

Using a sociocultural CLIL pedagogical model to develop CLIL

Josephine Moate

University of Jyväskylä. Department of Applied Language Studies and Faculty of Education

Abstract

This article argues for a distinct CLIL pedagogy which goes beyond FL learning and subject learning to consider the role of language at the very heart of learning. The article explores some basic tenets of the sociocultural approach to education and suggests the development of a pedagogical model to act as a 'conceptual lens' for CLIL and to provide a useful tool in the planning and development of CLIL programmes. The pedagogical model is based on mainstream educational research literature and has been developed through discussion with CLIL teachers working at different levels of the educational system in Finland. The idea of the model belongs to a broader research project that seeks to promote the development of a specifically CLIL pedagogy based on sociocultural principles of education and dialogue with experienced CLIL practitioners.

Key words: Sociocultural pedagogy, pedagogical model, language in learning

Resumen

Este artículo argumenta a favor de un modelo pedagógico AICLE diferente e innovador cuyo enfoque va más allá del aprendizaje de lengua extranjera (LE) y del aprendizaje de contenido tomando en cuenta el rol del lenguaje en el mismo proceso de aprendizaje. El artículo examina los principios básicos del enfoque sociocultural en la educación y sugiere el desarrollo de un modelo pedagógico que funciona como una «lente» conceptual para AICLE. De igual manera, ofrece una herramienta útil en la planificación y el desarrollo de programas AICLE. Este modelo pedagógico se fundamenta en la literatura general sobre investigación educativa y se ha desarrollado a base de discusiones y conversaciones con profesores AICLE de diferentes niveles del sistema educativo en Finlandia. La idea de este modelo forma parte de un proyecto de investigación más amplio que busca promover el desarrollo de una pedagogía específica en AICLE basada en los principios educativos socioculturales y en el diálogo con profesionales con experiencia en AICLE.

Palabras clave: pedagogía sociocultural, modelo pedagógico, lenguaje en el aprendizaje

1. Sociocultural theory and CLIL: what is the current state of affairs?

The variety of existing CLIL frameworks indicates the fluidity of opinion on the underlying principles for content and language integrated learning. Coyle's original 4Cs Framework (1999) was content-led whilst also including cognitive, communicative and community considerations. The 4Cs has since been reframed around culture (Coyle 2007), communication (Zydatiss 2007 cited in Dalton-Puffer 2007), and cognition (Mehisto et al. 2008). Alternative pedagogical models have also emerged drawing on second language acquisition (SLA) (de Graaff et al. 2007), interaction and discourse analysis (Gajo 2007), and pragmatics (Lorenzo 2007). Whilst these models offer useful explorations of the foreign language (FL) learning dimension of CLIL, and the semantic relationship between language and content learning, the role of language in subject-based pedagogy and learner language in knowledge construction is little explored or present in the models. Madinabeitia explores constructivist learning in CLIL, commenting that the mediating role of language "offers an open window into the students' processes of constructing knowledge" (2007: 58) and that "the more possibilities students have of interacting through language, the better they will assimilate content and language itself. This is precisely the aim of CLIL: learning about academic matters and being able to communicate ideas effectively by using language" (ibid: 61). Madinabeitia's proposed task-based framework for CLIL highlights an important factor in course design, without bringing subject or language pedagogical concerns to the fore. A sociocultural approach provides a broader base for CLIL pedagogy by emphasizing the fundamental role of language in learning. This article opens by suggesting the need for a specific CLIL pedagogy before moving on to explore the sociocultural approach to learning. A version of a CLIL pedagogical model developed through discussions with CLIL teachers in Central Finland is then presented as a tool to support the on-going development of CLIL pedagogy.

2. Why a distinct pedagogy for CLIL?

CLIL as a dual-focused educational innovation is differentiated from immersion education by the participation of non-native speaking (NNS) teachers supporting NNS learners in a non-community language setting (Coyle 2006; Dalton-Puffer 2007). The NNS context of CLIL creates a specific context in which teaching-learning occurs. The FL-filter of the CLIL environment for dual-focused teaching-learning suggests that the pedagogical basis should also account for contextual factors. Whilst learning through a FL is not a new phenomenon, adoption of this approach in mainstream education with non-specialised language teachers is new. CLIL as a political initiative belongs to the European Language policy (2005) although it is often placed within the subject curriculum. As Graddol (2005) points out, serious ramifications for the education of a whole generation of learners are in the balance, in addition to the significant professional challenges faced by the teachers involved in the increasingly widespread implementation of CLIL.

Successful learning is documented in CLIL with regard to content outcomes (e.g. Jäppinen 2005; Stohler 2006) and communicative competence (Nikula 2007). The rapid expansion of CLIL, however, requires to extend research beyond learning outcomes and consider the process of learning and its relation to pedagogical practice. The observation that European CLIL has been "highly influenced by language acquisition theories... whilst it seems that subject matter pedagogies are being systematically overlooked" (Coyle 2008: 101) indicates an imbalance in the pedagogical realisation of CLIL. Furthermore the absence of explicit explorations of the inte-

grated relationship leaves a significant gap at the heart of CLIL (Gajo 2007; Lorenzo 2007). Consideration of the process involved in subject learning from a sociocultural perspective may add depth to the current understanding of CLIL as an educational innovation, in addition to being a 'flagship methodology' (Marsh 2002).

The aim of a pedagogical model is to provide a 'conceptual lens' (Mishra and Koehler 2006) through which teachers and researchers can review, reflect on and develop the processes and products of CLIL teaching-learning. An established frame of reference for CLIL pedagogy would hopefully indicate the relationships between the content and FL goals and needs, in addition to the mediating role of language in CLIL teaching-learning activity. CLIL teachers often embark on CLIL with established pedagogical knowledge. The translation of content knowledge into pedagogical activity (Shulman 1995) especially through a FL is extremely challenging, as is the verbalising of pedagogical understanding (Yilmaz 2008). The different pedagogical orientations whilst valuable to CLIL do not necessarily form a complete pedagogical picture for CLIL even when combined (Novotná and Hofmannová). A model may help experienced teachers to codify existing expertise and recognise the 'other' dimension of CLIL, as well as enhancing recognition of the complex environment within which CLIL exists. Modelling the fundamental characteristics of the pedagogies should initiate the integration process of language and content.

3.1. What is a sociocultural approach to education?

Sociocultural theory has provided the theoretical framework for a significant amount of internationally-based educational research in recent years in a variety of learning contexts (see e.g. Fernandez et al. 2001; Mortimer and Scott 2003). This research has led to a greater understanding of the nature of learning in the classroom and the role of language in learning. In addition to educational processes, educational outcomes are also the focus of sociocultural research. The interventionist nature of the research and the aim to provide practical guidelines for teachers to develop pedagogical understanding and practice differentiates sociocultural research from linguistic approaches (Mercer 2008), including theoretically-orientated SLA research (Ellis 2001) and language socialisation research (Zuengler and Miller 2006). The pragmatic concerns of sociocultural research lessen the gap between technical and practical knowledge (Ellis 2001) providing a good basis for the development of a model.

Sociocultural theory suggests that knowledge is a cultural construct, and as such subject-specific knowledge is understood as the way a particular community views and interprets the world. For example, atoms, from the point of view of physics, are understood in terms of force, whereas a chemist would see atoms as material particles (Driver et al. 1994). Community 'knowledge' of the world is embedded in the language of the community. In this sense, phenomena are only understood when spoken about using the correct language. Learners come to the classroom with everyday perceptions embedded in their everyday language. In everyday language and perception, for example, it is understood that the sun rises and sets. From a scientific point of view this is wrong; the earth spins on its axis over a twenty-four hour period. The words that we use, learnt in community, illustrate the way we see the world. The role of teachers, therefore, is to acculturate students into both the perceptions and the language of a subject community.

The social plane from a sociocultural perspective is a fundamental resource for learning. The social environment of the classroom is more than a community of learners with common goals, or a forum for cognitive conflict and resolution. From a Vygotskian standpoint learning occurs first on the social (intermental) plane before being internalised or appropriated onto the psycho-

logical (intramental) plane. Through language-based interaction with self, peers, teachers and subject, understanding can be jointly constructed and internalised. The sociocultural stance argues that without the social plane encounter with and construction of knowledge, psychological appropriation of understanding and knowledge-building tools will not occur.

The social nature of learning is further emphasized in three key concepts present in sociocultural literature. The Zone of Proximal Development (ZPD) represents the greater level of achievement available to learners when supported in learning. From a sociocultural perspective, guidance affords (van Lier 2000) greater learning opportunities and achievement than individual-based activity. The often accompanying scaffolding metaphor support, i.e. support sensitive to the needs of the learner which increases and decreases in accordance with the needs of the learner, is complementary to the ZPD. These two concepts reflect the asymmetrical dimension of learning, whilst Mercer's concept of 'interthinking' adds a symmetrical understanding of learning-in-relation. In interthinking (Mercer and Littleton 2007) learners jointly invested in the learning activity constructively build on understanding together, using each other as resources to negotiate collective understanding which in turn supports individual development.

3.2. The role of language in education

Understanding the fundamental role of language in the teaching-learning process is central to a sociocultural view of education. Language embeds knowledge providing the primary tool for both teacher and learners. Language is fundamentally bound to the goals of education, and is as well the process and means by which learning is achieved and teaching is realised. Teacher talk is well-recognised as the key tool in the teacher-toolkit for the orchestration of learning and has been studied from many different angles (Edwards and Westgate 1994; Christie 2000; Myhill 2006). Based on sociocultural principles, Mortimer and Scott (2003) have identified four communicative classes employed by teachers in the subject classroom effectively capturing the different roles of the teacher as realised through language use. This communicative approach goes beyond the communicative approach of language teaching, however, drawing on two key dimensions: authoritative—dialogic and interactive— non-interactive. The teacher can present the authoritative voice of the subject interactively through discussion with learners, or non-interactively by lecturing. The dialogic alternative is to consider different points of view and understandings of a phenomenon. The teacher can again choose to develop a dialogic mode of communication interactively inviting direct student participation— or non-interactively —by referring back to earlier contributions and understandings. These different classes reflect the teacher roles as both subject expert and partner in the joint construction of knowledge.

As a subject community expert, the teacher provides the 'voice' of the subject, modelling the language of the target community as the view of the subject community is presented. Whilst the authoritative voice of the subject needs to be present in the classroom, successful learning is unlikely to occur if links are not built to and from the existing knowledge of students present in the dialogic mode. The translation of the subject into accessible language for novices (Lemke 1989a) requires a more dialogic, interactive approach as teachers seek to build common frames of reference with learners (Edwards and Mercer 1987). The teaching-process, however, is more than providing access, also supporting the transformation of everyday or novice understandings into expert understandings. Furthermore, this guided transformation positions the teacher as an authority, but the acculturation process requires participation by the learners, resulting in the authoritative-interactive class. The transformation of learner language from everyday language into

educated language is no simple process. This transformation requires the understanding of subject matter alongside the development of subject appropriate discourse and terminology.

The language of learning has been characterised as disjointed, broken talk (Barnes 2008). Learners' ideas are being formed as they speak, and together learners strive to build their understanding, supported by teacher-provided scaffolds. As one learner starts to express one idea, it may prompt a thought in a peer, it may generate a question from another group member, it may nudge another peer to see things in a different light leading to another comment being brought onto the social plane. This interactive, collaborative and broken dialogue is not the target language of the FL classroom, nor is this broken language the final outcome of the content classroom. This learner language, however, represents and enables learning; that is, knowledge is jointly being constructed on the social plane and gradually being internalised along with the language that embeds it.

To support the use of language in learning Mercer et al. (2004) have developed through interventionist research an approach called 'Exploratory Talk'. In Exploratory Talk a group of learners together seek a mutually acceptable construction of understanding (Mercer 1995). An important distinction is drawn here between other kinds of talk commonly found in peer group interactions: disputational talk, in which learners often competitively disagree, and cumulative talk, in which learners uncritically agree. This supported, interactive approach has led to significant differences in learning outcomes with regard to both group-working processes and individual learning (Mercer and Littleton 2007), although it requires time and commitment to cultivate Exploratory Talk with learners. Pierce and Gilles (2008) have gone beyond Exploratory Talk to develop a 'culture of talk' in the classroom as a key to enhancing learning opportunities and outcomes. From the sociocultural perspective, the mediatory role of language in the co-construction of knowledge is of paramount importance enabling participation in learning.

4. The Foreign-Language Filter of CLIL

The FL setting of CLIL adds an additional, significant variable to the teaching-learning process. To avoid watering-down content and to manage the FL-mediation of teaching-learning, teachers have been forced to concentrate on the teaching-learning process as many assumed features of first language (L1) classrooms are erased. As a result of the FL-filter, the CLIL learning environment has increasingly valued and supported talk. This is evidenced in the greater dialogism of CLIL (Nikula 2008), in the increased negotiation to support understanding (Wannagat 2007), in more active learner participation (Coyle 2006; Moate 2008) and in planned language support to access content (Coyle 1999). These changes have led to positive learning outcomes (Baetens-Beardsmore 2008) and made CLIL a surprisingly inclusive educational approach (Coyle 2006).

These positive changes and outcomes complement a sociocultural approach to education. Sociocultural educational researchers have found that focusing on the role of language-in-learning has had significant effects on learning outcomes. Developing a culture of talk in the classroom, increasing wait-time for thinking and active participation, making talk visible, using alternative sign-systems and increasing audience awareness (Pierce and Gilles 2008) all support learning in mainstream, and may well also support FL-mediated learning contexts. Modelling the integrated relationship of content and language in the FL-mediated CLIL will hopefully create a conceptual framework into which sociocultural findings can support the development of CLIL.

5. The construction of a pedagogical model for CLIL

A number of key questions have been used to support the ongoing construction of a CLIL pedagogical model: what is content learning? What is FL learning? How does the FL-mediation of teaching-learning in CLIL affect the learning dynamic? What is the role of language, in particular learner language, in the construction of knowledge?

5.1. What is content learning?

An exploration of content learning led to the identification of a number of distinct features which differentiate content from language teaching. The development of systematic and transformative knowledge (Unsworth 2001) requires learning the ways of thinking and speaking (Lemke 1989b) which belong to a specific community. The deep understanding of key concepts underpins many different topical elements often highlighted in subject curricula. Learning associated facts and information is only part of apprenticeship into a subject community. From a sociocultural perspective, content learning is guided novice participation in established communities involving the appropriation of their perspectives and concomitant language (i.e. knowledge) through talk. In this process talk is the “tool for creating new shared understanding” (Mercer and Littleton 2007: 6) and as such the dynamic of this learning environment can be described as ‘talk into thought’ with the teacher acting as an expert guide.

5.2. What is FL learning?

An SLA-based language pedagogy appears to foreground environment and activity to support learning with a language-rich environment providing comprehensible input (Krashen 1982, 1985 as cited in Mitchell and Myles 2001) and supporting comprehensible output (Swain 1996; Gibbons 2001). Skill and strategy acquisition facilitate the handling of different texts, spoken or written. Understanding of structures and discourse in form- or meaning-based instruction along with vocabulary development extends the range of active and passive learner participation. The dynamic of this environment can be described as ‘thought into talk’ with the teacher often positioned as a facilitator of learning.

5.3. How does the FL-mediation of teaching-learning in CLIL affect the learning dynamic?

As an FL-mediated environment, CLIL appears to be readily compatible with content authenticating and motivating language, and language-sensitivity supporting subject learning. On this level, integration is practical and has led to positive learning outcomes. The role of FL support in CLIL, however, goes beyond practical considerations reaching into pedagogical concerns. As noted above, the two pedagogies have different dynamics: whilst content pedagogy from a socio-cultural perspective transitions from talk-into-thought, SLA-based language pedagogy often supports thought-into-talk. The dynamics and the pedagogical choices should be made available to CLIL practitioners to support the development of CLIL as an educationally valid approach.

When handling scientific texts, for example, the unfamiliarity and extensiveness of the content and the lack of implicit knowledge of structures can make reading ‘unrewarding’ without reflection (Davies and Greene 1984). An FL pedagogical approach may tend towards under-

standing the communicative features or key vocabulary of the text to support the decoding of meaning. A more content-orientated approach would be to make the informational structure of scientific texts available to learners, teaching them when to pause in reading for reflection rather than focusing on terminology (Davies and Greene 1984). This is not to suggest that terminology is not significant in either the L1 or FL content classroom, but to note that different pedagogical goals require different pedagogical choices and that close attention should be paid to the pedagogical purposes behind the tasks in the CLIL classroom.

Content-based instruction (CBI) methodology offers content-sensitive activities useful in CLIL targeting content-specific language development. CBI and content learning do not share the same learning trajectories, however, as content learning explicitly seeks to extend conceptual understanding through language (and extend language use), whilst CBI seeks to extend language use drawing on existing understanding. As a sustainable educational innovation CLIL needs to avoid surface-handling of content (Lave and Wenger 2000), which can occur if content is reduced to context, as this limits the depth of subject learning. This relates also to the role of the teacher. The facilitative role of the teacher in language-based pedagogies does not readily translate to the FL-mediated content classroom in which the teacher becomes the authoritative guide in knowledge construction and the concomitant language required.

5.4. What is the role of language, in particular learner language, in the construction of knowledge?

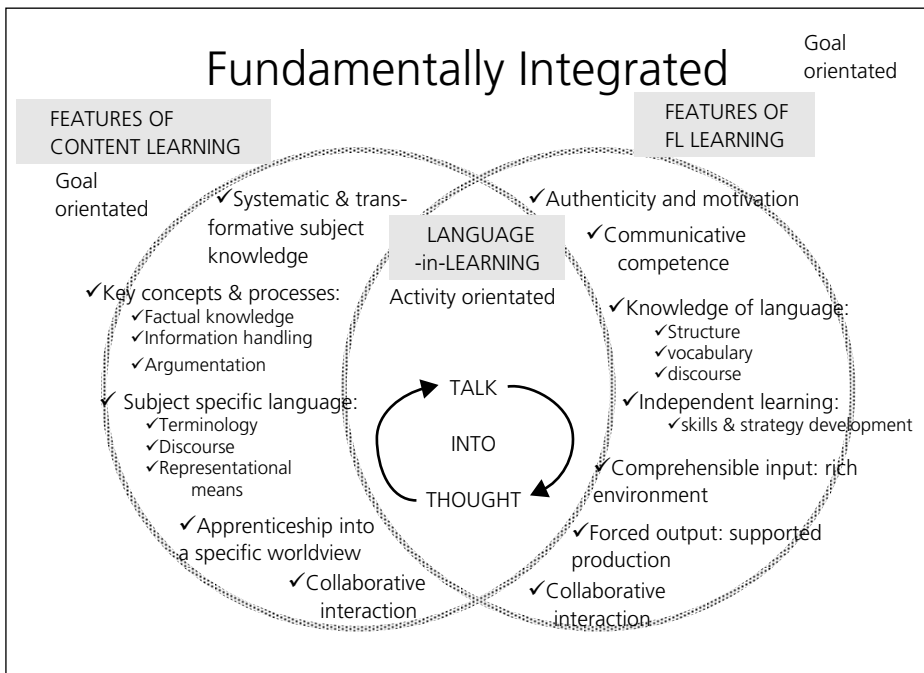
The final question is concerned with the role of language in the learning process: a different kind of language to subject-based terminology and discourse. Learner language is the location in which learning occurs as a socially-based, language-mediated interaction. Learner language is messy, with half-completed sentences, jointly constructed comments thought-aloud (Barnes 2008). Subject specific language becomes interwoven in this talk over time as disjointed learner-talk transforms into accurate expert-talk through guided interaction and scaffolded opportunities to participate. The vital role of language in learning suggests a more fundamentally integrated relationship in content and FL learning than previously explored. Indeed the different dynamics of content and language pedagogies at this juncture come together to form a cyclical process with talk constructing thought, supporting further talk, and so on.

Talk for learning requires an environment in which learners have time to think (Barnes 2008) complementing the reduced pace of the FL-mediated CLIL environment. Engendering a culture of talk as a basic characteristic of CLIL would support the integration of content and FL goals at a fundamental level, i.e. in the learner-language of educational activity. Communicative language teaching (CLT) offers a springboard from everyday language to exploratory talk. Exploratory talk in turn links learning in CLIL to the expert subject community. If students can be acculturated into a classroom where their everyday FL language skills (supported by other realia and sign systems) provide the initial basis for participation, then little-by-little learners can be acculturated into expert subject communities. The concentration of learning due to FL-mediation in this highly complex environment complements the highly significant role of language-in-learning from a sociocultural perspective.

5.5. A sociocultural pedagogical model for CLIL

The model in Table 1 presents the key interests of content pedagogy in the left-hand circle and key features of FL pedagogical in the right-hand circle. The overlap of the two circles represents the central role of language-in-learning. In contrast to the content and FL pedagogy circles, which are goal-orientated, the integrated heart is activity orientated. The overall teaching-learning process is FL-mediated, represented by the shadowed circles. This simple model of the complex relationships in CLIL is intended to support further exploration of the dynamics at play in this innovative environment.

Table 1. A sociocultural pedagogical model for CLIL



6. Applications of the model

Recognising the fundamental role of language in learning as the integrated heart of CLIL supports the concentration of activity in the planning and implementation of CLIL lessons. The model was originally developed for a group of upper secondary school CLIL teachers to help them map their subject pedagogy concerns in relation to the language demands of CLIL. As the model took shape, however, it also became apparent that it provides a useful overview for language teachers as well, extending pedagogical choices beyond the form-meaning debate. Reading through mainstream educational literature on subject teaching and foreign language teaching it is clear that little dialogue occurs between these two curriculum partners. The model therefore seeks to promote this dialogue and has been used as a training tool for secondary education CLIL teachers in Central Finland. It has provided as well a framework for CLIL discussions in different

educational settings from primary school to higher education, supporting dialogue between CLIL practitioners working in significantly different CLIL settings.

In discussions with Finnish CLIL teachers, the model has provided stimulus for reflection on pedagogical goals and expectations, before approaching the complexities of an FL-mediated teaching-learning environment and the extra demands this creates for teacher and learners alike. The visualisation supports recognition of the different factors and creates space for each to be considered in turn, before focusing on the demands of integration. The conceptual framework for the dynamics of CLIL offers a comparative baseline, stimulating discussion on the basis of the model in relation to teacher experience and interpretation. The model allows for flexibility in the implementation of CLIL whilst suggesting pedagogical foundations for the adopted approach.

With a group of lower secondary school teachers, the model provided the basis for a CLIL training course in which comparison of different subject pedagogies supported exploration of the relationship between learning goals and the processes engaged in attaining these goals. The teachers included a science teacher, a history and civics teacher, a domestic science teacher, a health education teacher, an English teacher and a Special Educational Needs specialist. The discussions supported the verbalisation of tacit knowledge, increasing teachers' self-awareness of personalised pedagogical practice and pedagogical concerns. As the nature of the different subjects clarified it became easier to consider the role of language within the subject and of language-in-learning, where and how to focus teaching-learning activity. The courses are currently being planned and will be implemented in the next academic year 2009-2010. The hope is to closely follow the course and to modify the model accordingly through further discussion with the CLIL practitioners.

In addition to supporting discussions focusing on classroom activity and course design, using the model as a discussion tool supported considerations of the overall implementation of CLIL within the school. The relationships between the different subjects led to discussion on which subjects should come first in the timetable, where can content and language learning be recycled and extended, what is the relationship between CLIL courses and formal FL courses, and what kind of resources should schools aim to develop. Supporting macro-level discussion of CLIL implementation extends beyond the original aim of the model, but nevertheless indicates the validity of the model with regard to CLIL. The original aim was to develop a comprehensive, explicit pedagogical framework for CLIL which would provide the principled basis for informed practice. The model presented here is a step towards achieving that goal, and as such hopes to support the on-going discussion as to what is good pedagogy with regard to CLIL.

7. References

- BAETENS BEARDSMORE, H. (2008). Multilingualism, cognition and creativity. *International CLIL Research Journal* 1: 4-19.
- BARNES, D. (2008). Exploratory talk for learning. In N. MERCER and S. HODGKINSON, eds., *Exploring Talk in Schools*. London: SAGE publications. 1-16.
- CHRISTIE, F. (2000). The language of classroom interaction and learning. In L. UNSWORTH, ed., *Researching Language in Schools and Communities; Functional Linguistic Perspectives*. London and Washing: Cassell. 184-203.
- COYLE, D. (1999). Supporting students in content and language integrated contexts: planning for effective classrooms. In J. MASIH, ed., *Learning through a Foreign Language – Models, Methods and Outcomes*. Lancaster: CILT. 46-62.

- COYLE, D. (2006). Content and language integrated learning motivating learners and teachers. *Scottish Languages Review* 13. [Internet document available at <http://www.scilt.stir.ac.uk/slr/index.php?p=issue&issue=13>. Last accessed 10.03.09].
- COYLE, D. (2007). The CLIL quality challenge. In D. MARSH and D. WOLFF, eds., *Diverse Contexts - Converging Goals*. Frankfurt: Peter Lang, 47-58.
- COYLE, D. (2008). CLIL – a pedagogical approach. In VAN DEUSEN-SCHOLL and HORNBERGER, eds., *Encyclopedia of Language and Education, 2nd Edition, Vol. 4: Second and Foreign Language Education*, Heidelberg: Springer. 97-111.
- DALTON-PUFFER, C. (2007). Outcomes and processes in Content and Language Integrated Learning (CLIL): current research from Europe. In W. DELANOY and L. VOLKMANN, eds., *Future Perspectives for English Language Teaching*. Heidelberg: Carl Winter.
- DAVIES, F. and T. GREENE (1984). *Reading for Learning in the Sciences*. Oliver and Boyd: Edinburgh.
- DE GRAAFF, R., G.J. KOOPMAN, Y. ANIKINA, and G. WESTHOFF (2007). An observation tool for effective L2 pedagogy in content and language integrated learning (CLIL). *The International Journal of Bilingual Education and Bilingualism* 10 (5): 603-624.
- DRIVER, R., H. ASOKO, J. LEACH, E. MORTIMER, and P. SCOTT (1994). Constructing scientific knowledge in the classroom. *Educational Researcher* 23 (7): 5-12.
- EDWARDS, D. and N. MERCER (1987). *Common Knowledge*. London: Meuthen.
- EDWARDS, T. and D. WESTGATE (1994). *Investigating Classroom Talk*. London and Washington DC: The Falmer Press.
- ELLIS, R. (2001). Second language acquisition: research and language pedagogy. In C. CANDLIN and N. MERCER, eds., *English Language Teaching in its Social Context a Reader*. London: Routledge. 44-74.
- EU PUBLICATION. (2005). *A New Framework Strategy for Multilingualism*. [Internet document available at <http://europa.eu/languages/en/document/74>. Last accessed 10.03.09].
- FERNANDEZ, M., R. WEGERIF, N. MERCER and S. ROJAS-DRUMMOND (2001). Re-conceptualizing “scaffolding” and the zone of proximal development in the context of symmetrical collaborative. *Learning Journal of Classroom Interaction*. 36 (2): 40-54.
- GAJO, L. (2007). Linguistic knowledge and subject knowledge: how does bilingualism contribute to subject development? *The International Journal of Bilingual Education and Bilingualism*. 10 (5): 563-581.
- GIBBONS, P. (2001). Learning a new register in a second language. In C. CANDLIN and N. MERCER, eds, *English Language Teaching in its Social Context a Reader*. London: Routledge. 258-270.
- GRADDOL, D. (2005). *CLIL debate questions and answers Guardian Weekly* [Internet document available at <http://www.guardian.co.uk/theguardian/2005/apr/20/guardianweekly.guardian-weekly13>. Last accessed 10.03.09].
- JÄPPINEN, A.-K. (2005). Thinking and content learning of mathematics and science as cognitive development in content and language integrated learning (CLIL): teaching through a foreign language in Finland. *Language and Education*. 19 (2): 148-169.
- LAVE, J. and E. WENGER (2000). Learning and pedagogy in communities of practice. In J. LEACH and B. MOON, eds, *Learners and Pedagogy*. London: Sage publications. 21-33.
- LEMKE, J. (1989a). *Making text talk. Theory into Practice*. 28 (2): 136-141.
- LEMKE, J. (1989b). *Using Language in the Classroom*. Oxford University Press.
- LORENZO, F. (2007). An analytical framework of language integration in L2 content-based courses: the European dimension. *Language and Education*. 21 (6): 502-513.

- MABINABEITIA, S. (2007). *The integrated curriculum, CLIL and constructivism*. Volumen monogràfic. 55-65.
- MARSH, D. (2002). *CLIL/EMILE – the European Dimension: Actions, Trends and Foresight Potential*. Jyväskylä: UniCOM.
- MEHISTO, P., M.-J. FRIGOLS and D. MARSH (2008). *Uncovering CLIL*. Oxford: Macmillan ELT.
- MERCER, N. (1995). *The Guided Construction of Knowledge*. Clevedon: Multilingual Matters Ltd.
- MERCER, N. (2008). *Thinking through dialogue: two contemporary lines of enquiry into classroom talk* [Internet document available at <http://www.bath.ac.uk/education/news/csat0029.html>. Last accessed 19.02.09].
- MERCER, N. L. DAWES, R. WEGERIF, and C. SAMS (2004). Reasoning as a scientist: ways of helping children to use language to learn science. *British Educational Research Journal*. 30 (3): 359-377.
- MERCER, N. and K. LITTLETON (2007). *Dialogue and the Development of Children's Thinking*. London and New York: Routledge.
- MISHRA, P. and M. KOEHLER (2006). Technological pedagogical content knowledge: a framework for teacher knowledge. *The Teachers College Record* 108 (6): 1017-1054.
- MITCHELL, R. and F. MYLES (2001). Second Language Learning: Key Concepts and Issues. In C. CANDLIN and N. MERCER, eds, *English Language Teaching in its Social Context a Reader*. London: Routledge. 11-27.
- MOATE, J. (2008). *The Impact of Foreign-Language Mediated Teaching on Teachers' Sense of Professional Integrity*. Nottingham University: Unpublished MA thesis.
- MORTIMER, E. and P. SCOTT (2003). *Making Meaning in Secondary Science Classrooms*. Maidenhead and Philadelphia: Open University Press.
- MYHILL, D. (2006). Talk, talk, talk: teaching and learning in whole class discourse. *Research Papers in Education*. 21 (1): 19-41.
- NIKULA, T. (2007). Speaking English in Finnish content-based classrooms. *World Englishes* 26 (2): 206-223.
- NIKULA, T. (2008). Opetuskieli vaihtuu englanniksi, vaihtuuko opetustyyli? In M. GARANT, I. HELIN and H. YLI-JOKIPII, eds., *Language and Globalization*. Jyväskylä: AFinLa. 275-308.
- NOVOTNÁ, J. and M. HOFMANNOVÁ. (No publication date provided). *Teacher training for content and language integrated learning*. Research supported by the projects GAČR 406/02/0809 Language Forms and Their Impact on the Cognitive Processes Development. [Internet document available at stwww.weizmann.ac.il/G-math/ICMI/Novotna_Jarmila-Hofmannova_Marie_ICMI15_prop.doc. Last accessed 09.09.07].
- PIERCE, K. and C. GILLES (2008). From exploratory talk to critical conversations. In N. MERCER and S. HODGKINSON, eds., *Exploring Talk in Schools*. London: SAGE publications. 37-54.
- SHULMAN, L. (1995). Those who understand: knowledge growth in teaching. In B. MOON and A. SHELTON Mayes, eds., *Teaching and Learning in the Secondary School*. Routledge. 125-133.
- STOHLER, U. (2006). *The acquisition of knowledge*. In C. DALTON-PUFFER and T. NIKULA, eds., *VIEWZ Current Research in CLIL*. 15:3 [Internet document available at <http://www.univie.ac.at/anglistik/views.htm>. Last accessed 09.08.08].
- SWAIN, M. (1996). Discovering successful second language teaching strategies and practices: from programme evaluation to classroom experimentation. *Journal of Multilingual and Multicultural Development*. 17 (2-4): 89-104.
- UNSWORTH, L. (2001). *Teaching Multiliteracies Across the Curriculum*. England: OUP.
- VAN LIER, L. (2000). From input to affordance: social-interactive learning from an ecological

perspective. In J. LANTOLF, ed., *Sociocultural Theory and Second Language Learning*. Oxford: Oxford University Press. 245-259.

WANNAGAT, U. (2007). Learning through L2 – content and language integrated learning (CLIL) and English as medium of instruction (EMI). *The International Journal of Bilingual Education and Bilingualism*. 10 (5): 663-682.

YILMAZ, K. (2008). Social studies teachers' views of learner-centered instruction. *European Journal of Teacher Education*. 31 (1): 35-53.

ZUENGLER, J. and E. MILLER (2006). Cognitive and sociocultural perspectives: two parallel SLA worlds? *TESOL Quarterly*. 40 (1): 35-58.