLSL: 48) of language as both a target and a tool.

To answer the research question from the perspective of the objective of language, language orientation was further considered within the three subcategories of 'language-oriented learning' (LL), 'subject-oriented language learning' (SL) and 'language-oriented learning and subject-oriented language learning' (LLSL) (Table 8).

'Language-oriented learning' (LL) was considered a target to organize 'language-developing forms of interaction' (2poAR) as a 'purposeful process of interaction' (2poST). In this manner, learning was directed by 'personal and language-oriented differentiation' (3poJK). In 'subject-oriented language learning' (SL), language was considered a tool and used to communicate subject matter. The teachers are aware of their linguistic repertoire during the communication of the subject matter through a continuous monitoring of students' interpretation of the message: 'active listening and opening up remains very difficult' (1poBM), and 'you very quickly misunderstand each other. Real understanding is much more difficult to establish' (1poRB). The teacher develops language awareness by attention to the meaning of words, the use and interpretation of language, reflection and feedback, interaction and communication, and attention to formulating and understanding, as stated by a participant who applies active listening by 'tuning his language to the learning needs of the students and thus enhancing his teaching' (3preJK). In 'language-oriented learning and subject-oriented language learning' (LLSL), language was considered both a tool and a target. According to the participants, the use of language as a

Table 8. Objectives of language in language-developing learning.

Subcategories	Objective of language	Examples of features and actions	Description
Language-oriented learning (LL)	Language as a target	Applying meta-conversation; organizing language-developing conversation about the interaction Identifying key words and the use of jargon; organizing language-oriented support	The teacher works with various (meta) talk types in which is also spoken about interaction during discussions on subject content The teacher provides language support by naming relevant linguistic aspects in subject content and learning matters
Subject-oriented language learning (SL)	Language as a tool	Applying active listening; organizing listening comprehension techniques	The teacher is aware of his own communicative repertoire during the transfer of subject matter and checks how students receive and interpret his message. He is acting as a role model
Language-oriented learning and subject-oriented language learning (LLSL)	Language as a tool and a target	Applying language-oriented learning and acting; organizing knowledge regarding language goals and content goals	The teacher focuses on both communicating content matter and the development of language and knowledge during interaction

tool and a target occurred in activities such as language-oriented support, learning and action (Table 8). In providing language-oriented support, teachers' language is committed to 'supporting students' learning and reasoning during transfer of the subject matter' (3poDD). Language-developing learning and acting is 'a form of learning plus teaching that contributes both to language development (functional language) and to the learning of concepts and meanings' (3poAK). The first contributes to one's language, and the second contributes to one's knowledge. These contributions include the following: 'paying attention to the way in which words and phrases are understood and used in discussions on the subject matter' and 'explicating thoughts and forming logical strings of ideas' (1preAP). The process involves 'learning something (for example, counting or teaching) and while you are doing this, you are increasing your functional language skills' (2poIK).

Language-developing learning as conceptualized per group

This section discusses the results of the commonly constructed answers (three times per group) in the context of the selected example of practice per group (1, 2, 3 and 4) and across all groups.

Group 1

The starting question, as part of the chosen example from practice (Figure 1), focused on how the teacher (T) can better connect to students' prior knowledge via individual and collective knowledge development (AP) and language as a tool (SL). When we examine the listed commonly constructed answers below, we can observe that conceptualization proceeds from general to specific: 'understanding what you mean' and 'empathizing with one another' (AP, SL; commonly constructed answer 1) to 'awareness of one's own language use and focused communication' (A, LLSL) and 'refinement repertoire (P, LLSL) (commonly constructed answers 2 and 3). The difference in focus primarily occurs within process orientation.

- (1) Language-developing learning (LDL) is meant to ensure that someone else understands what you mean, where 'ensuring' means you empathize with one another, taking into account the possible interpretation of your consciousness. (T, AP, SL)
- (2) LDL is awareness of one's own language use, leading to the expansion of one's repertoire. (T, A, LLSL)

In my classes in Social and Political Philosophy and Law, I often use concepts that are absolutely clear to me but not to my students. This problem occurs on two levels: one, students are not familiar with the term or even the description; and two, students are interpreting the terminology differently from the framework of another subject or everyday language use. Learning objective: How can I better tune into students' existing knowledge? How can I avoid terms that cause confusion?

Figure 1. Selected example from practice group 1.

- (3) LDL is learning to communicate more directly and is aimed at the expansion and refinement of your repertoire. (P, LLSL)

Group 2

The starting question from practice (Figure 2) focused on how teachers can learn to support their colleagues (TS) both by talking to them and by reflecting on conversations with them, not only via individual and collective knowledge development (AP) but also through language as both a tool and a target (LLSL). The commonly constructed answers listed below show a conceptual development with respect to an overall consistency of orientation and a specification of meaning: 'awareness of teaching behaviour' (AP) and 'language sensitivity and thinking' (LLSL) (commonly constructed answer 1) to a specification, i.e. 'a critical look at the impact of your speaking and teaching acting on learning both by yourself and the other person' (AP) (commonly constructed answer 2) and 'deliberate action aimed at thinking and transferring content and language skills' (LLSL) (commonly constructed answer 3).

- (1) Awareness of pedagogical acting aims to support language development in which language and thinking are related. (AP, LLSL, TS)
- (2) LDL involves thinking about support in the field of language and communication when teaching and learning about subject matter; with critical reflection on your own actions, you become aware of your own language and the effect of your linguistic and pedagogical actions upon learning about both yourself and the other person. (AP, LLSL, TS)
- (3) LDL involves acting deliberately as a teacher not only to think about and transfer content but also to develop language skills. (AP, LLSL, T)

Group 3

The starting question from practice (Figure 3) focused on how teachers (T) can increase their awareness during interaction to arrive at conceptual alignment via individual and collective knowledge development (AP) through the use of language as a tool (SL). In the commonly constructed answers listed below, the conceptualization shows a similar course with regard to a continuing consistency within language and process orientation and a further specification of connotation: 'the impact of language' (LL) (commonly constructed answer 1) to 'adjustment of language' (LLSL) (commonly constructed answer 2) leading towards 'efficient differentiation in language in interaction' (LLSL) (commonly constructed answer 3).

At the request of colleagues, a writing aid should be made for writing an article as an alternative to writing a research report. In conversation, the learning process of the colleagues gained momentum about the content and form of the text type, about boosting colleagues' thought processes and about what students can do with such a writing aid. Learning objective: What did you learn about how to support colleagues when you talked to them about the choice of such an article?

Figure 2. Selected example from practice group 2.

In a one-on-one situation with a student, I try to ask as many questions as possible to give space to the students' own learning. From a social constructivist perspective, I also posit statements or give my opinion in such discussions. Nevertheless, I have doubts about whether this is effective and not overly directed by me. How must I build a relationship with the student, either explicitly in the form of appointments or through directions to conduct this conversation in a productive manner? I notice that with some students, the period of time to get to know one another takes time, which is not always optimal. However, I think it is worthwhile to create a degree of chaos that will stimulate the student to think for himself. Learning objective: How do I determine the balance between demand and supply of information or feedback for the individual student? How can I actively guide this process and how do I stimulate critical thinking?

Figure 3. Selected example from practice group 3.

- (1) LDL is the awareness of opportunities and the impact of language (verbal/non-verbal, content/form) of the teachers within their various roles and the ability to reflect on this issue effectively (so that adjustments can be made). (T, AP, LL)
- (2) LDL raises awareness (and skills) in interaction by reflective practice, leading towards the adjustment of language in practice. (T, AP, LLSL)
- (3) LDL increases awareness in interaction with regard to effective differentiation in language. (T, AP, LLSL)

Group 4

The starting question from practice (Figure 4) focused on how the teacher (T) can translate theory into practice through collective development and activities (P) from the perspective of language as a tool (SL). In the commonly constructed answers listed below, development primarily moves within a process orientation: AP (commonly constructed answers 1 and 2) to P (commonly constructed answer 3): 'being conscious about (teaching) resources' (commonly constructed answer 1) to 'directing language-oriented learning by a constant explication of the interpretations' (commonly constructed answer 2) into a 'continuous, focused, conscious and systematic perpetration of language teaching interventions' (commonly constructed answer 3).

- (1) LDL is consciously managing your (teaching) resources (what am I doing/what am I not doing) in the learning of your own knowledge and skills through language; forms of communication; verbal/non-verbal and images; and where the use of implicit associative thinking and thinking patterns play an important role in the process of giving feedback. (T, LLSL, AP)
- (2) LDL is the cyclical process of consciously committing educational interventions to direct language-oriented learning (teacher and student) in communication with others, where images are translated into language and language back into images. This process can be performed through constant explication of the interpretations by the receiver. (TS, LLSL, AP)
- (3) LDL is the continuous, focused, conscious and systematic perpetration of linguistic pedagogical teaching interventions. (TS, LLSL, P)

Teaching situation: Engineering didactics 3: This is the final course for engineering students, in which they learn how to set up a cursory series of lectures. I wanted to talk for up to 45 minutes but it took me up to 75 minutes. I thought, how can I reduce my instruction by being very specific and accurate, because I wanted to enable students to get to work quickly, and individual interaction would start because each student designs his own context and series. I often work with models, requiring a transfer from model to practice. I felt a little pressure and stress because I poured a cascade of terminology over my students. I feel that I overloaded them with information. Learning objective: How do I translate educational models into targeted action through spoken language so that these students can design their own series of lectures?

Figure 4. Selected example from practice group 4.

Comparison

Each group used a language focus during the first dialogue similar to that used in the starting situation of the practical example (G1, G3, G4: focus on language as a tool; G2: focus on language as a tool and a target in both a practical example and the first SD). In three of the four groups (G1, G3 and G4), the language focus changed during the three interview stages from language as a tool in the example of practice to language as a target in the definitions and, finally, to a perspective on language as a tool and a target in the final definitions and commonly constructed answers. The language orientation of G2, both as a tool and as a target, remained consistent throughout the stages.

Discussion

Based on sociocultural and dialogic theories of education, we argued that there is a need to integrate both pedagogical content and language knowledge into teacher educators' pedagogical repertoire to facilitate effective interaction with students about subject content (Valdés 2005, Love 2009). In this context, a meta-perspective was developed to understand how teacher educators conceptualize language-developing learning for classroom interaction as part of their PCK. In the Socratic dialogues used in group discussions, the participants were asked, both as a group and individually, the fundamental key question to yield new insights. Based on the results, language-developing learning was primarily conceived as a teacher-oriented developmental process. In this process, language was regarded as not only a tool for applying regulatory and explanatory language but also a target that connects academic knowledge with interpersonally oriented language. To answer the research question, we first discuss how the participants conceptualized language-developing learning and then explore how this conceptualization further progressed.

Conceptualizing language-developing learning

In this research, we deliberately formulated the topic question as an open question that was not particularly focused on either teacher or student learning (What is language-developing learning?). The results show that teacher educators mainly focused on themselves, as opposed to their students or their teaching practice. This finding is notable as previous studies, assessing the importance of classroom communication for teacher educators' personal practical knowledge of language (Swart *et al.* 2017), showed that teacher educators' attention was predominantly devoted to student learning. This focus can be explained by the guideline of the Socratic dialogues, to try to reach consensus and then collectively construct answers to the starting question. An alternative consideration may involve the influence of the continuing professional development setting on the participants' awareness. Other similarities concern the language focus and objectives of language-developing learning. All of the groups continued the same language focus with which they began in the practical example (G1, G3 and G4: language as a tool; G2: language as a tool and a target). In three of the four groups (G1, G3 and G4), the language focus changed during the three dialogues. During the first dialogue, language-developing learning was broadly approached as a 'teacher-centred teaching method' for the purpose of acquiring knowledge and understanding and improving language skills. This method was conceived as instruction about subject-specific content, supported by language. This conception of language as an instrument is also prevalent in the literature. According to van de Pol and Elbers (2013), language in communication theory is merely understood as a means to achieve social goals. According to this view, subject-specific knowledge accompanies the acquisition of learning new words, phrases and other symbolic means to articulate that knowledge. This view is related to both generic and academic methods of reasoning and communicating and to the development of subject-specific terminology and arguments, based on the view of language as a tool and content as a goal. Subsequently, during the second dialogue, language-developing learning was primarily approached as a 'concept' from the perspective of language as a target, based on which the effects of language were examined with the

aim of enhancing mutual understanding (both during the intervention and in the classroom) of the content. During the third dialogue, language-developing learning was defined by comparing the previously discussed formulations and its translations to more abstract theories and generic models. At this stage, language-developing learning was included in the definitions that were also approached as an ‘intervention model’ for language-oriented education interventions, i.e. didactic actions with the aim of differentiating, in language and focused on the person, during interaction (G1, G3 and G4). At this final stage, language orientation was focused on language both as a tool and as a target. Love (2009) argued that an understanding of language in a learning disciplinary content contributes to the PCK covered in secondary-school teachers’ preparation. Drawing on the dual-focused educational approach of Llinares *et al.* (2012) and continuing the work of van de Pol and Elbers (2013) and Love (2009), our study yielded results substantiating the relevance of participants’ focus on themselves, more than their students, alongside the use of conscious and active language as both a tool and a target for interactive classroom teaching and professional learning of the experienced teacher educators. This approach expands their repertoire in addition to their PCK (Darling-Hammond 2006) and LPCK (Love 2009).

To interpret the differences between the groups, we also examined the group composition and subject-specific backgrounds of the participants. We noted a significant difference between G2 and the other groups (G1, G3 and G4). Unlike the other groups, G2 consisted of language teacher educators (and one economics teacher educator). The orientation of G2 to language as both a tool and a target remained consistent throughout the stages. This consistency proved to be different from that in the other groups, in which the orientation alternated as an either/or proposition between language as a tool and language as a target. This difference can be explained by the fact that G2 operated from a certain language-oriented knowledge base that, from the start, focused on two aspects, reasoning and communication, i.e. concepts of academic and interpersonal language as described by Schleppegrell (2012) and Cummins (2008). In the other groups (consisting of sciences, social sciences, languages and the combined group), the language orientation initially focused on language as a tool. These outcomes of language as a tool are in line with recent results of effective practices for support and scaffolding techniques and the use of teacher speech as an instrument for improving reasoning and understanding (Cummins 2008, Lee *et al.* 2013, Aalto and Tarnanen 2015). According to van de Pol and Elbers (2013), subject teachers believe that attention to language as a target is not part of their job but, rather, is the job of language teachers. Subject teachers’ attention is particularly focused on conceptual meaning in content.

In summary, the results show a conceptual development that primarily (in G1, G3 and G4) proceeded from *language as a tool* in the example of practice (by paying attention to the awareness of learning on language, a clear use of language, and instruments for translation and feedback) towards *language as a target* in the definitions (through awareness of person-oriented communication and instructional conversations) and, finally, to a perspective on *language as both a tool and a target* in the final definitions and commonly constructed answers (by improving the management of personal language aimed at the refinement of teachers’ repertoire).

Understanding language-developing learning

The participants considered language-developing learning primarily as teacher-oriented development through a combined approach of individual and collaborative learning activities. The teacher educators’ language-developing learning generally progressed through ‘raising awareness–development–use’ in different facets of verbal language use. The corresponding learning process in this context was directed towards the gradual development of a ‘language-aware’, ‘language-focused’ and ‘interpersonal and academic-oriented’ process (Table 9). ‘Language-aware’ was used when language as a tool was activated through ‘active listening’ to improve social interaction and student learning with regard to the subject content. This finding is relatively new. Most language research on professional teaching practice in higher education focuses on productive language skills, as in writing and speaking. To a certain degree, listening appears to be a forgotten skill. Nevertheless, in teacher educators’ top five most frequently

Table 9. Approach and objectives of language-developing learning.

Learning development/ Objectives	Language-aware	Language-focused	Interpersonal and academic-oriented
Language as a tool	Developing language awareness		
Language as a target	Learning to listen actively	Formalizing language- developing interaction	
Language as a tool and a target			Activating language- developing learning Activating language- developing acting

cited communication problems with their students, a lack of interactive listening skills is prominent (Rider and Keefer 2006, Bonne and Vrijders 2015). In addition, recent research shows that a teacher educator's lack of listening skills has a stagnating effect on the communication cycle necessary in classroom practice (Swart *et al.* 2014). 'Language-focused' was used when language as a target was implemented to communicate effectively and improve student learning and reasoning. This finding adds to previous research on how speech is used for learners' own learning and thinking (Webb *et al.* 2006, Mercer and Littleton 2007, Fisher and Larkin 2008). 'Interpersonal and academic-oriented' was activated when language as a tool and a target was used through academic- and interpersonal-oriented interaction to stimulate students' learning and reasoning through attention to language development. This outcome is in line with recent studies of effective teaching practices, of beneficial interactional strategies for students' individual reasoning and understanding of conceptual topics, that support the use of teacher speech as an instrument for improving students' thinking and knowledge (Cummins 2008, Lee *et al.* 2013, Aalto and Tarnanen 2015).

Conclusion

Language-developing learning is primarily conceived as teacher-oriented professional development to advance teachers' practical knowledge of academic and interpersonal language through language-aware and personalized educational interventions.

The results of this study show that teacher educators' conceptualization proceeded in most cases from 'language as a tool' through application of regulatory and explanatory language functions to 'language as a target' via interpersonal-oriented interaction and to 'language as a tool and a target' by connecting explanatory language with academic- and interpersonal-oriented language. We conclude that the teacher educators in this study developed an understanding of the roles of language in teaching and learning, to gain the appropriate language needed for effectively engaging students in activities across content areas. These processes begin by connecting to the students' different language resources and intentions already in place. Such practices support the development of academic and interpersonal language in the deployment of language, both as a tool and as a target, in the various content areas. The results of this study contribute to an increased awareness of teacher educators' practical knowledge of academic and interpersonal language in specific disciplinary contexts of higher professional teacher education.

Limitations and implications for future research

A main task of prospective teachers is to identify effective pedagogical principles that acknowledge and support the classroom as a subject-based and language-oriented environment (Love 2009). Our findings confirm that experienced teacher educators also face a similar challenge, and the results suggest a number of important questions that require more thorough exploration and understanding. First, in light of the outcome that better communication of the subject content potentially results from

the language-aware and language-active use of language as both a tool and a target, more research that assesses teacher educators' actions in their interactive classroom practice is needed. Secondly, the differences found between the language teacher educators and the other groups (sciences and social sciences) call for further investigation of subject-specific approaches to language focus and the scope thereof. In continuing the work of the present study involving experienced teacher educators, a more thorough examination is needed to explore how students perceive learning effects of teacher educators' language-developing learning during interactive classroom practice. Along these lines, the similarities and differences between the group responses in different subject-specific domains indicate a need for further research. Finally, there is a potential limitation of the various selected practical examples in the groups and their possible effect on the content and direction of the dialogues and, thus, on the pre- and post-dialogue definitions and commonly constructed answers.

In this study, the Socratic dialogues were considered not only a model for a conceptual process but also a developmental and pedagogical tool that participants could use to gain a better understanding of aspects of language-developing learning in the early stages of conceptual formation. One of the insights offered by a sociocultural perspective is that although the development of shared understanding takes time, it can be achieved (Mercer 2008, Nystrand *et al.* 2003). Sociocultural theory thus provides us with an appropriate frame for the development of a new field of enquiry related to conceptual understanding through dialogue in educational settings. In this frame, categories of learning and language are emphasized as a social and educational tool together with the teacher educators, modelling and scaffolding themselves and each other through self-regulated activity. However, the theoretical framework for understanding the relationship between language development and professional development in educational settings needs more attention. Much attention has been given to the definitions of forms and functions of classroom interaction related to the successful pursuit of educational goals for students in both group and individual work settings. Based on the current conceptualization of experienced teacher educators, an operational definition of language development is required that is applicable to their everyday classroom practice. Such work will further complement the literature on teachers or teacher educators as co-researchers in the analysis of classroom speech and interaction (Armstrong and Curran 2006, Hennessy and Deaney 2009). Intervention designs can be used to measure the differential effects of language focus and language use on language-developing learning and conceptual changes in teacher educators' practice.

Note

1. This code and the others following in the quotes below refer to 1: First Socratic Dialogue; pre: prior to the first dialogue; and ST: the initials of the participant.

Disclosure statement

No potential conflict of interest was reported by the authors.

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