



EXPLORING LEARNING OPPORTUNITIES DURING MIXED-AGE PEER INTERACTIONS IN MIXED-AGE SECONDARY SCHOOL EFL CLASSROOMS IN GERMANY

Tomas Kosⁱ

University of Leipzig,
Germany

Abstract:

Research in mainstream mixed-age (M-A) classrooms suggests benefits for both younger and older learners. Although M-A is increasing in L2 classrooms, research is lacking. Moreover, studies on peer-interactions within M-A groups/pairs in L2 contexts are scarce. The current study investigated M-A pair work of twenty young adolescent English L2 learners of three M-A secondary school classrooms in Germany. Learners were organized into ten M-A pairs and worked together on 10 regular classroom tasks. After the unit of work, individual interviews were conducted in order to elicit learners' perceptions of their interactions. Audio-recordings of their interactions were analyzed for Language Related Episodes (LREs) in order to explore opportunities for learning created during these interactions and the roles played by individual learners within these pairs during these episodes. The findings have shown that regardless of the age difference, the majority of pairs frequently engaged in LREs. However, while the majority of LREs were correctly resolved, a relatively high proportion of them remained either unresolved or resolved incorrectly. While younger learners tended to initiate and respond to LREs, the role of the LRE resolver was typically taken by the older learner. Implications for foreign language pedagogy in M-A classrooms are discussed.

Keywords: mixed-age peer interaction; LREs; learners' roles; classroom tasks; sociocultural theory

1. Introduction

Classrooms that are composed of two or three different grades are called mixed-age (M-A) classrooms (sometimes referred to as *multi-grade*, *mixed-grade* or *composite classes*). In one M-A class, the grades can range from the 1st to the 3rd, from the 4th to the 6th and from the 7th to the 9th grade in the case of three-grade classrooms. Some schools may set

ⁱ Correspondence: email tomas.kos@uni-leipzig.de

up M-A classes out of demographic and economic necessity (Huff Raggl 2015). According to Little (2005), about one third of all classes across the world are multi-grade classes. In Europe, for example, there were 2735 (15.3%) multi-grade classes in Austria in the school year 2012–2013 and 2510 (16.4%) multi-grade classes in Finland (Hyry-Beihammer Hascher 2015). Some of these schools set up M-A classes mainly because the teaching community believes in the positive pedagogical and social outcomes of this approach. This was the case at the research site for this study. Schools that do so based on such a belief have become a common phenomenon not only in Germany but also worldwide (Kalaoja Pietarinen 2009; Smit Engeli 2015, Wagener 2014). M-A has been adopted in both public and private schools in various countries such as Australia, France, Switzerland, the Netherlands, etc. (Saqlain 2015, Smit Engeli 2015). It is widely used in Montessori schools which advocate using heterogeneous groups to encourage learning. Maria Montessori believed that children should be free to choose partners in learning, to have the opportunity to interact and work with peers of different ages, to work at their own pace and their own tasks. M-A classrooms are also popular among alternative schools such as Jena plan (Thurn 2011). In Germany, in addition to alternative schools, M-A classrooms have been adopted in some public primary schools and in the so-called *Gesamtschulen*, which combine three school types into a comprehensive school (Wagener 2014). However, it is difficult to estimate to what extent M-A classrooms have been implemented because many schools make their own decisions in this regard.

However, with regards to M-A classrooms, the research commonly states that teaching in an M-A class is more difficult than in single-grade classes (Veenman 1995). Teachers report difficulties in implementing M-A teaching due to their lack of training to meet all students' needs. For example, they seem to have difficulties with sufficiently challenging older students while keeping younger children engaged and confident in their learning abilities (Berry Little 2007, Veenman 1995). This is certainly an important pedagogical issue, although it must be pointed out that the difficulties that teachers may have also depend on the context, as a poorly resourced and widely heterogeneous single-grade class can be more difficult than a well-resourced M-A class with appropriate support structures (Mulryan 2007). Nonetheless, the current challenges of school education faced by Germany and other European countries involve the need for improvement in dealing with students' heterogeneity and more personal support for students. Such reforms also concern M-A classrooms and require diversified teaching methods and specific teacher competencies.

Furthermore, the very conceptual underpinnings of the M-A classrooms is based on the notion that the older learners learn by helping their younger partners, while the younger students learn by being helped by the older. Despite this, the findings of research conducted in mainstream education are not clear-cut in this regard. With regards to L2 M-A classrooms, available studies suggest that great heterogeneity in terms of language abilities is the main argument for an individualized and learner-centered approach in M-A classes (Frank 2014, Heinzmann Ries Wicki 2015, Thurn 2011)). Therefore, learners are usually allowed individual learning paths and to progress at their own speed and level.

Learning relies on assignments, which learners accomplish either on their own, with a partner, in small study-groups, or with the teacher's help, depending on their needs and abilities. In other words, the teaching practices do not expect all students to learn in the same way and at the same pace, but instruction varies according to needs of students, with regard to learners' interests, readiness or learning profile (Heinzmann Ries Wicki 2015, Thurn 2011). The teacher's role is to facilitate the learning process, to enable students by adapting materials and activities to match their needs. Thus teachers' main responsibility is to design a rich learning environment in which the learners have optimal conditions for their individual or collaborative learning endeavors and are actively supported in that process (Legenhausen 2008 p. 36). A common practice in M-A classrooms is the use of pair/group work that can be heterogeneous or homogenous in terms of age and/or abilities.

We can see that peer interactions are one of the pillars on which M-A L2 classrooms stand as a great deal of learning is done in peer interaction. Hence, if we are to understand M-A classrooms so that we can develop efficient teaching approaches and create successful learning environments, we need studies of teaching and learning practices in heterogeneous M-A classrooms. We need to understand what occurs when peers of differing ages and/or proficiencies interact on classroom tasks and to what extent and how their interactions promote learning opportunities for both learners. For example, can both learners engage in discussions about language issues and/or solve linguistic problems when working on classroom tasks? Unfortunately, we know very little from the general education research about peer-interactions among learners in M-A classrooms. Moreover, although some research has been conducted in L2 mixed-proficiency settings, to my knowledge, research on peer-interactions within M-A groups/pairs in second language classrooms is scarce (Author 2017).

Focusing on M-A peer interactions, this article contributes to our theoretical and practical understanding of learning and teaching in M-A secondary school foreign language classrooms. This article reports findings from a larger study. It has two main aims. The primary aim is to explore to what extent learners organized in M-A pairs engage in and resolve Language Related Episodes (LREs) during their interactions on classroom tasks. This is important as Swain and her colleagues have shown that episodes during which learners discuss language issues promote second language development (Swain 2006, Swain 2010). As learners attempt to solve a linguistic problem, they construct and analyze the new linguistic forms, which enables them to learn a new language or knowledge about language, thus improving their language use (Swain 2006). The secondary aim is to examine the roles that individual learners within M-A pairs take during these episodes. This is important as research found that the role taken by individual students within pairs influences LREs and pair dynamics (Dao McDonough 2017, Moranski Toth 2016). This is especially important, as the pairs under investigation are learners of different ages and relative proficiencies. For example, it can be anticipated that such a pairing of learners results in a low level of engagement with LREs if the work was dominated by the older and/or by the more proficient learner while the younger

and/or less proficient learner's participation was passive (see Kowal Swain 1994, Leiser 2004, Young Tedick 2016).

2. Literature Review

2.1 General education research related to M-A peer interactions

The research explored peer tutoring among cross-age (not identical to M-A context) and same-age peers and their effects on learning gains. Studies by Topping (2005) and Topping and Bryce (2004) found that peer tutoring may promote learning of both the tutor and the tutee. Interestingly, in their study which involved tutors and tutees of similar abilities, they found that same-age peer tutoring may boost similar learning gains as cross-age peer tutoring. However, they also explained that the effectiveness of peer tutoring is increased if students are allowed to choose to be a tutor or a tutee, according to the task and its nature (Topping Bryce 2004). Contrasting results were found by Robinson, Schofield and Steers Wentzell (2003) who reported that cross-age tutoring hinders the establishment of reciprocal tutoring, and is therefore not as effective as same-age tutoring. Similarly, the study by Duran and Monereo (2005) showed that an interaction between a tutor and a tutee in an equal, reciprocal nature is most effective in terms of learning gains. Furthermore, Panagiotopoulou (2004) and Huff and Raggl (2015) have critically questioned the basic assumption of M-A grouping that differences in age make it easier for children to ask for and provide help (Kucharz Wagener 2007). For example, Panagiotopoulou (2004) observed children's literacy practices in an M-A classroom and found that the older children have a double burden: they have to show their younger classmates how to write a story and simultaneously write a story with the classmate. She claims that such expectations are too high to be met.

2.2 L2 research related to M-A peer interactions

Only a few studies have also investigated peer interactions of students among differing ages (Author 2017, 2019, Berman 1998). For example, the author (2017) explored peer assistance among young adolescent students of differing ages. The study has found that some pairs assisted one another in ways similar to teacher scaffolding and some in ways that resemble what Donato (1988, 1994) called *collective scaffolding*. What is more, this assistance promoted increased independence of target-like use of the younger students who were the focus of the analysis. Another study (Author 2019) has shown that M-A pairs are able to form patterns of interaction, which are beneficial to learning, namely *collaborative* and *expert/novice* pattern of interaction (Storch 2002). Overall, these studies suggest that rather factors such as the relationship between learners, proficiency differences and perceptions of partner's proficiency may be of greater importance for the extent and quality of peer assistance than age (see also Storch 2002, Watanabe Swain, 2007, Watanabe 2008).

Despite the lack of L2 research into M-A peer interactions, there has been a substantial body of research conducted in mixed-proficiency settings. Although the

research in mixed-proficiency settings has been carried out among same-age learners, it is of particular relevance to this study in that it involves interaction among learners whose proficiencies differ. This line of research has shown that how learners are grouped impacts on language learning and some groupings are argued to be more conducive to learning than others (Dao McDonough 2017, García Mayo Zeitler 2017, Kowal Swain 1994, Leeser 2004; Storch 2002, Watanabe Swain 2007, Yule Macdonald 1990). Research also suggests that although it is difficult to predict the effects of proficiency on interactions, there are some patterns that appear across studies. For example, studies have found that as proficiency within a pair/group increases, learners tend to attend to form more often (Leeser 2004, Williams 1999). In other words, it is high proficiency (HP) learners rather than low proficiency (LP) learners who are more likely to contemplate language form and resolve linguistic problems they encounter when collaborating on tasks. Conversely, learners attend to lexis regardless of their proficiency (Kim McDonough 2008, Leeser 2004, Williams 1999) and negotiate meaning more when proficiency differences among partners increase (Long Porter 1985, Varonis Gass 1985). For example, Leeser (2004) who investigated interactions of 21 pairs of Spanish (L2) learners on a dictogloss task concluded that the most suitable pairing for the HP learners is with fellow HP learners. Leeser (2004) indicated that LP learners might not benefit from being helped by HP learners as they may not be developmentally ready to discuss some linguistic problems. Other researchers also claimed that although LP learners may benefit from being paired with their HP partners, the HP partners may simply be disadvantaged (see also Kowal Swain 1994, Young Tedick 2016).

Young and Tedick (2016) investigated collaborative dialogue in a two-way Spanish/English immersion classroom and compared peer patterns of interaction of 10 to 11-year-old learners during same- and mixed-proficiency small group work. They found that same-proficiency groups produced more collaborative dialogue than mixed-proficiency groups. Less proficient learners' participation was diminished, and some were silenced due to expert and novice positioning of learners during mixed-proficiency group work. In fact, as a result of 'an over- or misapplication of feedback' LP learners were denied 'to express their ideas or to read aloud to the group without explicit corrections of their grammar pronunciation' (2016 p.156). Perhaps surprisingly, learners who collaborated during same-proficiency group work were marginalized when working in mixed-proficiency groups. Young and Tedick (2016 p.156) suggest that the assumption that mixed-proficiency groups will, as a matter of fact, prompt peer assistance 'may reflect a false promise unless teachers carefully prepare students for and carefully structure the activity.'

Different findings come from the study conducted by Watanabe and Swain (2007) which investigated the role of relationship in the production of LREs and learning among adult learners. They found that more LREs were produced by learners who collaborated in comparison to pairs where the interaction was dominated by one learner. The pairs who collaborated also showed more evidence of learning (see also Kim McDonough 2008,

Storch 2002, Storch Aldosari 2013). These studies suggest that rather than proficiency pairing it is the relationship formed that may be of greater significance.

Another study that has shown that students do benefit from mixed-proficiency groupings is the study conducted by Davin and Donato (2013) in the primary school setting. The study found that students organized in mixed-proficiency pairs were able to collaborate in order to create a list of questions in Spanish. In line with previous studies (Donato 1994, Ohta 2000, 2001), it suggests that despite proficiency differences, learners are sources of new orientation for each other, and are capable of pooling their linguistic resources in order to guide each other through complex linguistic problem solving (2013, p. 46). This study shows evidence to say that L2 learners can learn with other L2 learners who might be less advanced than they are.

Nevertheless, participants in the majority of studies on peer interaction have been high school, university or adult students (Storch 2002, Watanabe Swain 2007), and only a small number of studies investigated younger learners or children (Davin Donato 2013). Hence, it is important to investigate to what extent findings from adult classrooms are applicable to those found among young adolescent learners in foreign language classrooms.

2.3 Learner's roles within LREs

We know from research that LREs occur in response to or as a result of a learner's problem or error (Fernández Dobao 2016). A learner who initiates an LRE may do so by requesting assistance, requesting confirmation, signaling a lexical error, or a problematic utterance that needs to be reformulated. Such LRE initiation may or may not be responded to by the other learner. In fact, the other learner may directly resolve the LRE by providing the grammatical or lexical item or the needed information that will help to solve the LRE. The LRE may as well be resolved by the learner who initiated it. In this way, the extent that individual learners initiate, respond to and resolve LREs during peer interactions can provide important insights on individual learners' roles within their interactions (Dao McDonough 2017; Fernández Dobao 2016, Moranski Toth 2016). They can thus be indicative of the scope of individual learners' contribution to pair work as well as to the extent and ways learning opportunities are created during interactions for the learners to learn from each other.

Researchers also found that the role taken by individual students within a mixed-proficiency pair impacts on LREs and pair dynamics (Dao McDonough 2017, Fernández Dobao 2016, Moranski Toth 2016, see also Yule MacDonald 1990). For example, in the investigation of the effect of task role on Vietnamese EFL learners' collaboration in mixed proficiency dyads, Dao and McDonough (2017) focused on whether task role impacts on the nature of L2 learners' discussions or their pair dynamics. In this study, sixty English L2 learners at a Vietnamese university carried out a storytelling task. When the lower-proficiency learner performed the task role as information holder, pairs generated more LREs and their interactions were richer in mutuality.

2.4 Theoretical framework - Sociocultural theory

Interaction is a central aspect of sociocultural theory. The sociocultural theory holds that a child develops as she/he interacts with others, and the relationship with others established by a child is essential for the child's cognitive development (Vygotsky 1978). Vygotsky saw social interaction as a crucial space for the child's development because it provides the child with structures that he/she internalizes in later stages as cognitive capacities. This social interaction is mediated through various semiotic tools of which language is the most important one. The concept of 'mediation' is related to one of Vygotsky's most important claims that 'human action typically employs mediational means such as tools and language and that these mediational means shape the action in essential ways' (Wertsch 1991 p. 12, see also Daniels 2015). It is through mediational means such as language that we gain awareness and control of our mental abilities (Lantolf Thorne 2006 p.59-60).

2.4.1 Linguaging

And because a language is an important tool that mediates social interaction, and it is through language (including speaking and writing activity) through which higher forms of human mental activity are mediated, it can be said that it is in social interaction that learning occurs. It follows that a social interaction between two learners using a language while working together to complete a language task has the potential to mediate learning. Swain (2006) uses the term *linguaging* which refers to 'the process of making meaning and shaping knowledge and experience through language. Linguaging is when language is used to mediate problem solutions, whether the problem is about which word to use, or how best to structure a sentence' (p. 98).

2.4.2 Zone of proximal development

The importance of interaction in SLA according to Sociocultural theory is that interaction is a necessary tool for working within a ZPD (zone of proximal development) of a particular learner. Vygotsky (1978, see also Lantolf Poehner Swain 2018)) regarded learning as a process under someone's mediation in the *zone of proximal development* (ZPD), which is:

"[...] the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (p. 86).

The crucial idea of the ZPD is that learning will take place only when the knowledge to be acquired is within the learners' ZPD. The implications for teaching and instruction are, as Daniels (2012 p.685) argues, that they 'should create the possibilities for development, that it should be negotiated, and that it should entail a transfer of control to the learner. Furthermore, Sociocultural theory (1978) and researchers from the

Vygotskian perspective have accentuated asymmetrical social relationships based on authority such as parents, teachers or more knowledgeable peers, being the sources of development and learning. It follows that the interactive work within M-A pairs can be explained from this perspective as it implies that the older or more knowledgeable and skillful learners are able to assist the younger or novice learners at the right level and provide effective assistance (Vygotsky 1986).

However, according to the general view of ZPD, as mentioned, for example, by Lantolf (2000), it 'necessarily involves interaction between an expert and a novice in which the expert eventually transmits ability to the novice through social interaction' (p.17). Nevertheless, this basic assumption of ZPD that learning always flows from 'experts' to 'novices' is debatable and does not seem to fully convey what occurs during collaborative peer interactions. Learners engage in a larger variety of collaborative forms than such a bidirectional view of ZPD implies. In other words, the ZPD metaphor should not be reduced to a mere novice's development under expert guidance. Similarly, to Donato (1994), Lantolf and Poehner (2008 p.14-16) think of the ZPD as 'collaborative interaction between experts and novices or peers who use mediational means to achieve jointly constructed expertise.' They explain that ZPD is determined in the process of learning, and peers create a natural context by adjusting the zone to the needs and abilities of each member of the pair/group in interaction. Thus partners' relationships in the zone can change in the course of interaction (p.14-16).

2.4.3 Scaffolding

Scaffolding, an important part of sociocultural theory, seems to be of particular relevance to M-A collaborative dialogue, as it implies that the more proficient learner helps the less proficient learner to complete the task at hand. Van de Pol, Volman and Beishuizen (2010) conducted a review of the general education literature on scaffolding and suggest that the three key characteristic features of scaffolding mentioned by the sixty-six studies reviewed are *contingency* (referred to as responsiveness or adjusted support (p.274), *fading* (gradual withdrawal of the scaffolding, and *transfer of responsibility* (responsibility for the performance of a task is gradually transferred to the learner) (p.275). According to Wood, Bruner, and Ross (1976), support that is provided includes initiating interest in the task, simplifying it, maintaining pursuit of the goal, marking critical features and discrepancies between what has been produced and the ideal solution, controlling frustration during problem-solving, and demonstrating an idealized version of the act to be performed. This suggests that through scaffolding, an expert is able to help a novice in various ways during their collaborative interaction on a task. A different notion of scaffolding comes from Donato's (1994) study, who investigated scaffolding within a peer group. He found that even though each individual member of the dyad lacked the necessary knowledge to produce a grammatically correct form in French, each member of the group contributed by his/her particular knowledge to the problem solution, and this contribution resulted in learning. Donato (1994) found that during their interactions, learners pooled their linguistic resources in order to form an utterance that neither of the

learners was capable of forming individually. He referred to such interactions as collective scaffolding. In a similar vein, Ohta, (2000 p. 52) defined scaffolding as ‘a collaborative process, through which assistance is provided from person to person such that an interlocutor is enabled to do something she or he might not have been able to do otherwise.’ In this way, scaffolding is not understood as a technique but is a fluid, interpersonal process characterized by the active involvement of the participants who construct mutual understanding or *intersubjectivity* in the process of communication (Stone 1993). Nevertheless, studies such as Donato (1994) and Ohta (2000) focused on university students, who may be capable of scaffolding each other’s learning within their ZPD, and who may do so in ways, which are not necessarily different from teacher-learner scaffolding. However, while the purpose of scaffolding as seen in teacher-learner interactions or among university-level peers may be to enhance second language development or a development of conceptual understanding (Davin Donato 2013), the purpose of assistance among secondary school learners is most likely to merely complete the task at hand, although this may vary across individuals.

3. Material and Method

3.1 Context and participants

The context of this study were three EFL classrooms at an alternative secondary school in Germany. An alternative school is a public or private school that has a special curriculum, offering a more flexible program of study than a traditional school. English curriculum at the research site consisted of three lessons a week of which two were teacher-led lessons and one was *self-study time* (Studiezeit), during which I (teacher-researcher) was not present, and during which learners worked independently on tasks included in their *study plan* (Fachplan). The study plan used in the current study consisted of subject areas and assignments for the whole unit of work, lasting two and a half months. It contained collaborative tasks and exercises which were to be completed with a self-selected partner, as long as he/she was of a different age/grade. The reason for this step was that allowing learners to choose their partner is the usual practice in these classrooms, as revealed in the interviews that had been conducted with other language teachers. They were told that they were responsible for the completion of the assigned tasks included in their individual study plans. However, this is not to say that all tasks were to be completed in pairs. Individual tasks were also included in the study plan. Sometimes, when a partner was either ill or took part in extra-curricular activities, a student from another group or pair joined them. This data is not included because this study explores interactions of the same pairs across various tasks. Twenty learners who attended three M-A classrooms took part in this study. They formed ten pairs composed of 7th, 8th and 9th graders (see Table 1). They learned English since grade 3. The majority of learners knew each other for a long period of time. Some spent a considerable amount of time learning together and doing assignments related to other subjects. All female

learners opted to work with other female learners while all male learners chose to work with their male peers.

The researcher was the participants' teacher. While the study aimed to describe the naturally occurring peer interactions within M-A classrooms, it is likely that the students' behavior was influenced by the fact that the researcher was their teacher. For example, knowing that the teacher would listen to their recordings could have impacted on how they interacted while performing the tasks.

One of the drawbacks is that learners' language proficiency could not be assessed independently of school-based assessment. Participants' 'relative proficiency' can only be made visible by two classroom achievement tests that were taken throughout the first term. These tests measured listening, reading and writing competences. The last classroom achievement test was taken by the learners two weeks prior to the unit of work. Their 'relative proficiency' was also determined by other summative classroom assessment practices that aimed to assess learners' speaking skills, grammatical knowledge, and vocabulary. Summative forms of assessment were supplemented by formative assessment practices in the form of observation of learners' performance during lessons and taking notes. All assessment practices were administered by me. Table 1 shows the relative proficiency score as determined by all the assessment practices mentioned above. However, these assessment practices differed across grades, and a true comparison of learners' language abilities is not possible. In other words, the assessment practices were specific to grade, and therefore the description is relative to the particular grade, and not an estimate relative to overall proficiency.

Table 1: Participant characteristics

Pair number	Name	Age	Gender	Grade	Relative proficiency
Pair 1	Lara	15	F	9	H
	Ella	14	F	8	H
Pair 2	Emilia	15	F	9	A
	Stella	12	F	7	A
Pair 3	Irena	14	F	8	A
	Sara	13	F	7	A
Pair 4	John	15	M	9	H
	Will	13	M	7	H
Pair 5	Lea	15	F	9	H
	Jess	14	F	8	A
Pair 6	Leni	14	F	8	A
	Lilliana	13	F	7	H
Pair 7	Riki	14	F	8	A
	Lyn	13	F	7	L
Pair 8	Gussi	14	M	8	H
	Jossi	13	M	7	H
Pair 9	Lenka	14	F	8	A
	Lucy	12	F	7	A
Pair 10	Alena	14	F	8	H
	Enna	13	F	7	H

H: high proficiency/A: average proficiency/L: low proficiency (relative to year group as assessed by the first term assessment practices)

3.2 Tasks

Over a period of two and a half months, learners carried out in selected pairs eight tasks and two grammatical exercises. The focus here is on three tasks and two grammatical exercises (see Table 2 below) that were carried out by the learners in the so-called study times, during which I was not present. In other words, students carried out these tasks in pairs without any teacher's help. Tasks included mainly collaborative tasks, which combined speaking, writing and reading. Learners also collaboratively carried out two grammatical exercises, which were aimed at a practice of certain linguistic items, which had been introduced by the teacher. Some tasks implemented were consistent with some general frameworks of task-based language teaching and learning (see, for example, Samuda Bygate 2008) according to which *a task involves holistic language use, achieves one or more meaningful outcomes, or is made up of different phases*. Tasks and exercises were a part of the 8th and 9th-grade syllabus and were included in the 8th and 9th-grade textbooks named Orange Line 4 and 5. However, since 7th-grade learners also completed the tasks in the 8th and 9th-grade syllabus, when necessary, these tasks were simplified in order to accommodate for their abilities. Thus, while for the 7th and 8th graders the majority of tasks in this unit meant exposure to and practice of new grammatical forms, for the 9th graders the tasks served as an opportunity to gain increased control over forms that had already been encountered and practiced previous year.

3.2.1 Examples of language tasks and exercises

Table 2: A description of language tasks and exercises

Task	Description
Comic	Ss jointly read the comic and work out the meaning of the story. Then, they jointly completed a grammar exercise (pre-task phase) in order to practice the backshift of tenses before engaging in the main task. Later, they wrote the comic as a story and read their story to the class. In the subsequent 45-minute lesson (post-task phase) learners were asked to complete related exercises individually. (135 minutes).
Text-reconstruction task	Ss jointly identified and filled in the missing targeted linguistic features. Later, they were asked to replace the identified features with different words. (40 minutes)
Looking for help?	Ss. jointly read a text concerning a teenager looking for help and three replies of agony aunt or uncle who are online experts, providing confidential advice and guidance. Then, they sum up the main text, determined the replies and talked about what they would do in a similar situation. (30 minutes)
Grammar exercises	Ss jointly completed two grammatical exercises in order to practice and consolidate their knowledge of <i>phrasal verbs</i> and <i>infinitive with/without to</i> . (45 minutes)

For example, *Looking for help*, *Comic* and *Text-reconstruction* tasks aimed at encouraging learners to think about language in the context of a meaning-focused activity (Willis Willis, 2007 p.116), while the grammar exercises were merely aimed at a practice of linguistic features. The *Comic* and *Text-reconstruction* tasks were convergent tasks that are

tasks 'in which all speakers are working to a joint agreed outcome' (Ellis 2003 p.123). The Text-reconstruction task is one of the most commonly used tasks to generate LREs (Alegria de la Colina García Mayo 2007). The *Looking for help* task was a task, which required a jointly agreed outcome only to a certain extent, allowing also for divergent solutions. All three tasks combined reading, speaking and writing. Research suggests that using writing/speaking tasks, rather than speaking tasks alone, would increase the amount of engagement with a language form while learners' attention is also directed to meaning (Alegria de la Colina García Mayo 2007). The *Comic* task, however, lacked its sole focus on meaning as it contained a grammar exercise in the pre-task phase in order to raise learners' awareness of the targeted linguistic form before engaging in the task. This was a pedagogical step suggested by the designers of the text-book. In fact, research has suggested that consciousness-raising activities in the pre-task phase may be particularly effective for eliciting attention to form and deliberations about form (Leeser 2004).

3.3 A description of the data and the instruments used for data collection

The data was collected during the winter term, over one unit of work lasting two and a half months in total. The following data collection instruments were used:

Audio-recordings included recordings of ten pairs interacting on three tasks and two exercises. The length of the recordings varied across pairs and ranged between 30 to 60 minutes. The recordings were made by learners themselves during their individual study time lessons during which the teacher/researcher taught different classes and was not there. These lessons were supervised by another teacher.

Artefact collection includes student's pieces of writing, learners' notes and classroom achievement tests which were conducted individually at the end of the unit of work.

Interviews (see interview questions in appendix A) were conducted mainly within the first two days after the last task had been completed. They were about forty-five minutes long. Interviews were held in learners' L1 (German). The aim of the interviews was to understand participants' feelings and perceptions of their interactions with an older/younger classmate over the whole period. Adopted from Watanabe's (2008) study, the interviews explored students' overall perceptions about the pair interactions, perceptions towards the degree of contribution, and perceived learning outcomes. Watanabe's study examined the interaction between L2 learners of different proficiency levels and their perceptions. However, in contrast to Watanabe's study which investigated adult learners' perceptions about their interactions on one task only, the current study explored the perceptions by children who interacted over an extended period of time across an array of tasks and exercises. Interviews were audio-recorded using individual microphones/digital recorders and transcribed using a transcription software f4. The transcriptions of the interviews were compared with the audio recordings of the interactions. As such, combining audio recordings and interviews achieved method triangulation and content validity because the analysis of peer talk was

compared with the students' own words from the interviews in order to compare what students do when engaged in LREs and what they say they do. For example, LRE episodes were compared with the students' perceptions of mutual assistance, the extent of engagement in discussions about language, their own contribution to pair work, their resolving of language problems, their gained understanding of the language, etc. Insights gained from interviews also allowed to demonstrate to what extent learners' perceptions of learning outcomes actually mirror learning opportunities afforded by their interactions.

3.4 Research Questions

RQ1) To what extent do German secondary school learners of English as a foreign language (EFL) organized in mixed-age pairs engage in and resolve LREs during their interactions on classroom tasks?

RQ2) What roles do individual learners within mixed-age pairs take during LREs?

3.5 Data Analysis

3.5.1 Coding and analysis of LREs

Learners talked mainly about 1) the task at hand, 2) about language use and choices, and 3) about other task-related content such as about main characters or events. Episodes in which learners talk about how to go about completing the task at hand are referred to as *talk about task* (TRE-Task related episodes). These task-related episodes (TREs) also included instances in which learners negotiated or assigned roles, announced or negotiated the next stage in the task (Storch, 2002) and so on. The focus of this article is on LREs which are episodes, during which learners talked about language use and their choices (Swain Lapkin 1998). LREs were coded on the basis of Swain and Lapkin's (1998 p. 326) definition as 'any part of a dialogue where language learners talk about the language they are producing, question their language use, or correct themselves or others.' Each LRE begins when a student first proposes or begins to discuss language or resolve a linguistic problem and ends when the discussion or resolution of the problem is complete. All LREs were classified as correctly resolved, incorrectly resolved, or unresolved. An example of a correctly solved LRE is provided in Excerpt 1. Two learners are interacting on the Comic task and transforming a comic strip into a recount, by jointly changing the sentence *Sandy tells others that the mural looks great* into *Sandy told others that the mural looked great*. Lara reads a sentence (turn 36). Ella immediately provides the past simple form (turn 37). This is acknowledged by Lara (turn 38). Lara uses her resources to explain that *look* is not an irregular verb (turn 39). The correct verb form is then immediately completed by Ella (turn 40).

EXCERPT 1: Correctly resolved LRE

36 L: Sandy tells others ...

37 E: told!

38 L: ja. [*yes*]

39 L: na ja look ist kein unregelmäßiges [*well, look is not an irregular verb*]

40 E: also looked

41 L: looked (repeats and writes the sentence down)

42 L: Sandy told others that the mural ... (saying while writing the sentence down).

43 E: looked great

Excerpt 2 provides an example of an incorrectly resolved LRE. Two learners, interacting on the Comic task, incorrectly translate the English word *mess*.

EXCERPT 2: Incorrectly resolved LRE

J: *What happened to our work! What a mess? Maybe I can fix it.* (reading)

G: Was ist mit unserer Arbeit passiert? (translating)

J: Was für ein? [What a...?]

G: Müllhaufen? [rubbish heap]

J: Nein, das ist ein Malheur. [No, that's a mishap.]

G: Bist du sicher? [Are you sure?]

J: Ja, was für ein Malheur! [Yes, what a mishap!]

An example of an unresolved LRE is provided in Excerpt 3. Two learners, interacting on a grammatical exercise fail to match the phrasal verb *break up* with another verb of a similar meaning from the list.

EXCERPT 3: Unresolved LRE

Le: break up ...continue... was ist denn das? [What is that?]

Lu: keine Ahnung. weiter. [No idea. Let's move on!]

All LREs were further analyzed for the role played by each member of the pair in each LRE (Fernández Dobao 2016, Moranski Toth 2016). These roles were classified as: *initiation*, *response* and *resolution*. Excerpt 4 provides an example of these categories. During this interaction on the Text-reconstruction task learners attempt to replace the word *kids* with a word of a similar meaning. In this example, Alena initiates the LRE by requesting a confirmation to her suggestion. Enna responds to Alena's request by suggesting the word *learners*. Alena then resolves the LRE by explaining that the word *learners* means *Schüler* and by providing the right word *children*.

EXCERPT 4: Initiation, response and resolution of LREs

A: Und kids ist people oder so? [*And kids is people or something like that?*] **INITIATION**

E: Learners? **RESPONSE**

A: E: Aber learners ist doch Schüler aber ne Kinder oder? [*But learners is pupils but not children, right?*] ...children! **RESOLUTION**

3.5.2 Coding and analysis of interviews

The insights into learners' perceptions were gained during interviews conducted after the unit of work. The interviews were analyzed for the following categories adapted from Watanabe's (2008) study: (1) *overall perceptions about the pair interactions* (2) *perceptions towards the degree of contribution*, and (3) *perceived learning outcomes* (see interview questions in appendix A). Based on the pre-determined categories, the transcribed talk of the interviews was analyzed. Although the focus was on the predetermined categories, new topics and ideas emerged from the data in the process of transcribing and reading the transcripts. For example, overall perceptions towards pair interactions with the younger/older partner seemed to have brought about topics such as overall perceptions of practices of cross-age interactions in a particular classroom, learners' relationships or perceived self and partner' proficiency. These factors had to be considered during analysis.

3.5.3 Inter-rater reliability – double coding

A second rater took part in two training sessions with me. In the first session, we first reviewed and discussed the coding scheme for determining LREs in the transcript, their resolution and learners' roles within LREs. Later, we did the same for interviews. We then separately coded one transcript for each RQ. After we had completed transcripts, we jointly reviewed the transcripts and the codes. The second rater was then given three transcripts for each RQ and asked to code the transcripts independently again. Our second session involved a comparison and discussion of our coding. We reached a consensus in 92% instances with regards to LREs. Later, we discussed differences and similarities concerning any episodes which remained unresolved and reached agreement. There were no disagreements with regard to the coding of the interviews. In addition, intra-rater reliability was achieved by revisiting the data several times in later stages of the analysis and revising some codes. The revised codes were then imposed back on the data.

4. Results and Discussion

4.1. RQ1: To what extent do German secondary school learners of English as a foreign language (EFL) organized in mixed-age pairs engage in and resolve LREs during their interactions on classroom tasks?

LREs were the most frequent episodes in which pairs engaged in during the four tasks and exercises. Ten pairs engaged in 433 LREs, in 88 TREs (Task-related episodes) and in 107 CREs (Content related episodes). In other words, learners discussed linguistic forms elicited by the tasks more frequently than the aspects of the tasks and of the task content. It seems that learners were more concerned about the content of the task rather

than about how to approach it because learners were able to work out the goal of the tasks relatively easily, and could invest their resources towards the content of the task and the language it elicits. It has to be, however, noted that there were differences in the distribution of LREs and CREs across tasks and exercises, which is to be mainly attributed to the nature of the tasks, whether they elicited linguistic forms or not. For example, while the Comic, Text-reconstruction and grammatical exercises elicited a high number of LREs, the Looking for Help task elicited only very few LREs but generated a relatively high occurrence of CREs.

Table 3 reveals great variations in the LREs produced across pairs ranging from 9 to 64, the average score (M) 43.3 and the median is 48. However, because pairs approached tasks in different ways, and thus needed a different amount of time to complete the tasks, simply counting the number of LREs may not reveal the actual extent of engagement with LREs. Therefore, conversational turns and the number of LRE turns within these conversational turns produced by all pairs were counted. Table 3 below demonstrates that with the exception of John/Will, pairs frequently engaged in LREs. What is more, eight out of ten pairs produced over 200 conversational turns within LREs which suggests a concentrated engagement with LREs as well as mutual support among these pairs. It needs to be mentioned that the turns were produced in both L1 German and L2 English. The findings indicate that eight out of ten M-A interactions afforded a relatively high number of opportunities for learning, despite the differences in age and relative language proficiencies. One possible explanation for the low number of LREs and LRE conversational turns produced by Riki/Lyn is Lyn's limited language proficiency. In fact, the analysis of audio-recordings has revealed that Lyn's partner Rikki tended to accomplish all the work because Lyn was not able to contribute to the task due to her limited proficiency. In spite of Riki's ongoing assistance, Lyn could not benefit from being helped by her as she did not seem to be developmentally ready to discuss linguistic problems with Riki (see also Leeser 2004). With regards to the interaction between John/Will, the analysis of audio-recordings revealed many instances of *off-task talk* which seemed to have hindered a more intensive engagement with LREs. Surprisingly, the pair with the greatest age difference produced the highest LRE turn/conversational turn ratio. Nevertheless, no relationship between age difference and occurrence of LREs can be established.

Table 3: Occurrence of LREs across tasks, Ratio LRE turns/conversational turns across tasks

Pair	Age	RP	LRE	LRE turn/conv turn	Ratio
Emilia9/Stella7	15/12	A/A	64	575/728	0.79
John9/Will7	15/13	H/H	9	61/162	0.37
Lilliana 7/Leni8	13/14	H/A	53	370/447	0.83
Lea9/Jess8	15/14	H/A	35	218/356	0.61
Gussi8/Jossi7	14/13	H/H	60	241/380	0.63
Lenka8/Lucy7	14/13	A/A	48	300/453	0.66
Irena8/Sara7	14/13	A/A	30	203/292	0.69
Alena8/Enna7	14/13	H/H	53	267/359	0.74

Riki8/Lyn7	14/13	A/L	24	77/120	0.64
Lara9/Ella8	15/14	H/H	57	381/501	0.76
N			433		
M			43.3		
Range			9-64		

RP – relative proficiency

Figure 1 and Table 4 below indicate how many LREs were correctly resolved, incorrectly resolved, or left unresolved. As shown in Figure 1, 73% of LREs were resolved correctly, 13% were resolved incorrectly, and 13% were left unresolved. Table 4 shows that LREs tended to be resolved correctly across pairs and tasks and all pairs resolved 50% or more LREs correctly with the range being (6-64, i.e. 50% to 91%). However, most pairs left a number of LREs unresolved (range from 0-12, i.e. 0% to 25%) or resolved incorrectly (range 0-12, i.e. 0% to 33%). Interestingly, both pairs with the greatest age difference (Emilia/Stella and John/Will) resolved over 60% correctly while some pairs with a small age difference (Lenka/Lucy) and (Irena/Sara) left nearly half of all LREs either unresolved or resolved incorrectly. These findings imply that no relationship between age difference and LRE resolution can be established. What is more, the highest number of correctly resolved LREs was produced by the pair Lilliana/Leni, which was the only pair, in which the younger learner’s relative proficiency was higher than that of her younger partner. In fact, Lilliana took on the expert role during their interaction.

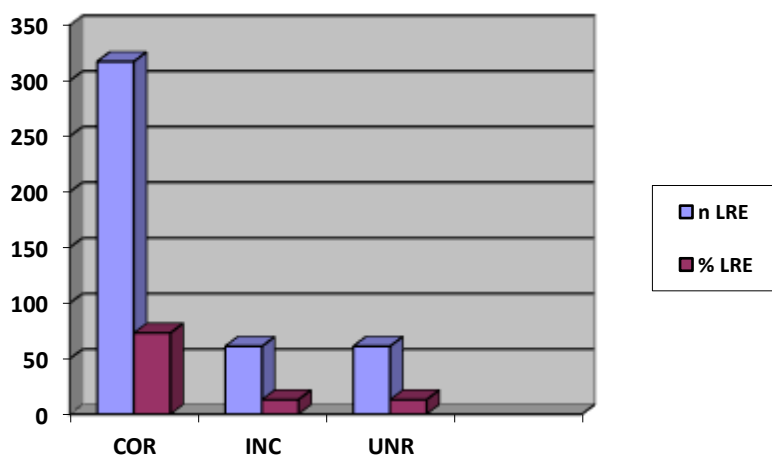


Figure 1: Total number of correctly (COR) /incorrectly (INC) /unresolved (UNR) LREs

Table 4: Correctly resolved/Incorrectly resolved/unresolved LREs across pairs

Pair	Age	RP	COR	INC	UNR
Emilia9/Stella7	15/12	A/A	72%	19%	9%
John9/Will7	15/13	H/H	67%	11%	22%
Lilliana 7/Leni8	13/14	H/A	91%	5%	4%
Lea9/Jess8	15/14	H/A	83%	0%	17%
Gussi8/Jossi7	14/13	H/H	83%	3%	13%
Lenka8/Lucy7	14/13	A/A	50%	25%	25%

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 IN MIXED-AGE SECONDARY SCHOOL EFL CLASSROOMS IN GERMANY

Irena8/Sara7	14/13	A/A	63%	17%	20%
Alena8/Enna7	14/13	H/H	75%	8%	17%
Riki8/Lyn7	14/13	A/L	67%	33%	0%
Lara9/Ella8	15/14	H/H	58%	25%	18%
N			317	58	58
Percentage			73	13	13
M			31.7	5.8	5.8
Range			6-64	0-14	0-12

RP – relative proficiency, COR – correctly resolved LREs, INC- incorrectly resolved LREs, UNR – unresolved LREs

The analysis of interviews has revealed some insights which are related to engagement in and resolution of LREs during interactions. For example, six students valued the fact that their pair work enabled them to engage in discussions about language and to resolve linguistic problems. In other words, they perceived the importance of LREs for their learning. Five learners also believed that they gained a greater understanding of the language because their ‘expert’ partners provided them with additional explanations of linguistic features which could not be understood solely from the teacher’s explanations. Four learners reported that different skills helped to complement the other partner’s gaps and to arrive at a correct solution. In addition, three learners mentioned that they learned how to collaborate better in order to support one another. However, it has to be mentioned that not all learners perceived learning benefits. The analysis has revealed that while younger or novice learners perceived learning benefits, their expert or older partners tended not to. For example, John (grade 9) did not report any particular perceived learning outcomes from his interaction with Will (grade 7) and Rikki (grade 8) said that she would prefer to work with someone she can rely on, as she felt frustrated about putting too much effort into explaining things which were not understood by her partner Lyn (grade 7) anyway. Their comments reflected the analysis of LREs, as these two pairs produced the smallest number of LREs and had the lowest LRE/conversation turn ratio. This is certainly an important pedagogical issue, as the pedagogical concept of M-A classrooms is based on the notion that the older learners benefit from teaching their younger partners.

4.2. RQ2: What roles do individual learners within mixed-age pairs take during LREs?

In order to illustrate the roles taken by each individual learner during their interactions, the following figures were taken into account: LRE initiation, LRE response, and LRE resolution. These figures can provide important insights on individual learners’ roles in their interactions (Moranski Toth 2016, Fernández Dobao 2016). Figure 2 shows the difference in terms of *LRE initiation/LRE response/LRE resolution* between younger and older learners across tasks. Table 5 shows to what extent individual learners within each pair initiated LREs, responded to LREs and resolved LREs.

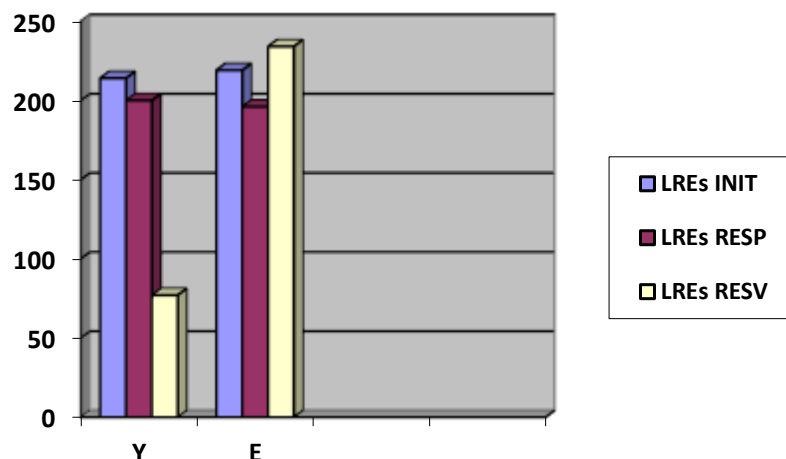


Figure 2: Overall distribution of LRE initiation/LRE response/LRE resolution between younger (Y) and older (E) learners

Table 5: Distribution of LRE initiation/LRE response/LRE resolution within pairs/across tasks

Student/grade	Age	RP	INIT	RESP	RES
Emilia (9)	15	A	31	33	35
Stella (7)	12	A	33	31	19
John (9)	15	H	2	7	5
Will (7)	13	H	7	2	1
Lilliana (7)	13	A	33	19	47
Leni (8)	14	A	20	30	1
Leo (9)	15	H	25	10	25
Jess (8)	14	A	10	23	4
Gussi (8)	14	H	33	24	29
Jossi (7)	13	H	28	31	23
Lenka (8)	14	A	33	15	11
Lucy (7)	13	A	15	32	6
Irena (8)	14	A	10	20	17
Sara (7)	13	A	23	10	4
Alena (8)	14	H	9	35	26
Enna (7)	13	H	40	7	12
Riki (8)	14	A	22	2	15
Lyn (7)	12	L	2	21	1
Lara (9)	15	H	21	31	24
Ella (8)	14	H	36	13	6

INIT -Initiation, RESP -response, RES – resolution

Figure 2 shows that the distribution of LREs initiation and response was nearly equal between younger and older learners. However, older learners resolved a higher number of LREs. Table 5 reveals that within five out of ten pairs, younger learners initiated more LREs than their older learners and responded to more. Within the other five pairs, the results were reversed. Furthermore, while the initiation of and response to LREs was

evenly distributed among younger and older learners, the role of the LRE resolver was typically taken by the older partner within the group. In fact, nine out of ten older learners resolved more LREs than their younger partners. It also has to be said that the role of the initiator, responder, and resolver tended to be the same across all tasks.

In order to illustrate the roles taken by individual learners and how they assisted to one another during LREs, I will now provide a detailed description of two different interactions, which are representative of the data set. In the first example (Excerpt 5), the older learner Lea takes on the role of an 'expert', knows the solution and provides her younger partner Jess with space to resolve the linguistic problem at hand. The second example comes from an interaction during which none of the learners knew the solution and had to co-construct the target sentence while pooling their linguistic resources (Excerpt 6). The first example comes from an interaction between Lea (9th grade) and Jess (8th grade) on the Text-reconstruction task.

EXCERPT 5: Pair 5 Lea (9th grade) and Jess (8th grade)

14 J: But Rico was was was was....

15 L: What do you think? (inviting J to complete the sentence)

16 J: hm.. thinking..Warte..[*wait*] hm. (thinking)...inaudible

17 L: He was really good at? (inviting J. to complete the sentence) (INITIATION)

18 J: science (RESPONSE and RESOLUTION)

19 L: Ja, wahrscheinlich. [*Yes, maybe*] ..at space (laughter)...Er war gut im Weltraum. Ich bin gut im Weltraum. [*He was good at space. I am good at space*]...(laughter)

As shown in the example, they are attempting to complete the sentence *Rico was good...* with an appropriate word. Lea initiated the LRE (turn 17) which was responded to and resolved by Jess (turn 18). She provides crucial assistance to her younger partner Jess in order to resolve the LRE. The excerpt begins with Jess reading the sentence. Her self-repetition of *was* (turn 14) indicates that she is looking for the right word to fill in. Lea's question *What do you think* (turn 15) indicates that Jess is provided with the time and space to work out the solution by herself. Although Jess is not able to arrive at the solution (turn 16), she is given another opportunity by Lea (turn 17). Jess completes the sentences with the target-like *science* (turn 18). It seems that it was through Lea's verbalization of *He was really good at?* that Jessie was able to complete the sentence. Lea then plays with the language by completing the sentence with the word *space* (turn 19). This playing with words accompanied with laughter seems to be a sign of a joint orientation to the task, which appears to be important for effective assistance to take place. Importantly, this interaction exemplifies the willingness of the older 'expert' to help the younger partner in order to resolve a linguistic problem. The quantitative analysis reveals that the older partner Lea took more turns than her novice partner Jess (195 vs. 161), and initiated and resolved the majority of LREs. Lea initiated 25 out of 35 LREs across four tasks and resolved 25 out of 29 correctly resolved LREs. This suggests that Lea took on both the role

of an LRE initiator and resolver while providing the necessary assistance to her younger partner Jess. However, as the analysis of their interactions has revealed, Jess was not a passive recipient of help. She made suggestions, asked questions and sought help when necessary. Her words in the interview [*We made suggestions to one another, for example how we can write a story, and then we helped one another with vocabulary or something.*] indicate this. Also, Lea's words convey shared orientation to their work and mutual assistance. She said that they took turns in writing, translated sentences together, looked up unknown words, etc.

The next example comes from an interaction between Alena (grade 8) and Enna (grade 7) who are highly motivated, highly proficient, and autonomous learners of English who rely on teacher's help only when necessary. They work together on various assignments, including subjects other than English. As shown in the example below, during the pre-task grammatical exercise learners are attempting to transform the sentence *Chloe answer that she doesn't like wasting her time* into *Chloe answered that she didn't like wasting her time*.

EXCERPT 6: Pair 10 Alena (8th grade) and Enna (7th grade)

1 E: Next...Chloe answer...Also ich lese erstmal den Text vor, ok? [*I am going to read the sentence, is that ok?*]

2 E: Chloe answer that she doesn't like... Chloe answer...

3 A: Eh, past...! (INITIATION)

4 E: Ok. I think it's answered. And you? (RESPONSE and RESOLUTION)

5 A: Yes

6 E: Yeah Chloe answered that she doesn't like or she don't? (INITIATION)

7 A: doesn't (RESPONSE)

8 E: doesn't kann man doch auch ins Vergangenheit...ach didn't? [*doesn't can also be transformed into past... oh didn't?*] (RESOLUTION)

9 E: Ok. Please read. Chloe answered that she didn't like wasting time. ...Ok. Next.

Enna, the younger learner takes the initiative. She begins to read but then probably notices that it would be more polite to ask Alena's permission (turn 1). The permission seems to be given non-verbally by a nod. Enna is then thinking about the appropriate verb form (turn 2) but provides the non-target-like *answer* (turn 2). Alena initiates the LRE by reminding Enna to use past tense (turn 3) which prompts Enna to provide the target form (turn 4), thus resolving the LRE. Enna seeks Alena's confirmation (turn 4) which is given to her (turn 5). In the next turn (6), when asked by Enna whether the correct form is *don't* or *doesn't* (LRE initiation) Alena fails to give the correct simple past form (LRE response, turn 7), although she was the one to suggest past tense in the line above (turn 3). However, despite providing the non-target form, Enna suggests that *doesn't* must also be transformed into the past tense and provides the right solution (turn 8, LRE resolution). This can be classified as assisted performance (Ohta, 2001) because Enna's

right solution can be linked back to Alena's suggestion in line 3. After providing the target-like *didn't* and having repeated the target-like sentence, Enna takes the initiative and introduces the next sentence, inviting Alena to the joint pursuit of the task (turn 9).

Overall, this excerpt exemplifies LREs during which both learners are pooling their linguistic resources in order to construct a sentence, which is beyond each individual's linguistic abilities (*collective scaffolding*, Donato 1994). As they do that, they experiment with new ideas, examine their assumptions, and take risks (Damon Phelps 1989). Moreover, this LRE contains various suggestions, sharing of ideas, reciprocal feedback which seems to indicate learners' high willingness to engage with each other's contributions. It seems that Enna, who is working with her older partner Alena, is willing to explore a new language, does not worry about making mistakes, and the difficulties that she has, seem to be challenging rather than intimidating (Damon Phelps 1989). Enna is the one who takes the initiative, and it seems that by taking risks, experimenting with language, and making suggestions, she actively engages Alena in problem-solving, thus largely contributing to the LRE resolution. Alena is the one who other-corrects more often and provides the answer to the problem. The quantitative analysis has revealed that across four tasks, out of 359 conversational turns, 267 turns were LRE turns. Interestingly, it was Enna, the younger learner, who produced more turns (191) compared with 163 of Alena, and initiated the higher number of LREs (40 vs. 9). However, Alena correctly resolved 26 out of 48 LREs. It can be said that although Alena's and Enna's roles within LREs differed, their individual contributions within LREs were more equal than in the previous example. In other words, both played an equally important role as they brought different but necessary skills to their interaction (see Ohta, 2001). When looking at their perceptions of how they contributed to interactive work, both learners answered that their contribution was equal, and that assistance was provided by both partners. In addition, they underlined the importance of a good relationship between them, their partner's ability to explain things and the ability to offer help. [*That we understand each other well, that we can explain things well to one another and that we help each other.*]

Overall, the findings of the interviews show that despite differing age and relative proficiency, the perceived contribution to collaborative work was nearly equal between younger and older learners. In fact, 16 learners answered that their contribution was equal, and that assistance was provided by both partners. This is rather surprising, as perceptions of a higher degree of contribution on the part of the older or the expert learner were anticipated. Moreover, with the exception of Lyn (grade 7), all learners pointed out that help was provided by both partners instead of just one. Lyn and Riki's case provides some support for Kowal and Swain's (1994) concerns that the very low ability learners, in particular, may not benefit if sufficient help is not provided (see also Leeser's, 2004).

4.3 Discussion

The analysis has shown that the extent to which learners engaged in or correctly resolved LREs varied largely across pairs. Moreover, although the majority of LREs were correctly resolved, a relatively high proportion of them remained either unresolved or incorrectly

resolved. These are important findings that can be interpreted from two different perspectives. On one hand, they point to the limits of M-A peer interactions in terms of resolving linguistic problems and to the importance of the teacher's role to provide direct assistance to the learners. In line with Young and Tedick's (2016) study, the findings may suggest that teachers should not assume that older students will as a matter of fact assist their younger peers in a way that a teacher does, and that no additional teacher's assistance is required.

On the other hand, the relatively high number of unresolved or incorrectly resolved LREs may not necessarily imply low pedagogical benefits. The process of collective experimentation with language without the teacher's assistance seemed to have allowed peers the freedom to explore the language, pool their linguistic resources and try out different alternatives (Philp et al. 2015 p. 25). In fact, eight out of ten pairs produced above two hundred conversational turns within LREs across four tasks. Moreover, the fact that the teacher was not present could have triggered learners' willingness to engage in meaningful communication while solving linguistic problems. According to Philp et al. (2014), such experience is highly valuable and may evoke positive feelings towards trying out new things, may help reduce anxiety about being corrected and may even lead towards increased autonomy (p.25). Likewise, the presence of the teacher could have hindered this experience as even experienced teachers find it difficult to surrender their control over learner language for the sake of avoiding mistakes (Willis Willis, 2007).

It follows that teachers in M-A and other FL classrooms do not need to be too concerned as to whether learners resolve their LREs correctly, because the production of correct LREs may simply not be the ultimate pedagogical goal. What seems to be of higher importance is the creation of opportunities for 'verbalization of thoughts that makes learners aware of the limits of their knowledge, to predict linguistic needs, and to set goals for further learning' (Swain 2005 in Philp et al. 2014 p.23). It follows that teachers in M-A and other FL classrooms should strive to implement tasks for heterogeneous pair work so that both, the more proficient/older and the younger/less proficient learner engage in language-related discussions which would allow for more experimentation with language and building language knowledge together.

The analysis of LREs in terms of LRE initiation, LRE response, and LRE resolution has provided important insight into individual learners' roles in their interactions. In line with previous research (Dao McDonough 2017; Moranski Toth 2016), the role taken by individual students within pairs had an impact on the extent of engagement in and resolution of LREs. The findings reveal that while both, younger and older learners tended to initiate LREs, the older partners resolved most of them. In other words, the most common pattern was that an LRE was initiated and responded by either the younger or the older learner but was resolved by the older learner. One possible explanation is that the younger learners encountered more language-related problems and therefore had to initiate more LREs. Another, more intriguing explanation is that the younger learners took many initiatives and active lead in the tasks because they perceived their interactions with their older partners as a great opportunity to work on

challenging tasks. Indeed, one possible explanation is that the proficiency differences between members of these pairs were not as substantial as between members of expert/novice pairs, which might have made assistance accessible to both of them, and the problem-solving endeavor easier. In fact, the analysis of interviews has shown that all younger learners expressed a positive attitude towards their interactions with their older partners and nine out of ten perceived learning benefits. Nevertheless, younger learners were not always capable of resolving the linguistic problem at hand, and their older partners had to either point them in the right direction toward resolving the problem or resolve it themselves. Such help coming from the older partners seemed to have balanced both partners' contributions. Watanabe (2008) reports similar results in her study of peer interaction between L2 learners of different proficiency levels. In her study, the less proficient members tended to actively lead the task but it was the more proficient partner who provided the crucial assistance which led to a problem resolution. Furthermore, the interactions between Lea and Jess and Alena and Enna have illustrated in more detail the roles that individual learners within M-A pairs took during LREs. The roles taken tended to be twofold. The interaction between Lea and Jess exemplified LREs during which the role of the LRE initiator and LRE resolver was played by the older learner, who provided crucial assistance in order to resolve it. The interaction between Alena and Enna has shown that roles within an LRE were to a certain extent equally distributed within the pair. Enna (younger learner) tended to initiate LREs while Alena (older learner) provided the necessary language in order to resolve them.

We have seen that although both types of peer interaction afforded learning opportunities, this occurred in two different ways. The Vygotskian framework can be used to explain the interaction between Lea and Jess because the theory holds that the less knowledgeable and skillful learner can be assisted at the right level only by a more knowledgeable partner (Vygotsky 1986). It appears that Jess benefited from Lea's assistance by having learned a new language, correcting her misconceptions about language, filling in gaps in her understanding, or developing new language problem-solving skills and knowledge. In contrast, having an opportunity to assist her younger partner seemed to have benefited Lea to consolidate her language knowledge. Importantly, Jess was not a passive recipient of information or knowledge from Lea, but an active learner who frequently made suggestions, asked for help and received it as the unit of work progressed. In other words, because of her active engagement with her older partners' contributions and her ability to receive assistance, she was able to change the activity she was engaged in, to contribute and even benefit from it. Nevertheless, it needs to be mentioned that similar to the other three older students, Lea did not perceive any learning benefits from her interactions with Jess. It is evident that such perceptions hint at one of the most important pedagogical concerns for teachers in M-A classrooms, that is how to select and implement tasks/activities that challenge the older/expert students within a group/pair while avoiding that learning content is too far beyond the level of the younger/novice student. Indeed, one of the limitations of the study was that it did not

allow for an investigation of to what extent learners' perceptions of learning benefits actually reflect what they learned from their interactions.

We have also seen that M-A peers may interact as equals as they mutually control their interaction, provide assistance to each other and share each other's perspective (Damon Phelps, 1989). Such equal interactions are characterized by speaking at a level that they both understand, by challenging each other, by attempts to reconcile contradictions, and by taking feedback from one another seriously (Damon Phelps 1989). We have seen that despite their age difference, Alena and Enna mutually controlled the direction of their interactions, challenged each other, experimented with language and provided assistance to each other by sharing ideas, making suggestions, etc. These are all aspects that seemed to have played an important role during their engagement with LREs and for their resolution. Alena and Enna's case seems to run counter the conceptual underpinnings of the sociocultural theory that novice's development occurs only under expert guidance and learning always flows from 'experts' to 'novices'. As mentioned above, this notion is debatable and might not fully convey what occurs during M-A peer interactions because such interactions might be much more complex than such a unidirectional view implies. Likewise, the claim of the supporters of M-A classrooms that heterogeneous grouping is more beneficial to learning as the older learners learn by helping their younger partners, while the younger learn by being helped by the older (Wagener 2014) is debatable. Alena and Enna's example clearly shows that it is not necessarily true that the older learner provides help to the younger one during a collaborative interaction. It shows that the process of assistance among peers who are engaged with LREs may be distributed among the peers themselves, without one of the pair members necessarily directing the flow of assistance. Such a view resembles Donato's (1994) notion of collective scaffolding and resonates with Ohta's (2000, 2001) claim that peers are simultaneously novices and experts. In a similar vein, Webb and Mastergoerge (2003) explain that 'peer groups will not consist of only experts and novices, nor will they usually consist of peers with equal competence. Rather, groups will contain a range of competence and a variety of unique capabilities and areas of expertise' (p.76). These studies are of particular interest, as they challenge the notion of scaffolding as being behavior in which some language knowledge or skills are transmitted from the more knowledgeable individual (usually a teacher) to the less knowledgeable one. They interpret scaffolding as a process of assistance among peers who are engaged in a joint activity, in which, however, none of the group members necessarily directs the flow of assistance, as assistance is distributed among the peers themselves. Regardless of differing age and relative proficiency, the majority of learners in the current study were able to provide assistance to each other while constructing their mutual understanding or *intersubjectivity* in the process of communication. Doing so, they were actively changing their roles as well as the activity they were engaged in, thus actively and socially creating their ZPD (see Holzman 2009). The view of ZPD being actively and socially determined also implies a very important notion of sociocultural theory that learners cannot be viewed as passive recipients of information or knowledge from the

environment, but as 'active agents who change themselves as well as the activity itself through the activity they are engaged in' (Wertsch 1991 p.8). As Wertsch (1991) further puts it, 'they create their surroundings as well as themselves through the actions in which they engage' (p.8). We have seen that through their active involvement with their older learners' contributions, the younger learners were able to contribute to the pair work and benefit from it.

Furthermore, despite the wide use of the term scaffolding in various contexts, including teacher-learner interaction, and peer interaction, there seems to be no or limited consensus with regards to its definition. I understand scaffolding as a purposive help, which is matched and graduated to the particular learner's current linguistic needs with the purpose of enhancing second language development. I am in agreement with van de Pol et al. (2010) who underlined that the key characteristic features of scaffolding are contingency, fading, and transfer of responsibility. When seen in this light, scaffolding is not something that secondary school learners normally do or/and are capable of doing without being explicitly taught how to do so. Although secondary school peers may be able to support each other during task-work; and engage in collective scaffolding, this support will most likely concern the emergent problems of the task and occur without an intention to enhance second language development. This is, however, not to say that second language development resulting from this support cannot occur.

5. Recommendations

One of the most important concerns in M-A classrooms is how tasks/activities might best challenge the older students within a group/pair while avoiding that learning content is too far beyond the reach of the novice student. The implications for M-A and other FL classrooms are that organizing learners of differing ages/proficiencies should be flexible, and should take into account the language elicited by the task, its relative difficulty, and the goal of the task. For example, if the focus is on grammatical forms, the younger/novice may benefit by being paired with an older/expert learner who will have greater experience with the language item, given that the proficiency gap is not too large. In addition, pairing younger/novice with another younger/novice learner would be beneficial if the language is not too far beyond both learners' level. If the focus of the task is on lexis, several options are possible as the younger/novice learners may be more likely successful in resolving lexical problems than grammatical ones. This is in line with Williams' (1999) claims that proficiency differences may not be such an issue for tasks that focus mainly on lexis, provided that the input, complexity, and difficulty of the lexis is not too far beyond the reach of the low proficiency student (Williams 1999). Importantly, teachers of M-A and other FL classrooms must consider pair dynamics as their interactions will more likely lead to successful resolutions of LREs provided that students collaborate (Leeser 2004, Storch 2002).

When setting up pair work, language teachers must also consider the type of tasks and ways of their implementation which are likely to respond to various ages and

proficiencies within a pair. For example, map tasks as well as jigsaw or spot-the difference tasks are 'one-way' tasks that require that specific information is communicated to the other learner who does not have it. Such tasks may be useful in heterogeneous peer interactions because the younger/novice learner is required to communicate the information to the older/expert learner in order to complete the task (Samuda Bygate 2008). As a result, more negotiation of meaning and turn-taking than on a two-way or a dialogic task may take place (Leeser 2004). Furthermore, in order to avoid the dominance of the older/expert learner, each student of the pair may be given responsibility for his/her contribution to the completion of the task. For example, each student may be given a set role to perform. Willis and Willis (2007 p. 164) suggest nominating one student as the *writer/secretary/reporter* for a pair or group, recording in writing what was discussed or agreed.

Nevertheless, we have seen that the implementation of collaborative tasks and exercises did not necessarily ensure that all students participated in an expected outcome (Ohta 2000). Ohta cautions that participant roles are more complex to be able to predict the impact of aspects of task design (see also Samuda Bygate 2008). In line with Ohta (2000 p.76), and based on the insights gained in the current study, I would like to argue that it is important to observe the actual implementation of the task, i.e. the learner's activity during task implementation. Although there is certainly the need for the classroom teacher to adjust the task complexity to the learners' ages and proficiencies, the need to monitor what learners of various ages/proficiencies actually do with classroom tasks, and how their activity relates to their language development, is of primary importance. However, it is important for research on task design to consider how task implementation may best be done to foster equal participation and learning for both older/expert and younger/novice learners in the M-A context.

Finally, it is essential that programs of teacher education enable future teachers to acquire teaching methods and competencies in order to deal with heterogeneous classes such as M-A classrooms. It would also be of great benefit to make students aware of the aspects to consider when setting up heterogenous pair work. Finally, future teachers should be made aware of the importance of teaching school children how to use language during pair/group work, and how to engage in discussions about language issues and/or solve linguistic problems when working on classroom tasks.

In order to gain an understanding of the differences between same-age and M-A peer interactions on classroom tasks, studies could explore differences in the nature of the interactions between same-age and M-A pairs. Future studies could investigate the potential of M-A peer interactions to foster second language development. It would be worthwhile to apply 'real-world tasks' which would mirror the kind of activities that students engage in, not only in classrooms but also in real-world settings. Finally, because the teacher's talk clearly influences the pace, the behavior and the direction of the interactions, future studies could explore M-A pair work over cycles of teacher fronted and related pair work tasks.

6. Conclusion

The current study investigated M-A peer interactions among secondary school learners in classroom tasks. This study aimed to lay a foundation for future research on M-A peer interactions in language classrooms. Based on previous studies on peer interactions, this study explored interactions of M-A pairs in terms of their engagement in and resolution of LREs, and learners' roles within LREs. The current study also sought to deepen our understanding of the connections between theory and practice with regards to heterogeneous peer interactions among secondary school learners in foreign language classrooms.

LREs were analyzed in order to explore opportunities for learning created during M-A interactions and the roles played by individual learners within pairs during these episodes. The findings have shown that regardless of age and proficiency difference the majority of pairs frequently engaged in LREs. This indicates that these pairs were able to engage in discussions about language and that their interactions afforded a high number of opportunities for learning. Nevertheless, it must be acknowledged that the tasks and exercises applied in this study do by its own nature elicit focus on form, and trigger more deliberations about form than other tasks (Alegria de la Colina García Mayo 2007). Therefore, they had an impact on the occurrence of and learners' engagement with LREs. Overall, the findings seem to suggest that age is not a crucial factor in the engagement in and resolution of LREs among M-A peers but appears to only play a limited part as a background context. Although this study did not empirically measure learning outcomes, this example suggests that M-A learners create opportunities for learning while helping *each other*. Future studies could explore the mediating effects of other potential factors such as peer relationships, task difficulty, proficiency, perceived proficiency or time on task.

About the Author

I have taught foreign languages (English, German, Japanese, Czech) in various countries in Asia and Europe for the past 20 years. Having completed a Ph.D. in Applied Linguistics at Lancaster University, I am currently teaching at the University of Leipzig, in the Department of Primary and Pre-Primary Education. My research interests include foreign language instruction with a particular focus on classroom interaction, peer interaction and mixed-age and mixed-proficiency settings.

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APPENDICES

Appendix A

Interview questions (original in German)

1. Tell me about pair work with What is it like working with him/her?

How did you feel during pair work?

2. Tell me more. What was it like working with your partner for the unit of work?
3. Do you think the pair work went well? Why? Why not?
4. How do you think it worked?
5. How do you work together – is one of you the boss?
6. Did you help one another? How?
7. What do you like about working with your partner?
8. Anything you don't like?
9. What kinds of things did you learn from pair work? What about in terms of English? What else? Anything else?
10. Did you like the activities? What did you like about them? Why not?
11. How did you contribute to the pair work?
12. How do you think your partner contributed?
13. Who do you think contributed more?
14. Would you prefer to work individually?
15. Would you prefer to do the task with a same age (same grade) partner? Why? Why not?
16. Do you think that you benefit from learning with older/younger partner? If so, how? If not, why not?
17. What is important for you when choosing a partner for your English assignment?
18. Who do you ask when you need help?

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