LANGUAGE AWARENESS IN GEOGRAPHY EDUCATION: AN ANALYSIS OF THE POTENTIAL OF BILINGUAL GEOGRAPHY EDUCATION FOR TEACHING GEOGRAPHY TO LANGUAGE LEARNERS

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Abstract

The current migration and refugee flows and increasing linguistic heterogeneity in German social science classes have changed teaching. It is a change towards language-aware teaching. The article assesses the question of how bilingual geography teachers' language perception could help to develop language-aware geography education. The hypothesis is that bilingual teachers, due to the simultaneous teaching of content and language, develop and use detailed language awareness in geography. A model of the language in geography classrooms, which defines requirements of language actions there, is presented. 16 bilingual geography teachers in secondary schools in Germany were interviewed over six months to assess their language awareness by a qualitative analysis referring to the model. The results show that bilingual geography teachers assume key values related to language-awareness in geographic language. These results strongly allow discussion of language-aware implications, particularly in terms of structuring, visualization and transparency of discourse functions.

Keywords: Geography education, language awareness, bilingual geography.

1. INTRODUCTION: THE IMPORTANCE OF LANGUAGE AWARENESS

The Europe, and particularly the German-bound, global migration process has led to a recent increase in the number of pupils of all levels with a migration background. The German government estimated that at least 800,000 refugees arrived in Germany in 2014 and 2015 (BAMF, 2015), which included 300,000 children. These child refugees are now attending school in Germany (BAMF, 2015), a right they have according to Article 28 of the Convention on the Rights of the Child (United Nations, 1990). In 2014, one third of all pupils in Germany had a migration history, which is expected to continue increasing (BAMF, 2015).

In the flow of refugees into the country there is a new degree of responsibility to integrative thought. Integration and successful participation happens through language. A lack of supportive language tools in schools for teachers and pupils discriminates against children arriving and already living in the country, in terms of chances in education and life

(Becker-Mrotzek et al., 2013; Vollmer & Thürmann, 2013; Budke & Weiss, 2014, Gogolin et al., 2011).

As a consequence, the concept of language education in schools has undergone a paradigm shift from language support to consistent language education in all school subjects (Gogolin, 2007; Kniffka, 2010; Gogolin et al., 2011). Formerly, it has been the responsibility of language subjects such as German or English to establish basic language competences. In consistent language education these subjects specify their language requirements in order to develop appropriate language-aware teaching methods. This tendency towards a special awareness of language in subjects has found its way into didactical term of language-aware subject teaching, which positions itself within integrational and educational goals. Some didactical thinking can be found in other national teaching and curricular studies such as teaching social studies for English language learners (Cruz & Thornton 2013; Cruz, 2014; Becker-Mrotzek et al., 2013; Vollmer & Thürmann, 2013; Budke & Weiss, 2014; Gogolin et al., 2011; Weber, 2010).

Budke and Weiss define language-aware geography teaching as "teaching which considers requirements in language regarding the understanding and responses to geographic issues in the lessons based on the pupils' learning conditions" (Budke & Weiss, 2014, p.14). Geographical education is a language-based process. Language is the core medium through which geographic content is received, processed, and produced, and therefore how it is learnt. Due to the mainly monolingual curriculum in Germany Geography is taught almost entirely in German. The meaning of language and the importance of linguistically support for pupils who need language will not decrease. Increasingly this leads to classroom in which highly differing learning conditions, particularly in terms of communicative skills, are present (Becker-Mrotzek et al., 2013). Teaching geography with language awareness becomes a pivotal issue when reflecting, reviewing, and planning geography lessons. Consequently, we need to specify what geographic language is.

2. RESEARCH QUESTION

The goal of this article is to analyze competences in one area of geographical education; bilingual, content and language integrated learning (CLIL) in geography teaching, an area that has already been used and proven in terms of its effectiveness to simultaneous teaching of content and language in geography.

In this article the language awareness of bilingual geography teachers is analyzed to identify specific language requirements in geography education and practical ways to support pupils with relatively poor language skills to satisfy these. The work therefore provides answers to the research questions: to what extent do bilingual teachers have language awareness of language in the geography classroom? To what extent can language awareness be used to structure requirements and support strategies for language-aware teaching in monolingually taught geography lessons?

After a short analysis of research in bilingual geography teaching, in order to introduce the beneficial potentials of bilingual teaching for language awareness (Section 3), a model of language in the geography classroom is presented in Section 4. This theory-based model intends to structure the requirements of language, pupils need to achieve in the language-aware geography classroom. The model is based upon communication and language research in geography, educational standards in geography and language in the subjects' research. Finally, the empirical work and results are presented, in which the language-aware concepts of the model are referred to in order to give implications for teaching with language awareness in geography.

3. INTEGRATION OF LANGUAGE AND CONTENT LEARNING: BILINGUAL GEOGRAPHY IN THE GERMAN SCHOOL SYSTEM

In Germany, geography lessons are generally taught in the official language of German. However, some secondary schools offer bilingual geography education. The CLIL (Content and Language Integrated Learning) approach has widely been accepted (in the European) context as a concept of language mediation in subjects, and has been researched relatively extensively for 20 years (Kniffka & Roelcke, 2016; Dalton-Puffer & Smit, 2013; Haataja, 2010). Dalton-Puffer and Smit 2013 maintain that a central characteristic of CLIL is that it is a foreign language approach packaged into content teaching. The foreign language is not a traffic and every-day language beyond the institution. It is a dual-focused approach in which an additional language is used for learning and teaching both content and language (Marsh, 1994).

Bilingual subject teaching is an integrative language and content learning approach in German schools, which is not clearly distinguished from CLIL approaches, since it bears many similarities (Werlen, 2006; Kniffka & Roelcke, 2016). Bilingual geography is defined as teaching and learning in two languages, in which parts of the geography subject is taught in a foreign language, primarily English or French. The foreign language develops to be the main working and learning language, the profile language, although L1 languages can be used for some units (Meyer, 2010). Bilingual teaching builds on pupils' prior knowledge of the foreign language and leads them in a step-by-step process to subject-specific, methodical, and communicative skills in the foreign language. Teaching a foreign language in this manner stabilizes the language learning process, expanding language skills, vocabulary, learning strategies concerning authentic texts, and competences in methodical geographic work. Although the subject's content is the decisive element, language is learned naturally, alongside speaking and writing about relevant themes, without omitting content.

The essential target of bilingual geography teaching is that pupils gain the same geographic skills and satisfy requirements during the bilingual teaching as they would during a monolingual (German) subject teaching (Ministry of Schools and Education, 2012; Müller & Falk, 2014). Since there might be units that demand the full use of German as the language of education and work, pupils gain a terminological bilingualism, which is a central guideline of (German) bilingual subject teaching (Meyer, 2009; Ministry of for Schools and Education, 2012; Meyer, 2010).

Previous research in Germany and throughout Europe (e.g., DESI, 2008), have investigated bilingual programs in schools. Longitudinal comparative studies of learning outcomes, such as DESI, state how effective bilingual education is in fostering communicative competence. The results of a survey by the European Council among graduates of bilingual classes confirmed the positive results and a high degree of satisfaction among participating pupils and schools (DESI, 2008; Breidbach & Viebrock, 2012; Ministry for School and Education, 2012). Increased competency in a foreign language through the use of CLIL was unambiguously confirmed by the DESI study. Pupils in classes taught bilingually gained a foreign language competence that was more than two years ahead of that of fellow pupils who had only been taught the language in regular language lessons (Breidbach, 2007; DESI, 2008; Müller & Falk, 2014). Possible restrictions in teaching geographic content and competences in bilingual geography lessons have also been analyzed (Golay, 2005; Passon, 2007), whilst Viebrock (2007) and Meyer (2003) identified the benefits with regards to intercultural learning.

Research on bilingual geography therefore either focuses on the extent to which the content of the subject matter is equally acquired in both mono- and bilingual lessons (Golay, 2005; Passon, 2007; Meyer, 2003), or on the development of foreign language competences

(DESI, 2008; Kniffka & Neuer, 2008). Consequently, language competences are improving in CLIL teaching and the content is integrated with a high level of confidence. This characteristic makes the CLIL lessons an appropriate tool in which to search for competences in the integration of migrant pupils in regular, monolingual classes in German, where they will face the challenge of learning German, the language of geography and geographic content simultaneously.

To date, a desideratum for using bilingual geography teaching concepts to specify geographic language requirements regarding consistent language education has occurred. These requirements are needed to plan and change monolingual lessons and will be assessed in the following model.

4. THEORETICAL FRAMEWORK: MODEL OF LANGUAGE REQUIREMENTS IN THE GEOGRAPHY CLASSROOM

What does communication and language mean in geography classes? The model (Figure 1) provides an overview and visualization of language registers and concepts of language competences relevant in schools and beyond, and which are considered in consistent language education. The model illustrations how these registers connect to language in geography classrooms. This overview of registers is necessary since language in geography is not an entirely new language register or competence, but rather arises out of given registers with certain geographic specifics explained subsequently.
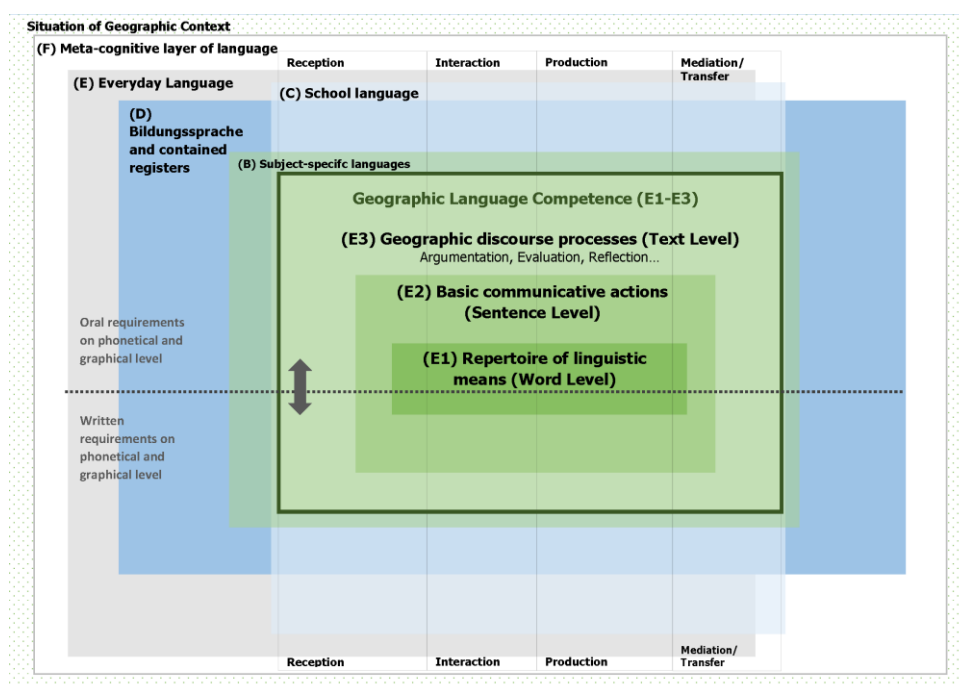

Figure 1. Model of Language Requirements in the Geography Classroom

4.1 Structure of the model

The model can be seen as a profile of a cube. The outside layers contain the areas of layers inside them. The area of space the layers assume represents the theoretical extent of the registers in school usage. All layers are placed on the basic ground layer visualized with small dots (Geographic Content Layer). This means that all language requirements in

geography and their connection to characteristics of other registers happen in the action of geographic context.

Another decisive element in the model apart from the register layer is the four columns of receptive, interactive, productive and mediation, and transfer skills (CEFR, 2011). These aspects structure the language requirements in terms of their executive performance in the classroom, explained subsequently.

The model intends to structure language requirements in geography classes. It allows identification of communication skills pupils need to satisfy language requirements. This structure will enable planning and use of suitable teaching strategies, for example the integration of scaffolding processes (Gibbons, 2002). The explanation starts with the utmost layer (F) and ends with the concept of geographic language competence in the core of the model.

4.2 Meta-Cognition of Language (F)

Layer (F) represents the encompassing layer of meta-cognition in language awareness. This area contains both skills necessary to describe characteristics of different language registers used in school and beyond, skills to mediate between them, and the awareness that different requirements are connected to these registers. Furthermore, meta-cognition of language awareness in the geography classroom includes the analysis in a cultural context in the classroom, a particular teaching situation, discourses in the class situation, and knowledge of the structures of languages in classrooms (Vollmer & Thürmann, 2013; Becker-Mrotzek et al. 2013; Kniffka & Roelcke, 2016).

4.3 Everyday language (E)

Everyday language is relevant in geography education because geography is concerned with a number of socially relevant problems (Budke et al. 2016; DGfG, 2016). These problems are also discussed in everyday life and through everyday language beyond school life. Moreover, words, particularly in human geography, can be considered closer to everyday language than key words in other subjects (Budke et al. 2016; DGfG, 2016; Morawski, 2016).

Everyday language can be helpful in supporting a speaker's intentions and can add precision to speech, especially for younger pupils in geography. Wygotski and Rincke consider that subject-specific language cannot simply be seen as accomplished and developed everyday language (Wytgotski, 1979; Rincke, 2010), and everyday language can and should be developed independently. Examples of highly developed everyday language could be obtained through a populistic scientific approach, where a documentary or presentation of another domain makes it understandable (Wytgotski, 1979; Rincke, 2010).

Cummins (1991) offered another approach for the connection between everyday language skills and language in subjects and in the context of schools. He used his BICS (basic interpersonal communicative skills) and CALP (cognitive academic language proficiency) concept as a distinction of competences, not registers, to make teachers aware of and reflect upon challenges migrant children meet in school. Further, he pointed out that the acquisition of CALP takes longer than the acquisition of everyday language, and that a high fluency in everyday language or BICS does not ultimately mean high cognitive skills in subject-specific language.

4.4 Bildungssprache (D)

The term *Bildungssprache (D)* has one of its origins in educational political answers to the question of how gaps, which arise from differences and disparities due to varying language performance of different social groups can be closed (Gogolin, 2007, Gogolin et al., 2011). Habermas explained *Bildungssprache* as traffic language between sciences, whilst Bourdieu classified it as belonging to social, cultural capital (Habermas, 1981; Bourdieu, 2001). Our understanding of *Bildungssprache* here follow a Petersen and Tajmel (2015) explanation where *Bildungssprache* is considered to be how topics of everyday life and science can be expressed clearly, completely and reasonably alongside one another. To achieve such a combination of language pupils need appropriate vocabulary, to accomplish clarity and independence in situations, and for appropriate grammatical structures (reasonable form). *Bildungssprache* mediates between science, specific knowledge and everyday life but is not understood as subject-specific language. Since geography education is part of school and therefore language requirements are created there, it uses *Bildungssprache.*

 Bildungssprache is a register based on textual actions and textuality, such as the use of the passive voice or certain modal constructions. Feilke (2012) relates how *Bildungssprache* has not been created for learning but is used epistemically; it is integrated and happens in context. Further research into the specification of linguistic characteristics and functions of *Bildungssprache* has been performed by Vollmer & Thürmann (2013), Gogolin (2011), Schmölzer-Eibinger (2013), Kniffka & Roelcke (2016), Scarcella, (2008), Bailey & Heritage (2008) and Morek & Heller (2012).

 Those teaching any school subject must reflect on the implicit content and requirements of that subject should facilitate their responsibility to participate in teaching *Bildungssprache* by identifying given specific language requirements.

4.5 School language (C)

School language (C) is a communicative practice in the context of schools for L1 & L2 learners, which leads pupils to subject-specific language and Bildungssprache (e.g. Kniffka & Roelcke, 2016, Feilke, 2013). It is constructed for didactical purposes (Schmölzer-Eibinger, 2013; Feilke, 2013; Feilke, 2012) and describes the exclusive use of language specific to schools, specifically language produced in schools and used for educational purposes. Teachers decide which language is used and accepted and in which language knowledge is transferred and acquired. These decisions create specific expectations and requirements regarding the language use that lead to a function of selection purpose (Schmölzer-Eibinger, 2013; Feilke, 2013; Feilke, 2012). Therefore school language contains practical approaches, maxims and requirements, and is often influenced by teachers', often subjective, expectation of the subjects and outcomes with respect to evaluating the language performance and actions of pupils.

4.6 Subject-specific language / Language in the subjects (B)

The *subject-specific language* or *language in the subjects* (B) debate investigates coherences between all subjects and language-based learning on a meta-cognitive, language reflective layer (Michalak, 2014; Feilke, 2012; Budke & Meyer, 2015; Vollmer & Thürmann, 2013). Subject-specific language defines itself through functional characteristics such as clarity, anonymity, economy, and comprehensibility. Each subject-specific language differs from other subject-specific languages in its vocabulary, structure, thematic varieties, and characteristics of texts (Roelcke, 2010). Roelcke (2010) speaks of a general subject-specific

language competence that L1 and L2 learners can achieve, which allows pupils to overcome subject-specific barriers and challenges in everyday situations, and enables the analysis of decentralization, differentiation and dynamisation of language in subjects.

Another approach to assess language in subjects is the use of content-obligatory vs. content-compatible language (e.g. Snow, Met & Genese, 1992). Every subject has its own content-obligatory language associated with its specific content. This content-obligatory language includes subject-specific vocabulary (e.g., meander or estuary in geography) and the related grammatical structures and functional expressions needed to communicate subject knowledge and take part in interactive classroom tasks. Content-compatible language is the non-subject specific language which learners may have learned in their German classes or from everyday language.

Subject-specific language, *Bildungssprache*, school language, and everyday language all use overlapping elements. For example, in a transcribed interview by a refugee or YouTube broadcast pupils can pick up geographic information, such as pull or push factors and living conditions, and formulate this information into professional subject-specific language.

4.7 Columns of language actions in the geography classroom (Reception, Interaction, Production, Mediation/Transfer)

These columns refer to tasks involved in communicative actions in geography. These actions are based on the Common European Framework of Reference (CEFR) for Languages, which divides communicative requirements in actions of reception, interaction, production and mediation. One of the CEFR's targets is *"to promote research and development programs leading to the introduction, at all educational levels, of methods and materials best suited to enabling different classes and types of pupil to acquire a communicative proficiency appropriate to their specific needs"* (CEFR, 2011). The CEFR explains and structures requirements in language learning, concepts which are established and recognized on a large-scale throughout Europe.

What do these columns mean for the geography classroom? The first reception column, includes the reception of orally or textually received input in the language-aware geography classroom. If pupils need to orientate themselves in the given linguistic, textual, and thematic context, they need strategies to cognitively filter and decode the information they receive in order to choose certain communicated content later on. Such information includes the linguistic, visual and semiotic code of maps (Budke et al. 2016; Wiegand, 2006; Kölzer, Lemke & Michalak, 2015; Ullrich et al., 2012; Hemmer et al., 2010 DGfG, 2014) and diagrams (Michalak & Müller, 2015).

The second column, interaction, is a reminder that pupils put their filtered, chosen, communicated content into thematic and social contextualization via cooperative interaction with other pupils, their teacher and thematic correlation in the geographic context. Pupils need to address the content via reasonable language for the specific listener. This interaction is complex in terms of dialogues and dialogic teaching since it takes place on many levels simultaneously. In this dialogic structure pupils negotiate relationships and construct identities, whilst also negotiating their geographic understanding (Kane, 2014, p.463).

The third column, production, encompasses skills needed for pupils to produce oral or written texts from processed geographic information. The column includes the use of geographic terminology and vocabulary, geographic relevant statements appropriate to the subject, the situation, audience/target group, and the knowledge of a linguistic coherent structure of text forms (description, argumentation, analysis), in which statements are organized and presented,

The fourth column, mediation/transfer, relates to transferring communicative content to other relevant issues, or the use of acquired knowledge to explain other geographic issues. The column is relevant to the area of communicative thematic transfer. Linguistic transfer, on the other hand, reflects how the acquired information is transformed into other forms of representation (e.g. figures into maps or diagrams). This transformation needs the linguistic and structural knowledge of components or other textual representations.

These columns should be seen as intertwined as they are dependent on one other. For example, interaction needs receptive and productive skills. The columns intend to clarify the focus of teachers' language support in particular language support situations.

4.8 Meeting the requirements: Geographic language competence (E)

The concept of language in geography (E) is concerned with the specific geographic requirements of language in geography education. Previously there has been little empirically-based research focused on specific communicative requirements in geography classrooms (Budke & Weiss, 2014, p.14; Müller & Falk, 2014; Michalak & Müller, 2015). Budke and Weiss (2014) define language-awareness in geography as teaching that considers language requirements necessary for the understanding of and replies to geographic issues in lessons, which depend on the pupils' learning conditions (Budke & Weiss, 2014, p.15). Here, language in the geography classrooms is approached in the two ways.

The first one is to structure geographic language into the level of words (E1), sentences (E2) and of whole texts (E3). Situations of supporting teaching and learning geographic language can be positioned effectively within this structure. E1 includes the acquisition and usage of geographic key words. This structure relates to occurrences and requirements in material such as key words or glossary. E2 contains the construction of sentences, what can be supported and related to by material, such as useful phrases in scaffolding processes or model texts. E3 then deals with the training of whole oral or written texts, including the coherence and characteristics of these texts in the geography classroom, e.g. normative argumentation in space conflicts or evaluation of maps.

The second one refers to geographic discourse processes, therefore how geographic language is constructed in the geography classroom which will be elaborated in the following. For that it needs to be explained that the use of language, by the teacher or the pupil, in geography can be performed conceptually written or conceptually oral. These performances are to be seen as a continuum, e.g. an example of a dialogue between pupils in a cooperative group work task on the side and the perception of a school book article on the other side. Further the way pupils medially perceive language is important and can be divided in two ways, e.g. if they perceive it phonetically via sounds or graphically in form of letters in a text or symbols and colors, such as in maps. To put that in perspective in geography education often visual information is mediated alongside textual information. It is often the case that pupils are supposed to filter information out of a material mix, such as maps, pictures, diagrams, charts, movies and texts in order to respond to the central issue of the lesson. This procedure means that students have to be able to decode and produce different linguistic codes out of different channels of perception. The model, particularly in E1-E3, illustrates this differentiated modes of performance and perception in geography. A reaction to that is necessary in terms of lessons planning and reflection to support pupils linguistically while they are dealing with the codes and channels.

In the following, as mentioned, the construction of language in geography will be elaborated:

4.8.1 Repertoire of geography-specific linguistic means (E1)

This repertoire can be related to areas of analysis such as vocabulary, grammar, semantics, pragmatics, pronunciation and spelling (also see Vollmer & Thürmann, 2013, p.47). Vocabulary means subject-related, subject-specific geographic terms. Subject-internal terms are those words that have an exclusive geographic meaning and are used exclusively in geographic contexts, for example, city model, gentrification, cash crops, desertification or shifting cultivation. Brown and Ryoo state here that science words serve as resources for understanding concepts at higher levels of specificity (Brown & Ryoo, 2008). Key words in geography often have another meaning in everyday language. For example, city; when using this term, geographers are directly referring to characteristics of cities such as building density and job opportunities, its predominantly secondary and tertiary business sector, or its internal, functional structure. In everyday language and life, pupils might be referring to cities as places to meet their friends or go shopping or to the movies.

Further relevant areas are grammar, semantics, and pragmatics. In the geography classroom, grammar contains structural subject-specific features such as the discontinuity of texts e.g., in maps or diagrams. By referring such language to the dimension of pedagogical arrangement, practices and methods of teachers are integrated into the context of the rule complexities of geographic-specific grammatical occurrences, and how verbalizing discontinuous text relate to grammatical performances (Graus & Coppen, 2015).

Semantics integrates the meaning found and created by signs and symbols, for instance in discontinuous geographic material such as maps und diagrams (Budke et al., 2016; Wiegand, 2006; Kölzer, Lemke & Michalak, 2015; Ullrich et al. 2012; Hemmer et al. 2010 DGfG, 2014; Michalak & Müller, 2015). Pragmatics could explain how the linguistic expressions in geographic content are meant and understood, for example in comparison to sociologist, how do geographers understand the term city, or when compared to the mathematics, how is converging understood in terms of graphs or plates. The use of geographic subject-specific language is bound to mental availability for geographic specific terms and vocabulary.

4.8.2 Basic communicative actions in geography (E2)

Vollmer (2011) provides a description of key speech acts linked to cognitive operations that are essential to all learning situations and social communication. They are divided in the model between E3 and E2 according to whether they function on a macro-, miso- or meso-level. The latter two levels are contained in E2. Vollmer's general discourse functions are naming, describing, narrating, explaining, arguing/positioning, evaluating, and simulating/modelling. These functions offer a framework for expected language in various oral or written school genres and for different expected complexities and characteristic function on varying levels. For geography education in Germany these key speech acts are determined by national standards and operators, with a focus on communicational structure of lessons and competence-oriented learning situations. In Germany geographic operators are structured into three criteria related to requirements, which increase in complexity simultaneously. The first is Reproduction (e.g., describe, name etc.), the second Re-organization, transfer and reflection (e.g., analyze, explain etc.) and the third Problem-solving (e.g., evaluate, judge) (DGFG, p.32; Roelcke, 2010). Fulfilling these criteria enables pupils to achieve subjective language requirements by linguistically performing in lessons. The requirements can range from topically abstract, theoretical, and general requirements (e.g. evaluation of the phase model of gentrification) to concrete, practical, and generic requirements (e.g. description of price development of real estate in parts of Berlin).

On the meso- and micro-level, basic actions can be partly related to macro-functions in E3. A micro-function such as describing, defining or summarizing, which we understand here as basic communicative actions, can be seen as an action that is partially required in the macro-function of explaining or arguing a geographic topic. Macro-functions do not necessarily need part functions from meso- or micro-actions, but stand in loose but logical and overlapping relation (Vollmer, 2011).

4.8.3 Geographic discourse processes (E3)

Geographic discourse processes is the most complex and highest requirement pupils can satisfy and it naturally requires the application and comprehension of the requirements of E1 and E2. Referring to prior, generic ideas posed by Vollmer (2011) and Budke & Weiss (2014) the following requirements determine and specify geographic discourse processes, and enable pupils to participate in the discourse of language and the construction of meaning in geography.

(I) Processing: Geography introduces learners to accepted ways of speaking and dealing with subject-related themes in a particular classroom culture, which is relevant to visual and discontinuous material. Both discontinuous texts, such as non-linear, non-continuous texts in geography classrooms, and visualizing aspects play an important role in geography education research focusing on language awareness. Discontinuous texts can be divided in logical visualizations (tables, diagrams, charts, maps) and figures (drawings, pictures) and are often used in combination with text (Huber & Stallhofer, 2010). Research that has tried to specify linguistic requirements in visual, discontinuous material has looked at competence in producing, decoding, reading and evaluating maps, discursivity of maps, reflection on maps, evaluation and decoding of diagrams (Hüttermann, 2012; Haubrich, 2010; Budke & Kuckuck, 2015; Schnotz, 2001; Michalak & Müller, 2015). This research has shown that pupils need skills to deconstruct visual, discontinuous, symbolic textuality, such as competence in reading a map, if they are to communicate (Hemmer, Hemmer & Hüttermann, 2010, Hüttermann, 2012; Haubrich, 2010; Budke & Kuckuck, 2015; Schnotz, 2001; Michalak & Müller, 2015). Consequently, language actions to decode visual, conceptual textual geographic texts and auditory, conceptual, oral geographic texts within social discourses are necessary. Important aspects of this means an understanding in terms of geographic textuality and strategies, such as elaboration or exemplifying, and the verbalization and decoding of other geographic media. Such geographic media includes development and use of linguistic strategies to compare and connect information of different media and transfer (discontinuous) cartographic, visual, symbolic, and statistic information into language.

(II) Critical geographic application: Teaching geographic discourse processes leads to a state in which pupils are able to analyze and reflect upon material that hey come across, from which pupils can decide if this given information in this particular presented medial form is appropriate to a certain discourse or for use in answering a question for which they were considering the inclusion of the material. Understanding and performing geographic discourse processes means becoming aware of the discourses and discourse functions in geography and working successfully with and in them. Skills such the ability to explain why a perception of space is articulated in a certain way are needed for language to be used in critical reflection, for example and to maintain recipients' interest. This includes the autonomous development of geographic issues and acquisition of geo-literacy as a source of inspiration to reflect upon identifications on cultural levels (Galani, 2016). Moreover, geographic argumentation skills play an important role for critical geographic application in discourses and conflicts. The subject of geography does not exclusively deal with doubtless and unambiguous content, but rather relates to various figures of argumentation. In

geography argumentations are often open in their results and normative, whilst factual arguments are relevant. Specific criteria of geographic arguments are reference to space, multi-perspectives and complexity (Budke & Meyer, 2015, Toulmin, 1996, Kuckuck, 2014).

The next chapters explain the research undertaken, in which interviews were used to analyze language awareness used by bilingual geography teachers and their concept of how content and language integration fits into the presented discourse of language in geography. Finally, implications for the language-aware monolingual geography classrooms are discussed.

5. RESEARCH DESIGN

5.1 Methodical Choice

How bilingual geography teachers interpret and analyze geographic language is part of their subjective interpretation of the subject geography. Previously, qualitative analysis involving interviews was used to understand these processes (Mayring, 2015; Rohracher, 1976; Barton & Lazarsfeld, 1979).

For intersubjective traceability, it is not technical knowledge but rather knowledge of processes and particularly knowledge of interpretation and explanation that are relevant here. Of interest here is acquiring knowledge, such as the structures of teaching actions in relation to their attitudes towards subject-specific language and even implicit patterns of perception and diagnosis. Acquiring this knowledge is where expert interviews gain empirical strength and have advantages over quantitative work (Bogner, Littig & Menz, 2005, p.21; Kaiser, 2014; Helfferich, 2011). Subjective strategies involved in teaching bilingually and the attitudes of the bilingual teachers are highly complex. Consequently, the process of monitoring alone would have been too restrictive (Bogner, Littig & Menz, 2005).

5.2 Material

Qualitative interviews are a mixture of open and structured conditions (Kaiser, 2014). A thematic basic structure alongside a research question with general, open questions specified in the dialogue was used. This meant that interview could follow the fluency and flow of the expert's replies, questions could be adapted and re-organized based on the interviewer's decisions to focus on research targets, and further questions could be created to investigate further information relevant to the research. The objectives of the research question were therefore made to be measurable, so that the results could be referred back to the theoretical requirements and concepts of the model (E1-E3, Figure 1). This objectification to practical contexts was undertaken in three steps, visualized in Table 1. The entries in the figure are to be seen as exemplary and therefore do not contain every element used. The dimensions of analysis (1) identify measurable, observable phenomena contained in the research question. These dimensions are transferred to the complex of questions (2), which lead to the interview questions (3). These questions were filtered through a theoretical system to establish how the professional subjective routine knowledge of teachers is acquired (also see: Section 3). The registers and layer of the model (Figure 1) were used to sharpen the analysis dimensions and guide the question complex.

Table 1. Processing of questions with selected examples

Research Question	Dimension of Analysis (1)	Complex of Questions (2)	Example of Operational Interview Questions (3)
To what extent do CLIL teachers have language-awareness of geographic language and communication, and to what extent can it be used to sharpen general geographic language demands?	Concepts and opinions of geographical language	Awareness of repertoire of geographic linguistic means	Explain how important you think it is for students to learn geographic terms?
	Personal attitude towards the importance of language competence teaching	Awareness of integration of discourse literacy	Could you explain how you integrate methods of teaching geographical terms in you lessons?

5.3 Sample and Pre-Test

Identical selection criteria were used to select two teachers for the pre-test and a further sixteen for the main data collection. The aim was to have a specific, closed group but with broad variation within the group: The sample contained typical cases with a maximum of differences. The group heterogeneity prevented generalizations from being made too quickly. Contrasting extremes in terms of age, experience and role in teacher training were also include in the sample. A saturation of the sample was reached when no new information could be added with regards to decoding. Only teachers who teach bilingual geography in English and German, and who have a degree in these subjects, were interviewed due to a need to obtain a reflective view on the geographic language concept. The interviews were conducted in German and translated into English by two English teachers for this article.

The following criteria were used for selection of teachers to be interviewed: 1) Recommendation from headmaster/-mistress, other teachers and/or pupils concerning excellence in terms of language education; 2) Teachers who had taught bilingual geography in secondary schools in Germany for at least two years and had English and (monolingual) Geography as subjects; 3) A balanced age level representative of experience in relation to whole sample and; 4) Inclusion of teacher trainers to benefit from their mediation and teaching experience.

The results of the pre-test, which consisted of two interviews, were presented to members of the institute on a symposium, and the number and structure of the questions were discussed. The interviewers' understanding of the questions was checked, as was continuity of the interview structure and the impact of the structure and interview duration. These pre-test result checks of the questions and the main consensual discussion led to the main framework of the question catalogue being reduced.

5.4 Categorical Decoding

The interviews ranging between 45 and 120 minutes and were fully transcribed to ensure that, the analyzing processes could be referred to and checked with reference to the original material. Complete and internally concluded statements of teachers in the transcripts were used as analysis units as they tend to be more precise and more informative than single sentences or paragraphs. Categorical decoding was performed via an initial deductive set of categories on the basis of the analysis dimension and complexity of questions, which was based on the author's and co-author's experience and on subject-specific language and foreign language teaching research. The openness of the analysis was guaranteed by inductive, text-based developed categories for decoding statements that did not fit into the

deductive categories. This openness from the inductive categories was needed for personal attitudes, institutional influences, and thematic specifiers categories that were identified during the qualitative analysis of the transcripts. The co-author and author consensually tested and agreed on the category system using two transcripts. Table two shows the final inductive and deductive set of categories and sub-categories, and the number of items assigned to these categories. Interrater reliability was then established by comparing the congruency with category assignments for all transcripts by another researcher. Statements were then connected by analysis strategy summarization by two researchers (Mayring, 2015).

Table 2. Assigning of Data

Category	Number of items congruently assigned to the category by author and co-researcher (Cohen's)	Sub-Categories
1. **Teacher's understanding of and attitude to bilingual teaching of geography**	375 of 447=0.83	a) Values and attitudes of teachers and awareness of geographical language b) Goals / Wishes c) Coherence of language and content
2. **Creation and planning of learning and teaching arrangements**	918 of 1047=0.87	a) Teaching Methods b) Didactical planning and decisions (Reception, Interaction, Production, Mediation) c) Media / Material d) Handling of difficulties e) Working with pupils (choice of topics, internal differentiation)
3. **Comparison of language support strategies between subjects**	215 of 280=0.76	a) English and Geography b) Bilingual Geography and German c) Language teaching and subject teaching d) Language support related to geographic topics
4. **Linguistic difficulties of pupils**	51 of 75=0.68	

6. FINDINGS

Bilingual geography teachers tend to specify their concept of geographic language according to the creation of communicative situations in the classroom and their values and criteria of successful language actions. The next sections deepens this assumption and the model of geographic language will help using the findings to specify geographic language requirements in the model (Figure 1, E1-E3).

6.1 Teachers' values and criteria in terms of geographic language

An essential value that guides the teachers' routine in bilingual geography lessons is the *content before language approach*. It clearly separates subject teaching from language teaching. Consequently, communicational processes and the fostering of communication competence in applying content is seen by the teachers as key in lesson planning and performance. Language functions as a service for the geographic content, with content evaluated, whilst language is not.

T1: "The linguistic amount in bilingual lessons won't be evaluated, but only the aspects that relate to subject-specific language. If one can use geographic terms in context, this is what is relevant and will be evaluated. If he or she uses it grammatically correct or the spelling is not relevant."

T6: "It is an advantage to also be the English teacher in terms of using methods or curriculum coordination but I step back from my English teacher role in bilingual geography."

The overriding belief is that subject-specific methodical work is part of geography education, whereas language subjects are responsible for the overlapping basic skills such as text structuring or naming elements of different texts. However, this content before language approach also recognizes that that the content can only be of high geographic quality when the language competence is also of high quality. So there is a two-track demand. A core ideology here is the *functional, terminological bilingualism and bilingual discourse competence*.

Another point to consider is that geography teachers tend to evaluate their bilingual lessons to be better, more structured, and more systematic than monolingual lessons. This evaluation includes, for example, that reading, writing, or presentation strategies are integrated in pre-, while and post tasks arrangements.

T7: "Indeed I often recognize that my bilingual lessons are better than the German lessons because we work with a better structure; we work with the material for longer and with reading and listening strategies."

T14: "I think that it would help pupils (in German geography lessons) if the structure was similar to the structure of bilingual lessons, where I do work with more structural elements. I could do that in German as well."

The reflection of language is considered as crucial as it allows teachers' to identify pupils' language skills more clearly in bilingual lessons than is possible in monolingual lessons. In the teachers' perception, pupils in the bilingual class tend to analyze what they want to say in more detail, and have a greater ability in expressing themselves with words, including which words they can use or which they have to check on. This reflective mental process can be described as *intensive language perception*. It bears witness to a training of reflective capability of competences and a repertoire of linguistic means, a certain openness for language that pupils can ask themselves, even in monolingual lessons, which terms do I understand and which don't I understand, where do I have a question, and how specific are these terms linguistically? What is general information, and what do I have to read in detail? This sense of language openness and linguistic understanding is seen as essential in bilingual geography lessons.

Moving on from fairly curricular and superordinate values, we now focus on teachers' more personal views and their practical ethics. These ethics could be described as a *barrier-free concept of uninhibited trying and applying within language actions*. This term means language barriers are reduced and manifold communicational situations initiated through classroom interaction strategies.

Within the core values, another aspect relevant to the construction of communicative situations, is how teachers evaluate language performances of their pupils in geography.

T11: "*Successful language action means if they (the pupils) are able to geographically and adequately present content, to formulate emotions and thoughts, opinions, when they can*

communicatively react to stimuli or impulses, when the can stay objective, interact, reflect by giving reasonable feedback…"

T8: *"…if they gain the competence to express what they cognitively intend to express and when they are able to adequately interact and react with and to each other…"*

The passage by Teacher 8 again directly refers to discourse functions to gain geographic meaning and communication competence. These functions are manifested in aspects of adequate participation and in how the pupils use geographic input and reflect on it to gain knowledge for its intended purpose.

The levels of expectations influence the way in which teachers subjectively demand and organize language situations in geography, and which performances assume higher priority in the communication processes. Here, the subjective concepts are interesting in contrast to or in combination with the standard educational concepts because they mirror the practical evaluation process. For instance, a teacher who sees flexibility in producing language and therefore task-related content as relevant would rather use model texts that include structural elements which can be transferred to other structurally comparable tasks, for example a demographic pie chart or climate graph. In following tasks, this teacher would evaluate the flexible usage and integration of structural elements by pupils as relevant in overall performance. All teachers stated that geographically appropriate and concise language performance was relevant (Table 3). By explaining and discussing their most relevant methods for establishing language situations, material, or content, teachers defined their concepts of geographical communication and language. Within these explanations, teachers specified what communicative aspects they consider valuable in performance within a language situation in geography. These aspects were categorized into criteria types (Table 3), which describe what teachers see as valuable and successful geographic language performance among their pupils. This system of criteria could be separated in two sub-criteria: one that described linguistic competences with regards to linguistically planning, reflecting, and performing geographic communicative situations. The other one specified the more content-wise level of geographic language situations, namely the adequacy of geographic language products. Consequently, there are two types of values in teachers' teaching philosophy; the very language and linguistic reflective type on general language aspects such as fluency and cognitive processes, and the geographic specification of general learning requirements.

Table 3. Teachers' Criteria of Geographic Language Performances in Bilingual Geography Classroom

Functional linguistic competences in geographic communicative situations:		Geographic coherences and adequacy:
Planning and reflecting of geographic language performance:	**Performing in geographic tasks:**	▪ **Conciseness and accuracy** ▪ **Transparency and relevancy:** Appropriateness of geographic phrases, collocations and terms according to task, spatial and topical reference ▪ Substantial structuring of answers: Connection between elements and not only adding of them
▪ Skills to formulate actual intended thoughts on geographical tasks ▪ Autonomous, self-confident reflection after language performance ▪ **Intensive language perception:** Reflection on the given geographic task and own available linguistic means ▪ Flexible transfer of linguistic means for other tasks	▪ Fluent, coherent speaking ▪ Flexibility and spontaneous reaction to conversation partners ▪ Skills to maintain conversation ▪ Address partners and animate them for listening	

These types language criteria performances influence geographic lessons which, along with an in depth description of the criteria, is explained in the following sections.

6.2 Initiated geographic communicative situations as specifiers of geographic language

As mentioned, teachers' understanding of the requirements influences how they initiate geographic communicative situations in the classroom and support pupils in these situations.

6.2.1 Repertoire of geography-specific linguistic means (E1): Transparency of geographic terminology

The teachers claimed that pupils have problems in effective and appropriate use of geographic terms. They used two factors for explanation; pupils did not know why they should use geographic terms in certain contents and pupils had problems retaining terms so that they could effectively and appropriately choose the right term in the right situation. The teachers had strategies to overcome these problems, which included a reflective process in the introduction and use of terms, described as *geographic transparency* that specifies teachers' values of geographical appropriateness and adequacy.

> T4: "When we talk about language awareness, it is relevant that pupils can imagine what is behind the geographic term. Pupils do not use a term, when they do not know why this term explains a process or a fact faster and more precisely than just circumscribing it (...), just take the term periphery. It is good to combine the learning and understanding of terms with visual material such as maps."

Consequently, pupils should be encouraged to be aware that these terms are needed to optimize language skills in geography for understanding and the reception and communication of geographic content. For the interviewed teachers, the correct contextual use of terms was an essential part of geographic learning and teaching. It seems that bilingual teachers analytically reflect on the terms used in their lessons with regards to the efficiency and meaning of the term. The concise and effective use of terms naturally belongs to geographical communication. This usage allows pupils to reach higher levels of communication because their language becomes more developed. The use of geographic terms makes pupils' interaction more valuable, which is supported by teachers' values that refer to this in their concepts of accuracy. Pupils have to bring the terminology into a network of terms that structure their geographical understanding (e.g. soil and climate that should be transferred as foundations for agriculture).

6.3 Visualization in geography and the meaning of geographic discourse processes

The concept of visualization was vital for how the interviewed teachers support language in geography. Using visual, discontinuous material and filtering it to receive information is seen as a specific characteristic of geography teaching. The handling of visual material, particularly maps, pictures or diagrams, is seen as a language-learning outcome with the required content and referred competences that pupils need. Furthermore, this visual material is seen as a support for pupils' language actions. Teachers claim that is necessary to support pupils in their language awareness, for example that pupils can develop skills to decide when they need input in the form of phrases or structural support for working with a map or diagram. Visuals help pupils to focus on specific geographic elements and offer numerous speaking stimuli and options for referring to prior knowledge concerning content or language abilities.

T14: "Graphical organizational system can be found on task sheets for instance, visualizations make sense and are provided in geography."

T9: "In this way that these visuals are verbalized first of all and this structure offers support."

T10: "When the content is clear, one can speak about optimizing language use, why this term is crucial and why it makes sense to remember and use this term. This is pretty useful when it is combined with strategies of visualizations (with a map) on transparency."

Groups of teachers stated that, within these visual materials, the reception and verbalization of information in maps, diagrams, and pictures are highly relevant language skills when working with and understanding geographic content. In this context of geographic visuals, teachers' strategies can be summarized as integration and consolidation of geographic-methodical competences and their verbalization processes. To establish pupils' language skills so that they can work adequately with the material, teachers state that transparency for competences is needed as a central goal. Pupils should understand that the capability to verbalize information in a geographical themed picture is therefore relevant for gaining geographic meaning. This capability of decoding visual material into geographic language and meaning again refers to discourse processes (E3) and basic communicative actions (E2).

7. SUMMARY OF MAIN RESULTS AND DISCUSSION OF FINDINGS

The interviews revealed that, as a result of values they are concerned with language in geography, bilingual geography teachers use concepts of geographic language in their classroom, which offers a number of implications for language aware geography education. These values in teachers' language awareness shape their concepts of geographic language and the discourse functions within it. Within these concepts of language in geography, teachers implement strategies that fit to the requirements of consistent language education in *Bildungssprache* and language in schools, such as the adequate, audience-oriented verbalization and concise expressions (Feilke, 2012). The values teachers mentioned show that there is a language awareness of geographic language that is specified by teachers themselves but can be categorized into a series of common values (Table 3). Teachers' core values such as functional linguistic competences in geographic communicative situations and criteria of geographic coherences and adequacy primarily fit to Feilke's (2012) or Gogolin's (2011) attempts to formulate criteria and characteristics of applying *Bildungssprache* (Table 3). Feilke states that speakers' skills for generalization and discussion of issues are central marks of applying *Bildungssprache*.

Table 4 summarizes the coherence between teachers' values and their strategies for teaching language in the classroom. It shows the steps for initiating geographic language in bilingual geographic classes.

Table 4. Steps of Initiation of Geographic Language Teaching in Bilingual Geographic Classes

(I) Teachers' core values in terms of language	
Criteria of Geographic Language Competence	**Goals and attitudes of lessons and classroom interaction**
(II) Initiated geographic communicative situations and support by teachers	

- E.g. Repertoire of geography-specific linguistic means: Vocabulary and terminology
- Geographic visualization
- Scaffolding strategies for teaching geographic language
- Methodical thoughts on systematic structuring and cooperative tasks

(III) Specification of geographic language competence by teachers

- E.g. Role of learning and teaching geographic terms in terms of vocabulary and terminology
- Geographic methods and related skills integrated to decode geographic information out of media
- Transparency for pupils' of benefits of knowledge about geographic skills
- Transfer of knowledge and structuring

Teachers assume different values (Table 3) due to the language aspects they see as valuable for pupil performance (Step I in table 4). These values can be summarized as quality criteria the teachers subjectively identify on the level of language performance in bilingual geography, and as goals and attitudes they have in terms of how classroom interaction should take place (such as language feedback, inhibited atmosphere). These criteria of reflective feedback for inhibited speaking atmosphere strongly refer to Yoshida's (2010) conclusions on choices of corrective feedback in language-aware classrooms, in terms of the tension between support via teachers' recasts and actual motivation of pupils to reshape their statements.

These values influence their willingness to establish communicative situations in the geography classroom and how geographic language is integrated, what is expected of it, and how it is verbalized (Step II in table 4). How suitable situations are established identifies central key speech acts and discourse functions that the teacher considers relevant (E3, E2 in the model, Figure 1).

As a result of their understanding, teachers place different priorities on geographic material and language actions. Through describing routines in initiating geographic communicative situations, the interviewed teachers specified what they considered geographically valuable and relevant language in geography classrooms. Here it seems that teachers specify which speech acts they see as worthy in terms of geographic discourse processes and basic linguistic actions (Step III in table 4). This specification can again have influence, in the progress of further developing geographic language, on their initial values.

Regardless of their years of experience, the interviewed teachers saw motivating and authentic speaking stimuli in real cooperative tasks as essential for successfully gaining skills relevant to achievement in the E1-E3 areas. Interaction is therefore seen as the basis for establishing (geographic) language education. Interactional communicative situations in geography penetrate reception, production, and mediation/transfer skills and oral as well as written requirements.

The discourse functions and key speech acts that the teachers focus on rely on terminology (Figure 1, E1), successfully verbalizing geographic visual material such as maps, diagrams, and pictures to gain information (Figure 1, E2, E3), and verbalizing systematic structuring and therefore progressively processing information in geographic processes (E3). The understanding of phrase using in terminology touches on other areas as well since, with regards to the values of the teachers, using specific terms makes geographic communication valuable and partially separates it from other subjects (Figure 1, E1, E3; Brown & Ryoo,

2008). Teachers mentioned that methods for teaching reception of information such as listening-comprehension and working with text tasks are not ignored, although they tend to focus on situations in which pupils can perform within production-oriented tasks. The narrative approach in terms of discourse analysis and talking about space for language learners alike could be considered a fruitful approach here (Hofman, 2014). Here, the functions of discourse processes and key speech acts become visible.

Geographic discourse processes (E3) is especially relevant in tasks dealing with mediation and in those concerned with analyzing and decoding visual material. The requirements and goals of E3 are clearly shaped in a teacher's concept of pupils gaining *geographic relevancy and transparency*. It appears to be relevant for geographic discourse processes that pupils understand the beneficial consequences of using geographic methods and geographic linguistic means for acquiring geographic language and meaning. This transparency concept is manifested in the discourse functions Budke and Weiss provide for the language-aware geography classroom (Budke & Weiss, 2014). The idea of relevancy and transparency can also be applied to concepts of map competence and symbolic textuality, where meaning in given geographic visual material is deconstructed to gain transparency (Budke & Kuckuck, 2015; Hüttermann et al., 2012).

Another striking aspect here is the teachers' concept of *intensive language perception,* as it concretely describes a competence pupils should gain within the discourse processes. This reflective thought on geographic relevance in using language (also in monolingual lessons) in terms of content and linguistic aspects of geography, opens new doors for designing geography lessons.

Further work should analyze the extent to which this model and successful strategies for integrating language and subject learning in bilingual geography teaching can practically be transferred to and used in monolingual lessons. Examples such as the Arizona GeoLiteracy program on reading comprehension have shown that strategies for gaining competences in language areas and content areas can be beneficially combined (Hinde et al., 2007). It would also would be appropriate to analyze to what extent actual bilingual teaching material such as in schoolbooks fit into the concept of language as a support form in geography classrooms (also see: Behnke, 2014). These findings are a step in the right direction for geographic support in the language education debate. Geography helps to explain the world and language helps to connect the people in it. Finding answers to the effective use of geographical language is a way to achieve such an understanding.

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