



The relationship of language and social competence of preschool- and kindergarten-age single and dual language learners in Switzerland and Germany

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ABSTRACT

Language acquisition and social competencies are crucial for early childhood development. The present study investigated the associations between societal expressive and receptive language skills and social competence among 167 single language learning (SLL) and 76 dual language learning (DLL) children aged 33–66-months. In addition, DLLs heritage expressive and receptive language skills were also examined. Ratings of social competence from early education professionals in a societal setting were obtained. The results of structural equation modeling revealed that social competence was positively related to expressive language skills among SLLs and receptive societal language skills among DLLs. Among DLLs, neither expressive nor receptive language skills in the heritage language were significantly associated with social competence, but the association between receptive skills in the societal language and social competence remained significant when both heritage and societal languages were considered in the same model. These findings highlight the importance of language skills and their promotion for positive social behaviors among young children.

1. Introduction

Early childhood represents an important period for the development of language and social competence, which develop in tandem with one another (Barnett et al., 2012). Language provides the tools for social interactions and is essential for the development of social competence (Gallagher, 1993). In support of this view, research has shown a positive association between language ability and social competence, suggesting that better language abilities may facilitate social competence (Gertner et al., 1994; Longobardi et al., 2016; Longoria et al., 2008; McCabe & Meller, 2004). Consequently, deficits in language development may lead to communication problems and thus to social problems, limiting further opportunities for valuable social interactions and leading to the potential exclusion by peers (Girard et al., 2016; McCabe & Meller, 2004).

Children have varying levels of language competence by the time of school entry (Klein & Becker, 2017). This is especially true among dual language learners (DLLs), who are usually exposed to the majority language of the country in which they live (societal language) and a family's heritage language. DLLs tend to demonstrate lower societal language skills than their single language learning (SLL) peers, resulting in poorer academic outcomes and greater risk for social problems (Hoff, 2018; Organisation for Economic Co-operation and Develop-

ment [OECD], 2016; Rice et al., 1991). Although language competence has been shown to be a critical contributor to SLLs' social development, still little is known about how skills in either the societal or heritage language of DLLs relates to social competence (Castro, 2014).

Extant research examining this association in SLLs and DLLs leaves several questions unsettled. Thus far, most studies have investigated either the ability to understand language (receptive language) or the ability to produce language (expressive language) independently. However, skills in just one of these modalities cannot be used to infer broader abilities, as the two modalities involve different processes that encompass different skills (McLaughlin, 2006; Rose et al., 2018). Only a few studies have examined the separate influence of expressive and receptive language skills on social competence simultaneously (e.g., Ertanir et al., 2020), so that the discrete impact on social competence remains uninvestigated (Rose et al., 2018). This is an important endeavor given that expressive and receptive language follow different developmental trajectories. Receptive language develops earlier than expressive language and plays a significant role for its development (Gibson et al., 2014; McLaughlin, 2006). As such, young children often understand more than they can produce (Bockmann et al., 2020). This gap between receptive and expressive language skills is even more pronounced in DLLs compared to SLLs (Yan & Nicoladis, 2009). Further, DLLs' language proficiency is often assessed solely in either the societal or heritage language,

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which reflects only part of their abilities (Castro, 2014). The present study sought to help fill this research gap by investigating expressive and receptive language skills as comparable predictors of SLLs' and DLLs' social competence, while also considering DLLs' heritage language.

1.1. Language skills and social competence

Social competence is a broad term that does not have a universally accepted definition (Gallagher, 1993). According to Rose-Krasnor (1997), social competence can be defined as *effectiveness in interaction*, conceptualized as the result of organized behaviors that meet short- and long-term developmental needs. For preschoolers, this means organizing socially competent behaviors in order to form and maintain positive peer relationships, which is a crucial developmental task at this age (Denham et al., 2003). Furthermore, social competence is viewed as a transactional process in which a child's skills and abilities interact with the environment (Rose-Krasnor, 1997). The effectiveness of a child's interactions depends largely on the context in which the interactions take place and the child's understanding of that context. This means that competent social behavior may look different depending upon the demands and conditions of the social context. Children must understand what is appropriate within a specific context but also what is not (Sheridan et al., 1999). During the period of school entry, meeting these demands can be challenging, as preschool and kindergarten classrooms often represent a new social context, where children must learn to interact appropriately and effectively with same-aged peers in a larger group setting, far from the protected family environment (DiDonato, 2014). Here, language is the most important means of succeeding in this task since it is through language that people make interpersonal contact and build relationships (Gallagher, 1993). Accordingly, most definitions of social competence include communicative skills as a necessary component (Gallagher, 1993; McCabe & Meller, 2004; Rose et al., 2018).

Language skills are often conceptualized into two domains, receptive skills and expressive skills. Both receptive and expressive language skills enable the child to understand and respond appropriately to others in order to establish positive and reciprocal relationships and act socially competent. Through receptive language, for instance, children are able to understand and infer the meaning of verbal information, which can improve their social skills and thus lead to more meaningful interactions (Gallagher, 1993; Rose et al., 2018). These interactions subsequently provide more opportunities to learn about others' perspectives and to experience positive exchanges, leading to better social understanding. As a result, children are more likely to be liked by their peers and, therefore, gain even more positive and frequent interactions with others (Girard et al., 2016). In addition, strong expressive language competencies can also inhibit social difficulties. The ability to express thoughts and needs in social interactions counteracts misunderstandings with peers and caregivers, reducing frustration and conflict and increasing social interactions. As a result, children with greater expressive language skills may be more liked by their peers, whereas children with poorer expressive language skills are more likely to be ignored by their peers. When children perceive this rejection, they may consequently withdraw further from peers and rely even more heavily on adults, who are better able to deal with their language difficulties (Gertner et al., 1994). However, this compensatory strategy leads to children being seen as less socially competent (Rice, 1993). Several studies examining children with language impairment, who experience similar social problems as DLLs, demonstrate that they are less responsive, less well-integrated in the classroom context, and less popular and that they show difficulties with social tasks, such as initiating and maintaining conversations, compared to typically developing children (Gertner et al., 1994; Rice et al., 1991; von Grünigen et al., 2009). In sum, stronger language skills lead to more social encounters with peers, consequently increasing children's opportunities to develop and practice language and social skills (Girard et al., 2016).

Given its mutual interdependence with language, social competence needs to be conceptualized in the context of language, and language needs to be viewed within the social context (Gallagher, 1993). This is in line with sociocultural theory (Vygotsky, 1978), which states that language development goes along with social development and occurs within a specific social and cultural context (Garton, 1992). As such, language acts as a social tool that is acquired only through interaction with others and may facilitate social competence (Barnett et al., 2012; McCabe & Meller, 2004; Tomasello, 1992).

Among SLLs, empirical research has highlighted the importance of receptive and expressive language for social outcomes, although results remain mixed. In examining receptive language and social acceptance in SLLs of preschool age, Gertner et al. (1994) found that receptive language skills were the best predictor of children's social acceptance, measured by peer nominations. Children who had higher receptive skills were more socially accepted than those with lower receptive skills. Menting et al. (2011) reported similar results when examining receptive language and externalizing behavior. Children who had difficulty understanding verbal information tended to have more problems with peers and were more likely to develop externalizing behavior. Focusing on expressive language, Girard et al. (2016) showed that better expressive language ability at the age of three years led to an increase in prosocial behavior by the age of five. Other studies, using composite scores of expressive and receptive skills or a standardized test of general language development including both expressive and receptive skills, show similar findings for lower overall language skills, which are associated with disruptive behavior, poor peer relationships (Stowe et al., 2000), and less prosocial behavior (Cassidy et al., 2003) in preschoolers. Longoria et al. (2008) further found that receptive and expressive language skills were each positively associated with teachers' rating of children's social competence, suggesting that the two modalities are both comparable predictors. Contrarily, in a longitudinal study, Barnett et al. (2012) found no associations between expressive or receptive language and social competence. The association between language and social competence is even less clear among DLLs, as there is currently a paucity of research on this relationship in this group (Halle et al., 2014).

1.2. Dual language learners

The number of children growing up in bilingual environments has not only increased in Switzerland and Germany in recent years but also worldwide (Autorengruppe Bildungsberichterstattung, 2020; Bundesamt für Statistik [BFS], 2021a; Hoff, 2018). By definition, dual language learners are children who are regularly exposed to, understand, and/or can produce one (or more) language(s) at a basic level of functional proficiency or use (Castro, 2014). Many dual language learning children in Switzerland and Germany do not experience their first regular contact with the societal language until preschool or kindergarten (Autorengruppe Bildungsberichterstattung, 2020; Keller et al., 2016). One aim of these childcare settings is to provide children with a favourable start at school, which includes the acquisition of sufficient societal language skills (Klein & Becker, 2017). However, as they transition from their home environment to an often linguistically new preschool or kindergarten setting, DLLs are faced with challenging tasks. Not only are they confronted with a different language, they are also under great pressure to speak the societal language and negotiate social situations despite their limited abilities in the societal language (Castro, 2014; von Grünigen et al., 2012; von Grünigen et al., 2009; Winsler, Burchinal, et al., 2014). Since acceptance of a social group depends on speaking its language, children who do not know how to use a language in a conventional and socially adjusted way are at the risk of being ignored or even excluded from interactions with their peers (Rice, 1993; Tabors, 2008). Therefore, competence in the societal language may be particularly important for positive peer relationships and prosocial behaviors (von Grünigen et al., 2009).

1.3. Language skills and social competence in DLLs

In comparison to SLLs, only a few studies have investigated the relationship between language and social competence in young DLLs. For instance, a Swiss longitudinal study found that language problems were associated with less prosocial behavior and greater withdrawn tendencies. This study also revealed not only that DLL preschoolers had lower societal expressive and receptive language skills but also that they were twice as likely as SLLs to be victimized and less accepted by their peers (von Grünigen et al., 2012). This indicates that even preschoolers are, to some extent, aware of other children's communication skills, and this awareness may influence their decisions about who they choose to speak to. Rice et al. (1991), for example, demonstrated that children with typical receptive and expressive language development were more likely to choose other children with typically developed language skills as conversation partners. Contrarily, children learning English as a second language were least likely to initiate interactions and least likely to be selected as conversation partners, even when children with language impairment were included in the available social pool. The effect of this peer-selection pattern may have snowballing effects for DLLs. If DLLs have fewer interactions with SLLs, they will gain less experience with the societal language, which they need to initiate conversations and connect with others or be seen as more desirable social partners (Winsler, Kim, et al., 2014). Interestingly, Ertanir et al. (2020) reported that DLL children who showed higher receptive and expressive skills in the societal language were rated more socially competent by teachers. Similarly, in a study comparing English monolinguals, English-dominant bilinguals, fluent bilinguals, non-English-dominant bilinguals, and non-English monolinguals, Han (2010) found that non-English monolingual children received the lowest teacher ratings and observational scores on interpersonal skills (e.g. comforting and helping children). Han (2010) explains this finding with children's lack of English proficiency, assuming that the ability to speak and understand two languages can promote communication with peers and teachers, making children feel more comfortable and accepted at school.

Although these studies suggest that a relationship between language and social competence also exists for DLLs, the current work on language and social competence among DLLs leave much unexplored, particularly with respect to the examination of heritage and societal languages together. Several studies have shown that DLLs develop two distinct language systems for each language, which can interact and influence each other (Kupisch, 2007; Meisel, 2000; Winsler et al., 2014). Heritage language skills may also directly benefit social processes. For example, DLLs may apply practiced communication strategies (e.g. pragmatics) in their heritage language to the societal language (Albers, 2013). In addition, DLLs may use certain aspects (e.g., vocabulary) of their heritage language knowledge to learn and understand the societal language (Ordoñez et al., 2002). However, findings regarding cross-linguistic transfer are inconsistent depending on the aspects under investigation (Verhoeven, 1994) and scarce for DLL preschool children. In addition, the extent of cross-linguistic transfer might depend on the context in which the languages are learned, heritage language proficiency, and the structural similarity of the two languages (Yang et al., 2017).

Strong skills in the heritage language are not only advantageous for the acquisition of the societal language; they may also enable children to experience positive interactions and develop social skills within the family or other social contexts where the heritage language is spoken. These skills can in turn be transferred to the classroom (Collins et al., 2011). In support, DeFeyter and Winsler (2009) showed that children's heritage language was associated with preschool social competence, although societal language was not considered. Some research also indicates that both better societal and heritage language skills among DLLs are associated with better social competence, even though research is limited. For example, in their study with Chinese American children in first or second grade, Chen et al. (2013) reported that overall heritage and societal language were related to teachers' rating of social competence. The

experience of interacting socially with two languages may also confer a benefit to DLLs. Indeed, there is some research, including the paper by DeFeyter and Winsler (2009) that suggests that DLLs demonstrate social advantages compared to SLLs, although findings across studies are inconsistent (for a review, see Halle et al., 2014).

1.4. The present study

The present study investigated the possible association between language skills and social competence in SLL and DLL children of preschool and kindergarten age. Expressive and receptive language skills were examined separately as distinct modalities of language competence (McLaughlin, 2006). It is important to jointly investigate these two modalities within the same model as they are correlated constructs and together form the resources that children need for successful communication. As the mechanisms by which each modality can influence social functioning may differ, we investigate their effects separately within the same model.

Mixed findings between language and social competencies have been documented primarily among SLLs, and there is still limited research among DLLs (Ertanir et al., 2020; Halle et al., 2014). It is therefore our main goal to further our understanding of the relationship between language skills and social competence of single and dual language learning preschool- and kindergarten-age children. Based on the empirical evidence that children's ability both to understand what is communicated to them and to express themselves linguistically is important, we hypothesize that receptive and expressive language skills will both be related to SLLs' and DLLs' social competence. Indeed, both expressive and receptive skills should greatly help children navigate social interactions in early education contexts.

Given the limited research examining heritage language in relation to social competence as well as the possible cross-over role of heritage language in social competence, it is cautiously hypothesized that heritage language will be positively associated with social competence. However, since we are considering social competence within the context of early education, where the societal language is spoken, we hypothesize that the societal language takes a precedence over the heritage language and posit that societal language will be more important than the heritage language with respect to social competence rated by early education professionals.

2. Material and methods

2.1. Participants

The data used for the present study were collected as part of the international and interdisciplinary longitudinal study, "Cross-national interdisciplinary study on child development in linguistically-diverse environments (CROCODILE)," funded by the Swiss National Science Foundation. The study is conducted in Switzerland and Germany and aims to track young SLLs' and DLLs' linguistic, socio-emotional and metacognitive development in the social context. Families were recruited via child-care facilities, media, advertisement, and public institutions (including local governments). After registration, telephone interviews with parents were conducted to ensure that inclusion criteria for participation were met. Language background was assessed by asking the parents how often the children used one of the targeted languages in three main social settings: at home/in their neighborhood and in early education settings. Societal languages included High-German, Swiss-German, and French, although, in the present study, High- and Swiss-German were compiled. Turkish and Italian were selected as targeted heritage languages given the high proportion of Turkish and Italian families at the respective testing locations in Switzerland and Germany (Bundesamt für Statistik [BFS], 2021b; Zensus, 2011). Children who were exposed to Turkish or Italian at home for more than eight hours per week (i.e., estimated to be approximately 10% of awake time at this age) for more

than three months and who additionally spoke one of the societal languages were selectively recruited for the DLL sample. Based on the parental information and the length of time the child was in a societal language-based early education setting, the percentage of time the child used each language was then determined. Children who were exposed to more than two languages were excluded from the study. DLL children in the present study were exposed to the societal language on average of 37.96 h/week ($SD = 15.84$ h/week) and to the heritage language on average of 32.46 h/week ($SD = 15.86$ h/week).

Being part of a longitudinal project, this study focused on a subsample of SLLs and DLLs who were enrolled in childcare. For the current study, data were collected from 243 children (50.2% girls) aged 33–66 months ($M = 48.75$, $SD = 7.75$). The sample consisted of 167 single language learners (49.7% girls), speaking either Swiss or High German ($n = 120$) or French ($n = 47$), and 76 dual language learners (51.3% girls), growing up with either Italian ($n = 34$) or Turkish ($n = 42$) at home and High-German, Swiss-German, or French outside the home. Participants were born in Switzerland (71.2%), Germany (4.9%), Italy (0.8%) and Turkey (1.2%), although information was missing for 21.8% of the children. Mothers with a university degree were slightly overrepresented at 64.7% for SLLs and 39.5% for DLLs. Questionnaires from parents for 204 children were returned.

All children were enrolled in childcare. One hundred and twenty-four children ($M_{\text{ageMonths}} = 45.64$) attended a private and independent preschool facility and thirty-six children ($M_{\text{ageMonths}} = 45.86$) attended a playgroup. Playgroups are similar to preschools but usually care for children on fewer days (2–4 days per week) and for shorter periods of time (2–4 h per day). Eighty-two children ($M_{\text{ageMonths}} = 54.63$) attended a public kindergarten, run by the local school system. One child (39 months) attended an accredited home-based daycare. The children in our study attended childcare for 16.80 h/week ($SD = 9.56$), on average. The societal language (i.e., German or French) was the language of instruction at all care facilities, but the majority (93.0%) reported enrolling multilingual children with various language backgrounds (3.7% reported enrolling SLLs only and 3.3% failed to report this information). The majority of early education professionals provided questionnaire responses for only one child (86.4%), whereas 13.6% provided responses for two or more children. The professionals participating in the study ($N = 210$) reported having an average of 14 years of professional experience ($SD = 10.0$).

2.2. Procedure

Children were tested on two separate days for up to two hours each day at either the university labs, childcare facilities, or families' homes, according to the parents' preference. Children were tested by native (bilingual) speakers. SLLs' receptive and expressive language was assessed in the societal language, which also represents their heritage language. DLLs completed the language tests first in the more proficient language (either heritage or societal), which was determined by parent-report during the telephone interview, and second in the less proficient language.

Each testing day started with warm-up conversation or play before assessments, which consisted of a mixture of computerized and non-computerized tests. To keep the tasks as attractive as possible, the tasks were presented within a framework of a treasure hunt game.

In addition to the child assessments, questionnaires were sent to parents and early education professionals regarding the home/childcare context and children's social-emotional, behavioral, and linguistic characteristic. Questionnaires were completed primarily online but paper-pencil versions were available on request. Early education professionals' questionnaires were available in French or German, and parent questionnaires were available in French, German, Turkish, and Italian. Both parents and educators who participated in the study received a small reimbursement for expenses.

2.3. Measures

2.3.1. Language skills

Both expressive and receptive language skills were assessed. Expressive language skills were measured by children's expressive vocabulary, and receptive language was measured by children's receptive vocabulary and sentence comprehension. SLLs were tested in the societal language only, whereas DLLs were tested in both the societal language and their heritage language.

Expressive Language. Expressive language was assessed through children's expressive vocabulary, measured using a Picture Naming Test. Within this task, children had to name pictures of items that were presented on screen (e.g., a bat). The original German items derived from the German assessment tool *Aktiver Wortschatz für 3-bis 5-jährige Kinder* (AWST-R, Kiese-Himmel, 2005), the French items derived from the *évaluation du langage oral* tool (ELO, Khomsi, 2001), the Italian from the *Test neuropsicologico lessicale per l'età evolutiva* (TNL, Cossu, 2013), and the Turkish from the *Turkish Expressive and Receptive Language Test* (TIFALDI, Berument & Güven, 2013).

Children's expressive responses were coded by research assistants according to standardized coding instructions during the test-administration. All research assistants received multiple trainings during which the tasks and the instructions were played through and discussed. Furthermore, supervisors were present for approximately two test sessions to ensure that the tasks were completed according to the manual. The agreement of the response codes of two independent coders on 10% of the sample was examined. At the item level, excellent agreement values were found as tested ($Mk = .88$). The internal consistency of the 16 routing items ($\alpha_{\text{Routing societal language}} = .79$; $\alpha_{\text{Routing heritage language}} = .69$) and the standardized factor loadings of the overall test (overall_{societal language} $\lambda = .50$; overall_{heritage language} $\lambda = .79$) indicate a satisfactory reliability of the language tests.

Receptive Language. Both receptive vocabulary and receptive sentence comprehension were tested to obtain a general mean composite measure of receptive language skills, calculated as the mean of the two individual scores (for SLLs: $\alpha = .72$). For DLLs, mean composite scores were calculated separately for the societal and heritage languages ($\alpha_{\text{societal receptive composite}} = .89$; $\alpha_{\text{heritage receptive composite}} = .85$).

Receptive Vocabulary. Receptive vocabulary was measured by the Peabody Picture Vocabulary Test. The children needed to point to the picture item (out of an array of four images) that corresponded with the visual representation of the word spoken on the screen (e.g., hoof). The German and Italian items were based on the original German and Italian Peabody Picture Vocabulary Test (PPVT, Lenhard et al., 2015; Stella et al., 2000). The French test derived from the *Batterie informatisée du langage oral pour cycle 2* (BILO-2, Khomsi & Khomsi, 2007), and the Turkish from the *Turkish Expressive and Receptive Language Test* tool (TIFALDI, Berument & Güven, 2013). The internal consistency of the 16 routing items ($\alpha_{\text{Routing societal language}} = .78$; $\alpha_{\text{Routing heritage language}} = .68$) and the standardized factor loadings of the overall test (overall_{societal language} $\lambda = .58$; overall_{heritage language} $\lambda = .60$) indicate satisfactory reliability.

Sentence Comprehension. Sentence comprehension was assessed using a Picture-Choice Task, wherein the child had to select an appropriate picture (out of four) based on a spoken sentence (e.g., Children are not running). The original German and Italian items derived from the *Test of Reception of Grammar* (TROG-2, Bishop et al., 2009; Fox, 2006), the French from the *L'É.CO.S.SE une épreuve de compréhension syntaxico-sémantique* (Lecocq, 1998), and the Turkish from the assessment tool *Turkish Early Language Development Test* (TEDIL, Topbas & Güven, 2011). The internal consistency of the 16 routing items ($\alpha_{\text{Routing societal language}} = .72$; $\alpha_{\text{Routing heritage language}} = .67$) and the standardized factor loadings of the overall test (overall_{societal language} $\lambda = .60$; overall_{heritage language} $\lambda = .56$) indicate satisfactory reliability.

Scaling and linguistic parallelization. All language tests were composed based on or adapted from existing standardized language test

items and optimized so that the four languages studied could be assessed with the same or highly similar linguistic content and a high level of consistency, reliability, and difficulty. There was no simple translation between the heritage languages and the societal languages, but a parallel construction of linguistic twin items with analogous semantic and syntactic properties and a similar frequency of use. Original items of the standardized language tests within each language were translated between the two societal languages German and French and between the two heritage languages Italian and Turkish. Turkish and Italian items were constructed as twin items for the societal language tests and French and German items were constructed as twin items for the heritage language tests. These twin items were not only semantically and syntactically aligned with the original items. A standardized language corpus (e.g. for German, [Corpora Collection Leipzig, 2011](#)) was used to ensure that the original and twin items had approximately the same frequency of occurrence within the respective languages. For example, the twin item *pinna* (Italian) / *yüzgeç* (Turkish) meaning *fin* was used for the German/French item *Huf/sabot* meaning *hoof*. In this example, the original item was the item *Huf* from a standardized German language test. The resulting complete language tests consisted of 32 items each with a quarter of the items in one language deriving from established language assessment tools. Another quarter represented translation equivalents within the societal or heritage language. Finally, the last half consisted of the new twin items that had been created from the respective other heritage or societal language.

All language tasks were computerized and administered with the research assistant sitting next to the child so that the computer screen was visible for both. The tests began with two easy practice items to ensure proper understanding of instructions (e.g. for vocabulary expressive the picture of a jacket was shown) and then followed an adaptive testing procedure based on children's response accuracy in a routing test with 16 items in a medium difficulty range ([Lord, 1971](#)). Children who failed the routing set were assigned to eight easier items, and children who successfully answered most routing items were assigned to eight more difficult items. The factor values were estimated for the total sample of children in the project with language scores ([Schächinger Tenés et al., in press; Segerer et al., 2021](#)), not only for the current subsample for whom data on childcare attendance was available. For each language subtest, unidimensional measurement models were tested for configural, metric and scalar invariance in a multigroup confirmatory analysis for categorical variables, which corresponds to a two-parameter item response model ([Estabrook & Neale, 2013](#)). Invariance of societal-language item parameters were compared in four different groups: DLLs with Italian ($n = 72$) as a heritage language, DLLs with Turkish ($n = 74$) as a heritage language, SLLs speaking German ($n = 161$), and SLLs speaking French ($n = 67$). Invariance of heritage-language item parameters was tested across 146 DLLs in two groups ($n_{\text{Italian}} = 72$; $n_{\text{Turkish}} = 74$). First, factor loadings and intercepts were estimated freely for each language group. Metric invariance was then tested, that is equality of the factor loadings across all language groups. In a final step, scalar invariance was tested by constraining the factor loadings and intercepts across groups. Items for which fixing the parameters on equality across groups led to a deterioration of the model fit were not used for the factor score estimation. This rigorous scaling approach was feasible due to the high number of items and was preferred over the partial invariance approach to minimize the likelihood of purely psychometrically based group differences. For the societal language tests, factor score estimation was based on 28 of 32 receptive vocabulary items, 18 of 32 productive vocabulary items, and all 32 sentence comprehension items. For the heritage-language scores all 32 receptive vocabulary items, 29 of 32 productive vocabulary items and all 32 sentence comprehension items were used for estimation. Factor scores were estimated as expected a posteriori factor scores.

2.3.2. Social competence

Social competence was measured by early education professionals' responses on the Prosocial Behavior subscale of the Strengths and

Difficulties Questionnaire (SDQ, [Goodman, 2001](#)), the Early Prosocial Behavior Questionnaire (EPBQ, [Giner Torrens & Kärtner, 2017](#)) and the Social Interaction and Social Independence subscales of the Social Skills Scale of the Preschool and Kindergarten Behavior Scales (PKBS-2, [Merrell, 2002](#)). The Strengths and Difficulties Questionnaire is a frequently used behavioral screening questionnaire that measures prosocial behavior, among other behavioral aspects. The Prosocial Behavior subscale (e.g., "Considerate of other people's feelings", $\alpha = .78$) contained five items and was rated on a three-point Likert scale ranging from 0 (not true) to 2 (certainly true). The items of the Early Prosocial Behavior Questionnaire (e.g., "Shares things with others", $\alpha = .91$) comprised of three domains of prosocial behavior (helping, comforting, and sharing), contained twelve items, and was rated on a four-point Likert scale ranging from 1 (almost never) to 4 (almost always). The Social Skills Scale (e.g., "Invites other children to play", $\alpha = .89$) includes items of adaptive and positive behaviors that are likely to lead to positive personal and social outcomes. The scale consisted of 18-items and was rated on a five-point Likert scale ranging from 1 (never) to 5 (very often).

2.3.3. Control variables

Non-verbal IQ scores were estimated using the Categories subtest of the revised Snijders-Oomen Nonverbal Intelligence Test (SON-R, [Tellegen, Laros, & Petermann, 2007](#)). The SON-R test (maximum score = 15) is independent of the use of language and is especially suitable for the intelligence assessment of immigrant children ([Tellegen, Laros, & Petermann, 2007](#)).

Socio-economic status was assessed through maternal education. The International Standard Classification of Education 2011 (ISCED-2011, [United Nations Educational Scientific and Cultural Organization \[UNESCO\], 2011](#)) from 1 (no formal education) to 7 (university degree) was used to classify mothers' highest level of formal schooling and vocational attainment in a consistent and comparable manner across sites.

2.4. Statistical analyses

For descriptive, correlative, and reliability data analyses, SPSS 28 ([IBM, 2021](#)) was used. All other analyses were conducted using Mplus 8 ([Muthén & Muthén, 1998-2017](#)). For the current analyses, only children who were enrolled in childcare and for whom early education professionals' questionnaires were received were included. However, some data were incomplete due to missing test scores of the children (28.4%) or missing answers in the educator's (2.9%) or parents' questionnaires (16.0%). Missing data were analyzed in SPSS 28 ([IBM, 2021](#)), and results indicated that the missing data among SLLs ($\chi^2(1580) = 1588.89$, ns) and DLLs ($\chi^2(904) = 945.83$, ns) were missing completely at random (MCAR). After analyzing the missing data, full information maximum likelihood (FIML) with bootstrapping was used to estimate the missing values for the estimation of the model parameters.

First, possible group differences regarding the language tasks in the societal language and educators' rating of social competence were tested using *t*-test for independent samples and Cohen's *d* for an estimation of effect sizes.

Multigroup confirmatory factor analyses were then conducted to test the expected social competence factor structure and invariance across the SLL and DLL samples. Finally, two multigroup structural equation models (SEM) were calculated: (1) to test the influence of societal language on social competence among SLLs and DLLs and (2) to test the influence of both societal and heritage language on social competence among DLLs. Pathways between covariates that demonstrated no correlation in either group were fixed to zero. Given the correlations between the covariates and variables of interest, all paths in the SEM were controlled for age, sex, nonverbal reasoning, and maternal education (see [Fig. 1](#)).

Model fit criteria according to [Hu and Bentler \(2009\)](#) were used to verify how well the data fit to our models: χ^2 and RMSEA < 0.05,

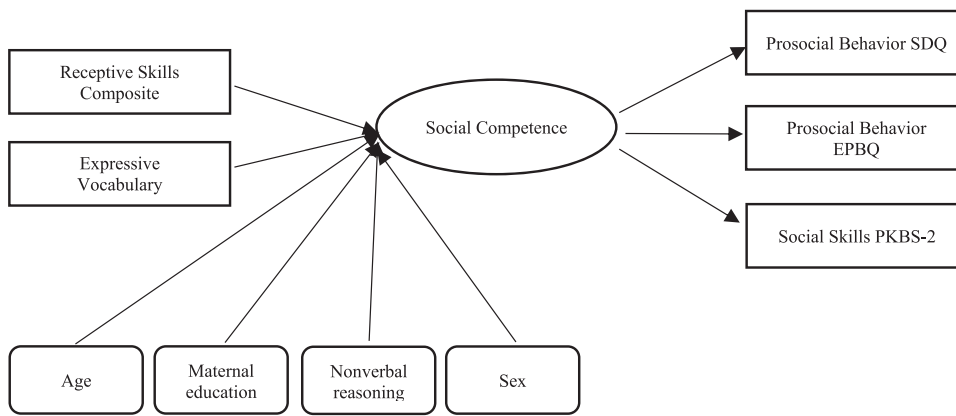


Fig. 1. Meta Model.

Table 1
Descriptive statistics whole sample.

	N		Mean		Std. Deviation	
	SLL	DLL	SLL	DLL	SLL	DLL
Social Skills Scale (PKBS-2)	163	76	3.82	3.69	0.53	0.49
Prosocial Behavior (EPBQ)	167	76	2.76	2.64	0.59	0.56
Prosocial Behavior (SDQ)	162	76	1.34	1.36	0.44	0.45
Societal vocabulary expressive	141	64	1.02	-0.46	0.53	1.12
Societal receptive composite	144	67	0.72	-0.30	0.75	0.79
Heritage vocabulary expressive	-	62	-	-0.28	-	1.40
Heritage receptive composite	-	66	-	0.00	-	0.74
Nonverbal reasoning	136	46	10.23	10.80	3.14	3.19
Age	167	76	48.84	48.75	7.90	7.48

SRMR < 0.08, and CFI/TLI > 0.90 to 0.95. For measurement invariance analyses, nested models were assessed by three criteria: $\chi^2 \leq .05$, RMSEA $\leq .010$, CFI $\leq .005$ (Δ CFI > $-.005$) (Chen, 2007).

3. Results

3.1. Descriptive statistics and correlational analyses

Descriptive statistics for all variables used are presented in Table 1 for SLLs and DLLs. Table 2 provides an overview of bivariate correlations for SLLs and Table 3 for DLLs.

As expected for both groups, all societal language variables correlated positively with each other, as did the three social competence scales, assessed with the Prosocial Behavior scale of the SDQ, the Early Prosocial Behavior questionnaire and the Social Skills scale. Additionally, sex was associated with all social competence scales, such that girls were rated more socially competent than boys. Among SLLs, only the receptive language composite was positively correlated with nonverbal reasoning, whereas all language variables were correlated positively with age. Additionally, maternal education was marginally correlated with only societal expressive vocabulary and the receptive language composite. Among DLLs, heritage expressive vocabulary and the heritage receptive language composite were positively correlated with nonverbal reasoning; age was positively correlated with all language variables except societal and heritage expressive vocabulary. In addition, maternal education was positively correlated with societal expressive vocabulary and the receptive language composite as well as with the heritage receptive language composite.

With regard to group differences in the societal language, SLLs outperformed DLLs on expressive vocabulary ($t(76.114) = 9.98, p < .001, d = 2.288$), receptive vocabulary ($t(207) = 8.18, p < .001, d = 1.137$), and sentence comprehension ($t(206) = 7.69, p < .001, d = 1.072$). However, no significant group differences were found for the SDQ Prosocial Behavior subscale ($t(236) = -.30, p = .765$), the Early Prosocial Behav-

ior Questionnaire ($t(241) = 1.45, p = .147$), or the Social Skills scale ($t(237) = 1.76, p = .080$).

3.2. Measurement invariance

A multigroup confirmatory factor analysis was conducted to test a latent variable of social competence, comprised of the Prosocial Behavior subscale of the SDQ, the EPBQ, and the Social Skills Scale of the PKBS-2. Several increasingly restricted models were calculated and compared (see Table 4). First, separate measurement models were designed for the social competence factor across the two groups, and configural invariance was tested by freely estimating the parameters between the groups. Second, models testing the metric factor invariance revealed the equality of item factor loadings among SLLs and DLLs. Finally, factor loadings and intercepts were constrained to be equal (i.e., scalar invariant), resulting in a potentially worse fit. Although the χ^2 between the metric and scalar models were not significantly different, indicating invariance by more liberal standards, the differences between the RMSEA and CFI exceeded our set cut-offs of .010 and .005, respectively (Chen, 2007). Examination of the modification indices suggested that the intercepts of the SDQ Prosocial Behavior subscale may differ across groups (Brown, 2015; Byrne, 2008). Given this more rigorous test, partial scalar invariance was accepted, with the intercepts of the SDQ prosocial behavior subscale left unconstrained across groups. Further multigroup structural models using the social competence factor are likely robust to such a small amount of non-invariance, which is generally considered acceptable if the majority of parameters are established as invariant (Bowen & Masa, 2015; Dimitrov, 2010).

3.3. Societal language predicting SLLs' and DLLs' social competence

To answer our main question regarding the association between societal language and social competence, we calculated a multi-group structural equation model (see Fig. 2), which indicated good fit of the data ($\chi^2(40) = 43.895, p = .310, CFI = .99 / TLI = .99, SRMR = .06, RMSEA = .03$).

The multi-group model analysis showed a significant relation between expressive language skills in the societal language and social competence for SLLs ($B = .29, SE = .10, \beta = .36, p < .01$) but not for DLLs ($B = -.04, SE = .08, \beta = -.11, p = .651$). In contrast, for DLLs, the receptive language composite in the societal language and social competence were significantly associated ($B = .21, SE = .11, \beta = .43, p \leq .05$). Sex was associated with social competence for both groups (SLLs: $B = .30, SE = .06, \beta = .35, p < .001$; DLLs: $B = .29, SE = .09, \beta = .38, p \leq .001$), such that boys displayed poorer social competence than girls. Further, maternal education was not associated with social competence for either SLLs ($B = -.03, SE = .03, \beta = -.06, p = .400$) or DLLs ($B = .02, SE = .05, \beta = .08, p = .683$), and age was negatively related to social competence among SLLs ($B = -.02, SE = .01, \beta = -.31, p < .05$) but not among DLLs

Table 2
Bivariate correlations SLLs.

		1	2	3	4	5	6	7	8	9
1	Social Skills Scale (PKBS-2)	-								
2	Prosocial Behavior (EPBQ)	0.71**	-							
3	Prosocial Behavior (SDQ)	0.65**	0.77**	-						
4	Societal vocabulary expressive	0.32**	0.28**	0.09	-					
5	Societal receptive composite	0.20*	0.21*	0.16	0.67**	-				
6	Nonverbal reasoning	0.03	-0.10	-0.04	0.17	0.23**	-			
7	Age	0.07	0.07	0.01	0.58**	0.68**	-0.02	-		
8	Sex	0.23**	0.33**	0.29**	0.03	0.09	0.04	0.10	-	
9	Maternal education	0.03	0.03	0.08	0.18*	0.18*	0.12	0.03	0.03	-

* $p < .05$. ** $p < .01$.

Table 3
Bivariate correlations DLLs.

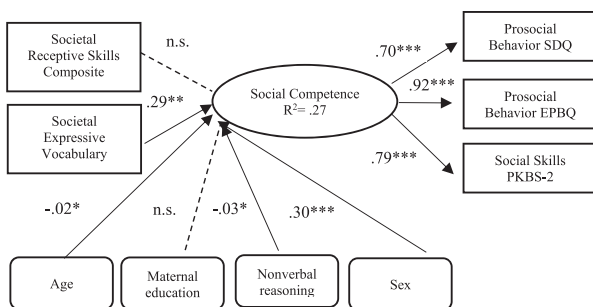
		1	2	3	4	5	6	7	8	9	10	11
1	Social Skills Scale (PKBS-2)	-										
2	Prosocial Behavior (EPBQ)	0.69**	-									
3	Prosocial Behavior (SDQ)	0.57**	0.76**	-								
4	Societal vocabulary expressive	0.23	0.15	0.12	-							
5	Societal receptive composite	0.35**	0.31**	0.23	0.72**	-						
6	Heritage vocabulary expressive	0.07	-0.01	0.01	-0.53**	-0.23	-					
7	Heritage receptive composite	0.31*	0.15	-0.01	0.07	0.41**	0.51**	-				
8	Nonverbal reasoning	0.29	0.09	0.04	-0.07	0.14	0.32*	0.35*	-			
9	Age	0.05	0.08	0.06	0.17	0.41**	-0.01	0.38**	-0.07	-		
10	Sex	0.33**	0.38**	0.31**	0.09	0.09	0.01	0.15	0.05	-0.03	-	
11	Maternal education	0.15	0.15	0.11	0.38**	0.36**	0.04	0.26*	0.19	0.05	0.01	-

* $p < .05$. ** $p < .01$.

Table 4
Overall and comparative fit indices for tested measurement models.

	χ^2	df	p	RMSEA	RMSEA (90% CI)	$p_{RMSEA < .5}$	CFI	$\Delta\chi^2$	Δdf	Δp	$\Delta RMSEA$	ΔCFI
Configural Model	0.000	0	-	0.000	[.000-.000]	-	1.000					
Metric Model	0.142	2	.93	0.000	[.000-.052]	ns	1.000	0.142	2		0	0
Scalar Model	7.925	4	.09	0.090	[.000-.182]	ns	.986	6.993	2	.03	.09	.014
Partial Scalar Model	.454	3	.93	0.000	[.000-.046]	ns	1.000	0.312	1	.86	0	0

Panel A: SLL ($N = 167$)



Panel B: DLL ($N = 76$)

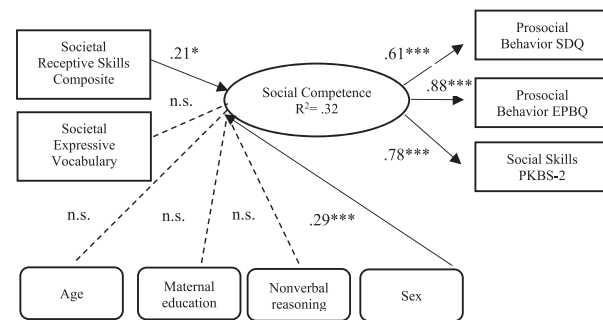


Fig. 2. Multi-group structural equation model.

Note. All values are standardized. Correlations among covariates and independent variables are not displayed for visual clarity. * $p < .05$; ** $p < .01$; *** $p \leq .001$.

($B = -.00$, $SE = .01$, $\beta = -.04$, $p = .763$). Finally, nonverbal reasoning was negatively related with social competence only among SLLs ($B = -.03$, $SE = .01$, $\beta = -.19$, $p < .05$) but not among DLLs ($B = .01$, $SE = .02$, $\beta = .08$, $p = .724$).

Significant associations between societal language skills and the covariates for SLLs and DLLs are provided in Table 5.

3.4. Societal and heritage language predicting DLL's social competence

To test the hypotheses that heritage language might be related to social competence, we calculated a second structural equation model

including heritage language (see Fig. 3) and included only our DLL sample. All values of all factor loadings and intercepts were constrained to the values of the DLL group in the multi-group model to assure higher reliability. The model yielded a good fit to the data ($\chi^2(27) = 31.734$, $p = .242$, $CFI = 0.95$ / $TLI = 0.95$, $SRMR = .08$, $RMSEA = .05$).

Neither receptive language ($B = .00$, $SE = .12$, $\beta = .00$, $p = .992$) in the heritage language nor expressive vocabulary ($B = .06$, $SE = .08$, $\beta = .20$, $p = .474$) in the heritage language were significantly associated with social competence. Only the societal receptive language composite and social competence were positively associated ($B = .26$, $SE = .10$, $\beta = .53$, $p < .01$). In addition, sex remained significantly related to social

Table 5
Associations among covariates and independent variables for SLLs and DLLs.

Path	SLL				DLL			
	B	SE	β	p-value	B	SE	β	p-value
Societal receptive composite <-> Societal expressive language skills	0.27	0.04	0.67	$p < .001$	0.64	0.12	0.72	$p < .001$
Societal receptive composite <-> Age	4.08	0.44	0.69	$p < .001$	2.36	0.68	0.40	$p \leq .001$
Societal receptive composite <-> Maternal education	0.09	0.05	0.13	$p < .05$	0.42	0.15	0.35	$p < .05$
Societal receptive composite <-> Nonverbal reasoning	0.51	0.13	0.22	$p < .001$	0.19	0.26	0.08	0.454
Societal expressive language skills <-> Age	2.42	0.32	0.58	$p < .001$	1.33	1.05	0.16	0.205
Societal expressive language skills <-> Nonverbal reasoning	0.27	0.12	0.16	$p < .05$	-0.51	0.45	-0.14	0.258
Societal expressive language skills <-> Maternal education	0.07	0.05	0.14	0.115	0.75	0.21	0.44	$p < .001$

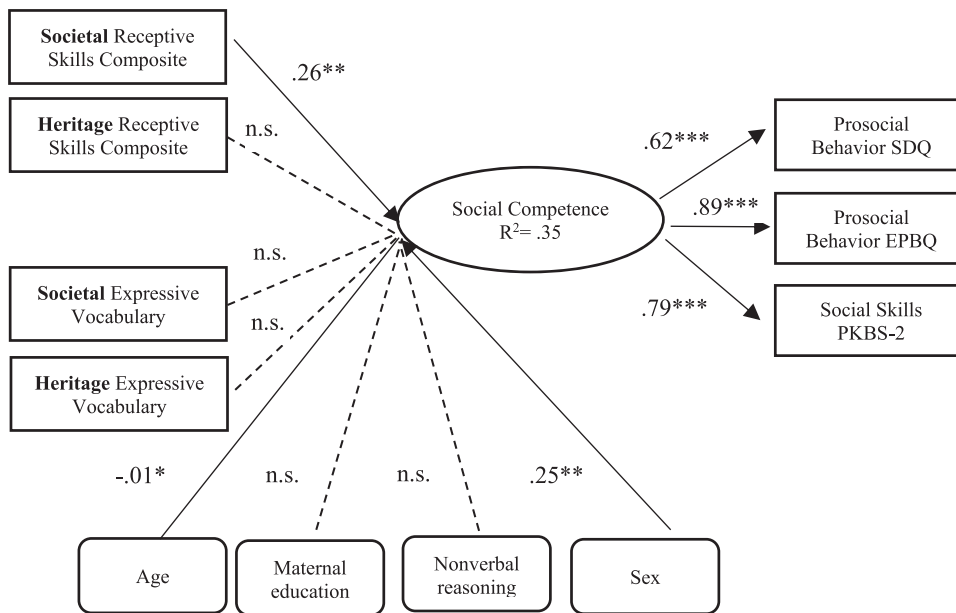


Fig. 3. Heritage and societal language as predictors of social competence among DLLs. Note. All values are standardized. Correlations among covariates and independent variables are not displayed for visual clarity. * $p < .05$; ** $p < .01$; *** $p \leq .001$.

Table 6
Associations among covariates and independent variables for DLLs.

Path	DLL			
	B	SE	β	p-value
Societal expressive language skills <-> Heritage expressive language skills	-0.86	0.20	-0.54	$p < .001$
Societal receptive composite <-> Heritage receptive composite	0.24	0.07	0.41	$p \leq .001$
Heritage receptive composite <-> Age	2.18	0.70	0.40	$p < .01$
Heritage receptive composite <-> Nonverbal reasoning	0.82	0.36	0.35	$p < .05$
Heritage receptive composite <-> Heritage expressive language skills	0.53	0.14	0.51	$p < .001$
Heritage expressive language skills <-> Nonverbal reasoning	1.60	0.66	0.36	$p < .05$
Societal receptive composite <-> Age	2.40	0.67	0.41	$p < .001$
Societal receptive composite <-> Maternal education	0.42	0.14	0.35	$p < .01$
Societal receptive composite <-> Societal expressive language skills	0.65	0.12	0.73	$p < .001$
Societal expressive language skills <-> Maternal education	0.73	0.21	0.42	$p < .001$

competence ($B = .25$, $SE = .10$, $\beta = .32$, $p < .01$) and age demonstrated a significant negative association with social competence ($B = -.01$, $SE = .00$, $\beta = -.21$, $p < .05$).

Significant associations between societal/heritage language skills and covariates are presented in Table 6.

4. Discussion

The main purpose of this study was to investigate the relationship between language and social competence among both single (SLL) and dual (DLL) language learning children. This study extends the current literature in two major ways: first, by examining the separate association of receptive and expressive societal language skills with social competence, and second by focusing on dual language learning children, which

have been less studied as a group compared to SLLs. As added value to previous studies, we also considered the respective heritage language of DLLs in our analyses. This is an important issue in light of the fact that the number of DLLs is increasing worldwide, and early education professionals are facing the challenge of managing culturally and linguistically diverse classrooms.

With regard to our first hypothesis, our findings supported the assumption that socially competent behavior relies on children’s linguistic ability, albeit differently for the two groups. While societal expressive language skills were positively related to social competence among SLLs, societal receptive language skills were positively related to social competence among DLLs. Both findings are in alignment with previous studies (e.g., Girard et al., 2016) but deserve further discussion. SLL children who demonstrated better expressive vocabularies were rated as more

socially competent by their early education professionals. Children that can express their own thoughts and feelings may face fewer misunderstandings, which may in turn prevent frustration and conflict while increasing opportunities for positive social interactions. Thus, among SLLs at the preschool and kindergarten age, expressive language skills may be of greater importance for social competence than receptive language, which, at the group level, may be sufficiently developed.

In contrast to the findings of SLLs, we found that only societal receptive language skills were associated with social competence for DLLs. This result may be an indication of the pronounced gap in receptive and expressive language skills which has been found for various groups of DLLs (e.g., Sachse et al., 2010; Yan & Nicoladis, 2009). Receptive language develops earlier and is often more advanced than expressive language, and this might be particularly true for DLLs. While SLLs may already have well-developed receptive and expressive language skills, DLLs may have not yet acquired these skills in the societal language. For example, Hoff and Ribot (2017), who examined English monolinguals' and Spanish-English bilinguals' English growth, showed that Spanish-English bilinguals lagged six months to one year behind their monolingual counterparts in normal English development. This is evident too in our results that revealed higher receptive and expressive language scores among SLLs than DLLs. Furthermore, several studies have shown that DLLs have more difficulties with producing language than understanding language in both their languages (e.g., Grüter, 2005; Sachse et al., 2010) because the input they receive for both languages is distributed across two languages. This leads to less input in each language compared to SLLs (Pearson et al., 1993). Thus, it is conceivable that the association between societal expressive language and social competence for DLLs may become apparent later in development. Nevertheless, our findings suggest that understanding linguistic information might represent the first step towards positive social interactions. Although DLLs may have difficulty expressing themselves verbally, the ability to understand the needs of others may sufficiently enable them to behave competently with others (Rose et al., 2018).

These results support the approach of simultaneously investigating expressive and receptive language as separate predictors of social competence rather than utilizing either one modality individually or a combined language score. Specifically, we could show that expressive and receptive language skills are two distinct modalities that are differentially associated with social competence among different groups of children. Future research should therefore consider both modalities in order to understand the underlying mechanisms driving the association between language and social competence in SLLs and DLLs.

With respect to our second hypothesis, we did not find a relation between heritage language and social competence. This could be due to the context in which social competence was measured. Heritage language is perhaps particularly important in the family setting, whereas the societal language is increasingly relevant in the preschool and kindergarten contexts, where it critically promotes children's sense of belonging, productive interactions with peers and early education professionals, and the ability to follow instructions and meet demands (Collins et al., 2011; Tannenbaum & Howie, 2002). Accordingly, our findings show that societal language skills can act as a protective factor for positive peer relationships and social behavior.

Another explanation for our finding may be the *silent period* (Tabors, 2008), which, like the receptive-expressive gap, occurs in one of the early stages of second language acquisition. Here, children discover that their heritage language does not work in the classroom setting and enter a silent period, wherein they observe and listen rather than express themselves and thus improve their societal language receptive skills. Thus, children need to suppress the heritage language in the context where the societal language is immersive in order to focus on the acquisition of the societal language (Gibson et al., 2012; Keller et al., 2015). However, the number of studies investigating the association between heritage language skills and social competence is scarce, and more

research is needed to investigate the influence of DLL's heritage language on social development in different contexts (Ren & Wyver, 2016).

Finally, the null results regarding heritage language may also be due to the fact that the estimation of the factor scores of the heritage language is subject to a larger measurement error compared to those of the societal language due to the smaller sample sizes. While the societal language scores were estimated on the basis of the total sample, the heritage language tests were based only on the sample of dual language learners. If the heritage language scores represented a less reliable estimate of children's language skills, there may have been less power to detect the effects of the heritage language than the societal language.

Although sex differences were not the main focus of the present study, our results revealed that girls were rated higher in social competence than boys. This is in line with previous research. For instance, Girard et al. (2016) showed that girls were rated higher on prosocial behavior at the age of three and five years, and results of a recent study with a large, longitudinal sample demonstrated that teachers rated girls consistently higher in social competence from kindergarten to sixth grade (Hajovsky et al., 2021). These sex differences may be due to sex-typed socialization practices. Specifically, parents and other caregivers might pressure girls to be more responsive to other's needs than boys and reinforce child's behavior when it goes along with sex-typed expectations (Hay, 1994; Koch, 2003). In the classroom, this bias may result in boys and girls receiving different feedback on their behavior from teachers, and behaviors may be differently punished or rewarded. For example, when girls behave exuberantly, as boys are often expected to do, the behavior may be corrected more quickly and with greater consequence, resulting in their behavior being shaped toward more socially acceptable behaviors (Hajovsky et al., 2021; Koch, 2003).

Further, even though SLLs outperformed DLLs in the societal language, the groups did not differ in the overall ratings of social competence. While some studies have shown that teachers tend to judge DLLs' interpersonal skills more favorably compared to SLLs (e.g., Han, 2010), others found no differences in social functioning based on language learning status (e.g., Farver et al., 2006). This might be due to a lack of systematic study of DLLs' social development but also because of different operational definitions of dual language learners (Halle et al., 2014). Together, these findings show that more research is required to further investigate DLLs' linguistic and social development.

To note, there were also two unexpected small negative associations between social competence and both age and nonverbal reasoning: An explanation for this may be found in Hay's (1994) model of prosocial development. Prosocial behavior is a strong aspect of social competence at this age that figured heavily in our factor of social competence. According to the model, prosocial behavior develops in infancy and occurs more frequently in the second and third years of life, followed by a decrease between the fourth and sixth years of life. Empirical support for this assumption derives from a longitudinal study examining the trajectories of prosocial behavior at 17, 29 and 41 months of age. Baillargeon et al. (2011) found that the majority of children who did not exhibit prosocial behavior at 41 months of age did so one year earlier. Hay (1994) states that children's prosocial behavior becomes regulated during the preschool years when they learn to inhibit earlier developed prosocial impulses and consequently exhibit prosocial behavior less frequently. She suggests that this decline results from an increase in self-interest, the awareness of the social conventions and moral rules that govern whom they should help and when they should comfort someone (depending on reciprocity, equity, and deservedness). As a result, with increasing age and more complex reasoning, children begin to show prosocial behaviors on fewer occasions and direct it toward fewer recipients. It is also possible that children in this developmental period, which is characterized by various transitions, such as the transition from the home environment to childcare or from childcare to formal schooling, may not have made enough significant friends who "deserve" their assistance. However, more research is needed to explore this association further.

In addition to the advantages of the present study, such as the inclusion of the direct comparison of heritage and societal languages among DLLs, there were also some limitations. First, we were unable to establish full measurement invariance of the social competence factor across the SLL and DLL groups in the strictest manner possible. Although our test of scalar invariance was satisfied by the most common tests of model comparison (χ^2 difference test), changes in RMSEA and CFI exceeded the conservative cut-offs we had set a priori, and we opted to allow one parameter to vary across groups. However, this variance across groups, although unideal, is considered minimal and should not be expected to affect the interpretation of the subsequent structural models (Bowen & Masa, 2015; Dimitrov, 2010).

Second, our sample was biased towards a population of families with high maternal education. It is possible that the results would have been different with a more representative sample, especially considering that SES has been associated with DLLs' social and vocabulary development (Han, 2010; Prevoe et al., 2014). Our study partly supported these findings. SES was associated with societal language skills but not with social competence. Thus, future studies should ensure more diverse SES among participants. Third, the sample size of DLLs compared to SLLs was relatively small, especially in the Italian subgroup. Therefore, our ability to explore individual language combinations or any potential differences in the subgroups of DLLs regarding the relationship between language and social competence was limited. Further research is needed to assess differences within language groups and within the DLL classification, which is indeed more heterogeneous than monolithic.

In order to advance the current body of knowledge, further research is required to better establish the effects of language on social competence in both SLLs and especially DLLs. Specifically, longitudinal data is needed to track developmental trajectories from infancy on to detect possible long-term effects of language on social competence. A longitudinal design would also allow for a closer assessment of the direction of effects between these constructs, as there is evidence that the relation between language and social competence is bidirectional. For example, Winsler et al. (2014) showed in a longitudinal study with DLLs that children with greater social skills at the age of four were more successful in obtaining English proficiency by the end of kindergarten. This suggests that early social skills may also play a specific role in the development of the societal language.

Finally, the current study was unable to assess how aspects of the childcare context (e.g., teacher experience, teacher education, teacher-child-relationship, and attitudes towards multilingualism) may influence the associations between language and social competence. Such future research would continue to extend our knowledge of these processes.

Overall, the present study adds to the current literature on language and social competence by highlighting the relevance of language for both SLLs' and DLLs' social behaviors and the specific role that the societal language may play for DLLs. This study also further underscores the importance of investigating language as a multi-modal construct. By doing so, this study revealed differential associations between expressive and receptive language with social competence, depending upon language learning status.

Declaration of Competing Interest

None.

CRedit authorship contribution statement

Ankica Jurkic: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Visualization, Project administration. **Simone E. Halliday:** Conceptualization, Methodology, Validation, Data curation, Writing – review & editing, Visualization, Project administration. **Tina Hascher:** Resources, Writing –

review & editing, Supervision, Project administration, Funding acquisition.

Data Availability

Data will be made available on request.

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