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## Language Use in Six Study Abroad Programs: An Exploratory Analysis of Possible Predictors

Wendy Baker-Smemoe  
*Brigham Young University*, [wendy\\_baker@byu.edu](mailto:wendy_baker@byu.edu)

Dan P. Dewey  
*Brigham Young University*

Jennifer Brown  
*Brigham Young University*

Rob A. Martinsen  
*Brigham Young University*

Carrie Gold  
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**Authors**

Wendy Baker-Smemoe, Dan P. Dewey, Jennifer Brown, Rob A. Martinsen, Carrie Gold, and Dennis Eggett

# Language Use in Six Study Abroad Programs: An Exploratory Analysis of Possible Predictors

Dan P. Dewey, Jennifer Bown, Wendy Baker, Rob A. Martinsen, Carrie Gold, and Dennis Eggett

Brigham Young University

A common predictor of language gains during study abroad (SA) is amount of language use. Yet little attention has been given to determining what factors influence the extent of language use while abroad. Studies in this area have mainly been case studies of learners in single locations. In this larger study, we seek to determine variables connected with language use by examining 118 learners studying abroad in Madrid, Mérida (Mexico), Paris, Moscow, Nanjing, or Cairo. These learners reported their second language (L2) use over a 1-week period during their stay. Significant predictors of reported L2 use include SA program, age, pre-departure language proficiency, number of native speaker friends, gender, and personality.

**Keywords** language use; study abroad; personality; social networks; age; gender; intercultural competence

## Introduction

Traditionally, study abroad (SA) is considered one of the most powerful means by which students can obtain the linguistic and cultural skills necessary to successfully interact with those of other cultures (Byram & Feng, 2006). As Schrier (2011) notes, “[t]he importance of living and studying in the target-language country is a shared assumption of the faculty and students in most

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Correspondence concerning this article should be addressed to Dan P. Dewey, Department of Linguistics and English Language, 4064 JFSB, Brigham Young University, Provo, UT 84602, USA. E-mail: ddewey@byu.edu

colleges and universities” (p. 3). Participation in SA has risen in recent years in the United States and students are travelling to more countries than ever before (Institute of International Education, 2010). These trends in SA participation are likely due to the increasingly global nature of society as well as current events that highlight the need for skills in cross-cultural communication.

Teachers, students, and administrators commonly assume that students on SA will naturally engage in frequent, meaningful interactions with native speakers of the second language (L2) and that greater cultural understanding and significant linguistic improvements will result. Research has generally borne out the idea that students’ interactions with native speakers will enhance language and culture learning (Fraser, 2002; Freed, 1990; Hernández, 2010; Martinsen, 2011; Mendelson, 2004; Vande Berg, Connor-Linton, & Paige, 2009; Whitworth, 2006). However, perhaps surprisingly, students who go abroad often interact with native speakers far less, and use English more, than they had planned on prior to departing (DeKeyser, 1986; Polanyi, 1995; Rivers, 1998; Wilkinson, 1998a, 1998b).

Given the potential benefits of interacting in the L2 while abroad, it would be valuable to understand what factors encourage or discourage students from interacting with native speakers. A few qualitative studies have provided insight into this issue (Pellegrino Aveni, 2005; Isabelli-García, 2006; Wilkinson, 1998a, 1998b). However, these studies are limited both in scale (typically less than ten participants) and focus (each focusing on one particular program). The present study expands on the current literature by examining data from 118 students from six different SA programs. Findings from this study increase our understanding of the factors that contribute to language use during SA. Additionally, because this study, unlike previous research, takes into account a variety of programs, we are able to comment on features of program design that may affect language use.

## Review of Literature

Most theories of language learning emphasize the importance of input and interaction for language acquisition. Krashen (1985) argued that ample L2 input leads to acquisition. Over the years, scholars have qualified Krashen’s Input Hypothesis, suggesting that interaction is also critical to language acquisition (Gass, 1997; Long, 1996; Pica, Holliday, Lewis, & Morgenthaler, 1989; Swain, 1985). SA is assumed to provide significant levels of meaningful input as well as abundant opportunities for interacting in the L2; indeed, it appears to offer a particularly acquisition-rich environment.

Assumptions about the linguistic benefits of SA are generally emphasized in the research literature. Empirical studies have shown that SA can lead to significant improvements in oral production ability (Brecht, Davidson, & Ginsberg, 1990, 1993; Freed, 1990; Magnan, 1986; Magnan & Back, 2007; Segalowitz & Freed, 2004). Gains have also been seen in areas such as vocabulary and reading (Dewey, 2004, 2008; Milton & Meara, 1995), sociolinguistic and sociocultural knowledge (Lafford, 1995; Lapkin, Hart, & Swain, 1995; Marriott, 1995; Regan, 1995; Regan, Lemeé, & Howard, 2009; Siegal, 1995), narrative abilities (Collentine, 2004), and pronunciation (Díaz-Campos, 2004).

As far as research indicating a relationship between language use and language acquisition during SA (Fraser, 2002; Freed, 1990; Hernández, 2010; Mendelson, 2004; Whitworth, 2006), findings are still largely mixed. Mendelson (2004), for instance, found no clear connections between language use and proficiency gains. She did, however, find that students in a longer SA program (18 weeks as opposed to 14) reported more interactive conversations in Spanish than the latter and that these learners reported more gains in speaking than did their counterparts. Freed (1990) similarly found no universal connection between language use and proficiency development, although she did discover that lower-proficiency learners in France benefited more from interaction with native speakers than advanced learners, who appeared to benefit more from reading and listening to the L2. On the other hand, Hernández (2010) discovered that the amount of time learners reported speaking Spanish outside of class was a significant predictor of oral proficiency gains. The lack of consensus suggests that other variables are influencing language use and proficiency and possible connections between the two, indicating a need for further research. Regardless of the conflicting results, there is a general consensus that increased language use is a desired benefit of SA.

Much of the variation in language use and acquisition during SA may be explained not only by individual differences typical of SA learners, but also by differences in SA program design, including program duration, types of student housing, and course design (see Vande Berg et al., 2009, for a study of several program-related differences). As Isabelli-García (2006) reminds us, the SA experiences of individual students vary considerably. Some variation may be attributable to individual learner characteristics, such as personality, intercultural sensitivity, age, and gender. In this study, we examine both individual characteristics and program design. Furthermore, we also examine factors associated with amount of L2 use, because regular L2 use is an outcome typically expected to occur during SA. In what follows, we review each of seven

variables that will be the focus of our study: intercultural sensitivity, personality, initial proficiency, social networks, gender, age, and program characteristics.

### **Intercultural Sensitivity**

Among the many factors that may influence language use during SA is that of intercultural sensitivity. Isabelli-García (2006) asserts that students' willingness to interact with members of the target culture may be influenced by their level of intercultural sensitivity. In her study, learners with more negative views of Argentine culture demonstrated lower motivation for interacting with native speakers, built fewer social networks with Argentinians, and made fewer gains in their oral proficiency. Wilkinson (1998a) also suggests intercultural sensitivity as a factor that influenced the dramatically different experiences of two SA participants in France. The learner who demonstrated less intercultural sensitivity reacted defensively to cultural differences, erecting barriers to interaction that prevented her from using the L2.

While Isabelli-García (2006) and Wilkinson (1998a) noted that intercultural sensitivity influenced degree of interaction with native speakers for learners in their studies, Martinsen (2011) demonstrates the converse: interaction with native speakers proved an important predictor of gains in cultural sensitivity. This finding is significant in light of Martinsen's (2010) study, in which predeparture intercultural sensitivity served as the only significant predictor of oral L2 gains.

### **Personality**

Researchers in L2 acquisition have long assumed that personality plays an important role in language learning, especially factors such as extroversion and openness to new experiences regarding language learning (for a recent overview, see Dewaele, 2013). They have argued that these factors influence a learner's willingness to take risks and interact in the L2 (Naiman, Fröhlich, Stern, & Todesco, 1978, 1996; Oxford & Erhman, 1992; Rubin, 1975). Early researchers predicted extraverts to be better language learners (as they may be more linguistically active both in and out of the classroom) but introverts can be equally effective, though they may take different routes (Leaver, Ehrman, & Shekhtman, 2005). Though introverts may take more time before jumping in to conversations, this does not mean that they do not participate actively when opportunities arise.

Research regarding motivation and willingness to communicate indicates that personality may indirectly influence language use and acquisition (Lalonde & Gardner, 1984; MacIntyre, Dörnyei, Clément, & Noels, 1998). Moreover,

Ehrman and Oxford (1995) determined that personality factors other than extraversion (like those measured on the Myers-Briggs Inventory) may affect at least how the L2 is learned. Ożańska-Ponikwia and Dewaele (2012) found that open-mindedness was a good predictor of language use and that open-mindedness and self-esteem were both connected with self-perceived language proficiency for immigrants to Ireland and the United Kingdom. Additionally, Harrison and Voelker (2008) found that two personality variables, trait emotional intelligence and entrepreneurial attitude orientation, positively influenced learners' cross-cultural development during SA.

### **Initial Second Language Proficiency**

Learners' initial proficiency in the L2 has been shown to affect L2 use by facilitating opportunities to use the L2 as well as promoting more complex relationships and deeper connections within the host culture. Segalowitz and Freed (2004) conclude that learners' initial oral skills played a role in the amount and type of extracurricular L2 activities they engaged in. Similarly, Brecht et al. (1993), when studying predictors of Russian use among SA participants, found students who began with higher Russian proficiency were more likely to use the L2. Mak and Tran (2001) found higher language proficiency to be a factor in intercultural self-efficacy, suggesting that it might facilitate the kinds of interactions that develop into meaningful connections within a host culture.

### **Social Networks**

A social network, a concept largely introduced to sociolinguistic research by Milroy (1980), is a structure comprised of individuals connected with others by one or more specific types of relationships, such as kinship, friendship, or participation in a workplace. A small number of studies suggest that social networks play a beneficial role in the SA experience. Isabelli-García (2006) discovered a recursive relationship between motivation and integration into social networks during SA; that is, learners with higher initial motivation were more likely to enter social networks with L2 speakers, and "their continued motivation was influenced by their success, or lack thereof, in incorporating themselves into social networks" (p. 255). Moreover, those highly motivated learners who developed L2 social networks showed greater proficiency gains than their counterparts who did not become integrated into the community. Dewey and his colleagues (Dewey, Bown, & Eggett, 2012; Dewey, Belnap, & Hillstrom, 2013) similarly found that learners with more developed social networks reported greater gains in language proficiency over SA than those with less developed networks.

Other studies, though not specifically addressing social networks, also support the assertion that integration into a social network promotes language gain. For instance, Fraser (2002) and Whitworth (2006) found that learners engaging in a variety of community interactions (playing on football teams, participating in internships, playing in an orchestra, etc.) during SA demonstrated more linguistic development on measures of reading and writing than learners whose interactions were limited to more traditional classroom communities. Conversely, Coleman and Chafer (2010) and Dewey (2008) found that learners who maintained strong ties with first language (L1) communities failed to create strong social networks in the target culture and suffered linguistically, presumably because they had fewer opportunities for interaction in the L2.

### **Gender**

The research literature indicates a number of differences between men and women in regard to L2 learning. For example, studies suggest that women are typically more motivated than men to learn second and foreign languages (Csizér & Dörnyei, 2005). Women also report higher usage of language learning strategies than men (Goh & Kwah, 1997; Green & Oxford, 1995) and different orientations toward learning (Baker & MacIntyre, 2000). Gass and Varonis (1986) found that women spoke less and held their turns for shorter periods than men in language classes. Pavlenko and Piller (2011) note that gender can prevent access to language in various cultures and among minority communities and that gatekeepers often limit linguistic exposure based on gender.

In SA research specifically, a number of investigations have found that women make fewer linguistic gains than men. Brecht and Robinson (1993) concluded that “American women [in Russia] may have fewer—and qualitatively different—opportunities to speak in a mixed-gender setting than American males” (p. 19). Evidence for this assertion was also found in the work of Brecht et al. (1993) and several related qualitative studies of students on SA in Russia (Pellegrino Aveni, 2005; Polanyi, 1995). Schumann (1980), in her autobiographical account of learning Farsi in Iran, similarly reported that many contexts for language use were off limits to her. More recently, however, Davidson (2010) noted that gender is no longer a significant factor in proficiency gains for SA in Russia, perhaps reflecting changing social norms in the country. However, Trentman (2013), in her study of women studying in the Middle East notes, “dominant gender roles may make it difficult for female students to interact with locals” (p. 458) and provides specific examples where male SA participants in Cairo had greater access to a variety of speaking partners than females. Similarly, Pichette (2000, cited in Pavlenko & Piller, 2011)



found that males had ample access to speaking partners via *izakaya* (Japanese pubs), whereas social constraints prevented women from making use of this resource to build acquaintances with locals. It is clear from the literature that gender plays a role in the opportunities that learners have to use the language in social contexts and that access may vary from one culture to another.

Aside from the work just reviewed by Brecht and Davidson and their colleagues in Russia, most of the previous studies have been small-scale qualitative studies. Our study takes a unique approach by including over a hundred learners in six different countries, allowing us to examine similarities and possible cross-program differences with larger numbers of participants.

### Age

It is generally thought that the earlier individuals arrive in a country, the better off they will be when it comes to ultimate L2 attainment (see, e.g., Birdsong, 2006; Birdsong & Molis, 2001; Johnson & Newport, 1989). While most of these studies compare child learners with adult learners, a few recent studies have verified that a lower age of acquisition (AOA) leads to greater L2 achievement (e.g., Stevens, 1999; Martinsen, 2011). Differences in outcomes for SA participants of a variety of ages have been investigated by Llanes and Muñoz (2012), who found distinct advantages for children over adults in terms of language use and mixed results, depending on the task used to measure language gains.

Very few studies, however, have examined how age at the time of L2 AOA affects the amount of language *use* by L2 learners. The few existing studies of AOA and L2 use suggest that younger learners use the L2 more and that this in fact may be the reason that younger learners often achieve greater L2 accuracy than older learners (e.g., Flege, MacKay, & Meador, 1999). However, other studies suggest that AOA may affect other factors that influence L2 acquisition: Older learners tend to have different levels and types of motivation as well as attitudes toward language learning, which may affect amount of L2 language use (Kormos & Csizér, 2008). Research on participation in college-level classrooms (Fritschner, 2000; Howard & Henney, 1998; Weaver, 2005) has revealed that older learners tend to contribute more to classroom discussions than younger learners, suggesting the possibility of a relationship between age and language use, even when the range is typically restricted to college-level learners. By examining the role of age in language use for university students, we hope to better understand the contribution of this variable for these adult learners.

### **Program Variables**

A number of programmatic variables have the potential to influence language use and language gains. Engle and Engle (2003, 2004) list the following seven variables distinguishing programs:

1. Length of student sojourn
2. Entry target-language competence
3. Language used in course work
4. Context of academic work
5. Types of student housing
6. Provisions for guided/structured cultural interaction and experiential learning
7. Guided reflection on cultural experience (2003, p. 8).

Engle and Engle's work focuses largely on connections between program variables and the development of intercultural competence, but others (Llanes, 2011; Norris & Dwyer, 2005; Vande Berg et al., 2009) have focused on relationships between program and language gains.

In the most comprehensive of these studies, Vande Berg and his colleagues (2009) investigated the development of language proficiency and intercultural competence of nearly 1,300 learners of seven languages. They found that program length, enrollment in content courses taught in the L2 with host nationals, and predeparture orientation were all significantly and positively correlated with gains in language proficiency. While simply living with a host family did not predict gains (a finding corroborated by others such as Magnan & Back, 2007; Segalowitz & Freed, 2004), amount of time spent speaking with host families did. The more learners spoke in the L2 with host family members, the more they gained. These findings suggest that program design can affect L2 use. Further research is necessary to determine which program-related variables facilitate language use and gains most.

### **Research Question**

The research we have examined to this point generally suggests a link between use of the L2 while abroad and gains in language skills. We also have noted that research points to many possible individual and programmatic variables that may predict which students would tend to use the L2 more frequently during their sojourn abroad. However, few if any studies have directly examined the relationship between these variables and the amount of time students spend using the language while abroad, and none have examined several SA programs in the same study with over 100 participants. Moreover, no known studies have

**Table 1** Study abroad program and participant information

Group	<i>n</i>	Male/ Female	Average age ( <i>SD</i> )	Pre-program proficiency				Weeks abroad
				Novice	Intermediate	Advanced	Superior	
Madrid	23	4/19	22.4 (1.6)	0	12	1	0	8
Mérida	16	7/9	22.8 (2.1)	0	7	7	0	8
Paris	17	2/15	22.0 (1.7)	3	13	1	0	14
Moscow	6	6 males	24.7 (1.4)	0	2	3	0	16
Cairo	35	25/10	24.9 (2.3)	0	29	4	0	16
Nanjing	21	14/7	23.4 (2.3)	0	6	8	0	12

considered all these variables in the same study. Examining all these variables in the same study may help us understand the relative importance of each of these factors on language use, an insight that has been impossible to gain in previous studies. Gaining insights in this area could prove valuable in improving the cultural and linguistic outcomes of SA. Because of this we will address the following research question regarding the learners in our sample: What variables are associated with greater L2 use in SA?

## Method

### Participants

Participants consisted of 118 volunteers from six SA programs to Madrid, Mérida (Mexico), Paris, Moscow, Nanjing, or Cairo. All of these programs included a focus on L2 development. Information regarding the makeup of each group is found in Table 1, including program length. Participants' ages ranged between 18 and 26, and the majority were students from Brigham Young University or associated institutions.

### Materials

Our research team utilized the following instruments to measure the variables in parentheses: the Intercultural Development Inventory (IDI; intercultural sensitivity), the Oral Proficiency Interview (OPI; oral proficiency), the NEO Five-Factor Inventory (NEO-FFI; personality), Language Log (language use), and the Study Abroad Social Interaction Questionnaire (SASIQ; social networks).<sup>1</sup> Participants also completed a demographic questionnaire in order to determine

**Table 2** Categories of the Intercultural Development Inventory

Category	Description
Denial	This stage is characterized by a failure to understand that deeper cultural differences exist. For example, a person in denial may recognize that people from other cultures dress and talk differently but have no concept of differences in deeply held values.
Polarization	A judgmental orientation that views cultural differences in terms of “us” and “them.” Polarization can take two forms, defense and reversal. People in defense take an uncritical view toward their own cultural values and practices and an overly critical view toward other cultures. Reversal is the opposite extreme where one takes a highly critical stance toward their own culture and is uncritical of the other culture.
Minimization	In minimization, people emphasize the sameness that exists between cultures. This emphasis may prevent recognition and appreciation of important cultural differences.
Acceptance	An orientation that recognizes and appreciates patterns of cultural differences and commonality in one’s own and other cultures.
Adaptation	An orientation that is capable of shifting cultural perspective and changing behavior in culturally appropriate ways.

*Note.* Adapted from Hammer (2009, p. 4).

age, gender, and number of classes taken in the L2 before departure, among other variables. Each of these instruments is described below.

### *IDI*

The IDI is a 50-item multiple-choice test originally developed by Mitchell R. Hammer (see <http://www.idiinventory.com/>). It is designed to measure learners’ openness to and acceptance of cross-cultural differences. The IDI uses a continuum of five categories to describe an individual’s level of cultural sensitivity: Denial, Polarization (including the facets of Defense and Reversal), Minimization, Acceptance, and Adaptation. The Inventory also measures Cultural Disengagement, though this factor does not constitute part of this continuum (Hammer, 2009; Hammer, Bennett, & Wiseman, 2003). The categories are described in Table 2.

While several scores are produced based on an individual’s IDI responses, we used only the Developmental Orientation Score, which is thought to represent the test-taker’s actual level of intercultural sensitivity (Hammer, 2009).

**Table 3** Personality factors of the NEO Five-Factor Inventory

Factor	Descriptors
Extraversion (E)	Active, assertive, energetic, enthusiastic, outgoing, talkative
Agreeableness (A)	Appreciative, forgiving, generous, kind, sympathetic, trusting
Conscientiousness (C)	Efficient, organized, planful, reliable, responsible, thorough
Neuroticism (N)	Anxious, self-pitying, tense, touchy, unstable, worrying
Openness (O)	Artistic, curious, imaginative, insightful, original, wide interests

*Note.* Adapted from McCrae and John (1992, pp. 178–179).

### *NEO-FFI*

The NEO-FFI is a personality measure originally developed by Paul T. Costa, Jr. and Robert R. McCrae (see [http://www4.parinc.com/WebUploads/samplerpts/NEO\\_Biblio\\_2011.pdf](http://www4.parinc.com/WebUploads/samplerpts/NEO_Biblio_2011.pdf)). It consists of 60 items that participants respond to on a five-point Likert scale ranging from *strongly disagree* to *strongly agree*. Items include statements such as “I have a clear set of goals and work towards them,” “I usually prefer to do things alone,” “I often try new and foreign foods,” and “I rarely feel fearful or anxious” (Costa & McCrae, 1992). As explained by McCrae and John (1992), the NEO-FFI is designed to measure the levels of the following traits: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. Table 3 provides a description of each of the five factors.

NEO-FFI scores can be recorded and interpreted in several ways. First, raw scores can be obtained by adding up all of the responses for each of the twelve five-point items associated with each of the five factors. Second, these raw scores can be turned into T scores based on responses from thousands of individuals who participated in the NEO-FFI validation studies (Costa & McCrae, 1992). T scores are standardized scores, whereby a score of 50 represents the mean and a difference of 10 from the mean indicates a difference of one standard deviation. Finally, these T scores can be turned into a NEO Summary, which provides prose descriptions of profiles for each test taker of tendencies in each of the five areas (three categories for each factor, depending on whether the person scored higher than average, average, or lower than average, based on T scores). Whereas the use of T scores and summary reporting is extended in the personality literature, we used raw scores in our analyses.

### *SASIQ*

This survey, a 13-question version of the SASIQ developed by Dewey and his colleagues (Dewey et al., 2013; Dewey et al., 2012; Dewey, Ring, Gardner, & Belnap, 2013), was used to measure students' social networks. The SASIQ is based largely on the Montréal Index of Linguistic Integration (Segalowitz & Ryder, 2006) and the General Social Survey (Burt, 1985). The survey employs a name generator and can be used to determine the size, intensity, durability, density, and dispersion of SA participants' social networks (Knoke & Yang, 2008). Size denotes the number of native L2 speakers an individual associates with. Intensity indicates the closeness of a given relationship, and is measured by asking students to rate the strength of their relationship with each member of their social network. Durability measures frequency of interaction with an individual. Density is the degree of connections between people within one's network. Finally, Dispersion is each participant's number of social groups (host families, school clubs, part-time job site, volunteer groups, etc.).

### *OPI*

Participants also completed a pre-departure ACTFL OPI either by telephone or in person by certified OPI testers. Scores on the OPI range from Novice-Low to Superior (see <http://languagetesting.com/> for more information on the OPI and ratings). For purposes of statistical analyses, OPI scores were converted to numeric values based largely on procedures employed by Meredith (1990) using the 10-point scale employed by Rifkin (2005).

### *Language Log*

In order to measure how much the L2 was used while abroad, participants were asked to self-report using Martinsen, Baker, Dewey, Bown, and Johnson's (2010) Language Log. Participants completed this log every day for one week, documenting the minutes they used the L2 each day in areas such as "time in class," "talking to friends/roommate," "listening to music," and "reading." Total time using the L2 was divided into "in-class" and "out-of-class." Most tasks were specified as out of class. Out-of-class activities were further divided into "receptive" and "productive" language tasks. Receptive tasks were activities such as L2 reading or listening that did not involve interaction or output. Alternatively, the productive tasks allowed for L2 production, whether through speaking or writing. Some tasks, such as talking on the phone or talking with a host family, were clearly interactive (i.e., clearly involving an interlocutor), and therefore a separate analysis of these interactive activities is reported below as well.

## Procedures and Analyses

The demographic survey, IDI, OPI, and NEO-FFI were administered prior to SA and the SASIQ was administered at the end. Language logs were completed at approximately the midpoint of each program.

Information on the SA programs was obtained from their respective directors via an email survey at the end of each program. Directors were asked to provide information concerning how the L2 was used both in and out of class and to think about the nature of assignments given to students, the language of instruction in formal classes, the language used in out-of-class activities, and incentives the program may have employed to encourage L2 use.

One participant (a Cairo participant) was eliminated because his estimates were all more than four standard deviations above the mean and nearly twice what the next highest levels were. Furthermore, his estimated total time using the L2 would have allowed for very little time for sleeping, eating, and personal hygiene.

Correlation and regression were used to determine variables associated with language use. To account for program (a nominal variable) in the regression, a dummy variable was created for each of the programs and values for each of these variables were set at either one or zero—one if students participated in the specified program and zero if they did not. Regression analyses were conducted for each of the five measures of language use (total, in-class, out-of-class, receptive, interactive) to select a reasonable model for amount of language use. Measures of personality (NEO-FFI results), OPI scores, gender, age, program variables (program, type of housing, length of program, and coursework in English), and social network variables were used for predicting language use. Because there were missing values for some of the predictor variables and those missing values were not consistent across subjects (i.e., some subjects failed to complete portions of the research), we performed a forward selection process to find the best models (see Ramsey & Schafer, 2012). This involves fitting a model in each step of the process that uses all available data for the variables being examined. The process started with a null model of just an overall mean. A model was fit to each individual variable and the most significant variable (smallest  $p$  value) was included in subsequent models. The next step performed an analysis with that variable plus each other individual variable. The most significant variable in this step was then included in the model and this process was repeated in each subsequent step until no variable met the typical selection criteria of a  $p$  value less than 0.15. Performing the variable selection in this way allowed us to use all possible observations without missing values for the variables being considered in each individual analysis. A typical stepwise

**Table 4** Descriptive statistics: Hours per week of language use

Program	Total		Out-of-Class		In-Class		Interactive		Receptive	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
All Groups	50.1	23.8	37.5	21.2	12.7	7.9	12.5	9.7	11.0	9.5
Nanjing	46.7	19.4	27.9	19.4	18.9	8.1	8.9	11.6	12.3	9.3
Cairo	62.2	30.5	45.4	27.0	16.9	6.8	16.3	11.0	19.2	11.0
Paris	32.8	18.5	30.6	17.8	2.2	2.5	8.7	3.6	7.5	8.3
Madrid	42.5	16.8	35.5	16.6	7.0	3.6	9.5	8.1	7.0	4.7
Mérida	56.6	14.3	44.0	12.6	12.6	4.4	16.4	6.5	12.7	5.8
Moscow	38.0	12.2	28.4	15.1	9.6	4.1	10.2	7.4	7.5	3.5

regression used in exploratory studies would eliminate all observations that had any missing values for any of the variables being considered. This would have drastically reduced our sample. Thus, the forward selection method was used. This process eliminates problems of multicollinearity. If any variables are colinear, the most significant would be included and the other variable would no longer enter as significant and therefore would not be included in the model in subsequent steps. We also sought to maximize sample size in our analyses by excluding variables when subsets for which we had complete data were less than two-thirds of the sample size.

## Results

The combined descriptive statistics (recorded in hours per week) for all language programs are reported in Table 4 along with results from each of the language programs. Including time in class, participants across all programs indicated spending an average of 50.1 hours during a week (7.2 hours per day) using the L2. Individual programs varied in the average amount of L2 use reported by participants. Students in Cairo reported the most time using the L2, with an average of 62.2 hours during a week—8.9 hours per day. On the other end of the spectrum, participants in Paris reported an average of 32.8 hours in a week, equal to 4.7 hours average per day.

## Predictors of Language Use

Our primary purpose was to determine which of the factors we examined were the best predictors of language use during SA.<sup>2</sup> Regression analyses were conducted for each of the five measures of language use (total, in-class,



**Table 5** Regression coefficients for models including program

Variable	Source	<i>B</i>	<i>SEB</i>	$\beta$	<i>p</i>
Total	(Constant)	41.63	2.80		
	Cairo	20.56	4.71	.396	<.0001
	Mérida	14.96	5.91	.230	.013
Out-of-Class	(Constant)	31.28	2.58		
	Cairo	14.11	4.33	.305	.001
	Mérida	12.68	5.43	.219	.021
In-Class	(Constant)	2.41	3.55		
	Paris	- 10.25	1.08	- .415	<.0001
	Madrid	- 5.33	1.93	- .239	.007
	Openness	.326	.113	.211	.005
	Nanjing	7.66	1.99	.333	<.0001
	Cairo	3.84	1.57	.231	0.17
Interactive	(Constant)	- 14.71	9.19		
	Age	.003	.001	.279	.003
Receptive	(Constant)	3.21	1.39		
	Cairo	6.27	1.70	.396	<.0001
	Pre OPI	.001	.001	.205	.059

out-of-class, receptive, interactive) to select a reasonable model for amount of language use. Results from these analyses are reported below.

### *Total Language Use*

The regression model for total language use predicted slightly over 15% of the variance, adjusted  $R^2 = .158$ ,  $F(2,113) = 10.45$ ,  $p < .0001$ . Table 5 provides the coefficients and other values for the predictors for this and all other models including language programs. Those who were either in the Cairo or Mérida programs were likely to use the L2 more overall than their peers in other groups. None of the demographic, personality, or social network variables were strong enough predictors to enter the equation when individual programs were present.

### *Out-of-Class*

The regression model for total out-of-class hours of language use indicated that again, Cairo and Mérida participation were the two best predictors,  $R^2 = .103$ ,  $F(2,113) = 6.40$ ,  $p = .0023$ . Coefficients for these two predictors are also shown in Table 5.

*In-Class*

A large percentage (55.6%) of in-class language use was predictable using a combination of program participation (Paris, Madrid, Nanjing, and Cairo) and Openness (personality trait measured by the NEO-FFI),  $R^2 = .556$ ,  $F(5,86) = 21.55$ ,  $p < .0001$ . Those who were *not* enrolled in the Nanjing and Cairo programs tended to report using the L2 in class less than their peers in these two programs, and those who were *not* enrolled in the Paris and Madrid programs tended to report using it more. In other words, not being enrolled in Paris and Madrid was a positive predictor of classroom language use and not being enrolled in Cairo or Nanjing was a negative predictor. Finally, those who were more open (curious, imaginative, original, etc.) tended to report using the L2 more in class than those who were less so. See Table 5 for regression coefficients.

*Interactive*

For total reported number of interactive hours of language use, nearly 8% of the variance was explained by a model consisting only of age,  $R^2 = .078$ ,  $F(1,107) = 8.97$ ,  $p = .0034$ . Coefficients are again found in Table 5.

*Receptive*

Finally, the regression model for the total reported number of receptive hours of language use predicted nearly 16% of the variance,  $R^2 = .159$ ,  $F(2,78) = 7.39$ ,  $p = .0011$ . Table 5 provides coefficients for this model. One program (Cairo) comes into play again along with predeparture OPI score. Those who did *not* participate in the Cairo program tended to report engaging in receptive language use less than those who did. Furthermore, those with higher initial OPI scores typically said they engaged in receptive language use more frequently than those with lower scores.

*Regression Without Language Program*

Given the strong contribution of language programs to the regression equations, a decision was made to calculate regressions for each of the language use variables without including program information in order to assess whether other variables might come into play independent of program. Age served as the sole predictor in three of these regression models: total number of hours,  $R^2 = .061$ ,  $F(1,107) = 6.93$ ,  $p = .0098$ ; interactive hours,  $R^2 = .078$ ,  $F(1,106) = 8.97$ ,  $p = .0034$ ; and receptive hours,  $R^2 = .062$ ,  $F(1,99) = .52$ ,  $p = .0122$ . For total out-of-class hours, number of native speaker friends was the single predictor,  $R^2 = .084$ ,  $F(1,64) = 5.86$ ,  $p = .018$ , with those who made more friends reporting higher levels of out-of-class language use than those with fewer

**Table 6** Regression coefficients for models not including program

Variable	Source	<i>B</i>	<i>SEB</i>	$\beta$	<i>p</i>
Total	(Constant)	-8.15	22.58		
	Age	.007	.003	.247	.010
Out-of-Class	(Constant)	29.81	5.11		
	Native Speaker Friends	1.17	.483	.290	0.18
In-Class	(Constant)	3.04	5.01		
	Gender (Female)	-4.89	1.53	-.305	.002
	Openness	.512	.148	.332	.001
	Neuroticism	-.173	.093	-.176	.067
Interactive	(Constant)	-14.71	9.19		
	Age	.003	.001	.279	.003
Receptive	(Constant)		-10.80	6.86	
	Age	.002	.001	.249	.012

**Table 7** Reliability estimates for measures used to predict language use

Variable	Measure	Reliability estimate	Source for estimates
Second Language Proficiency	Oral Proficiency Interview (OPI)	Interrater reliability > .82 for languages tested	Surface & Deirdorff (2003)
Intercultural Competence	Intercultural Development Inventory (IDI)	> .80 for all scales of the IDI	Hammer, Bennett, & Wiseman (2003)
Social Networks	Study Abroad Social Interaction Questionnaire	Estimates for sections of the SASIQ range from .75 to .95 based on test-retest	Dewey, Belnap, Hillstrom, & Kurzer (2009).

friends. For in-class hours, gender, Openness, and Neuroticism were significant predictors,  $R^2 = .218$ ,  $F(3,91) = 8.21$ ,  $p < .0001$ . Females typically reported using the language less in class than males, more open students reported greater classroom L2 use, and those who were higher in Neuroticism (i.e., those who tended to be more anxious, tense, worrying, etc.) reported less. Coefficients for all of these regression models are found in Table 6.

### *Summary of Results*

Significant differences did exist across programs in reported patterns of language use. Overall, the Cairo and Mérida groups tended to report more language use than their peers and the Paris group tended to report less. The Nanjing group's high use of the L2 in class is noteworthy as well. Individual program participation tended to be the strongest predictors of language use, with only two additional variables, predeparture OPI (a proficiency factor) and Openness (a personality factor) being additional predictors of receptive language use and in-class language use, respectively. The one exception was interactive language use: Age was the sole predictor in this case, with older students engaging in more interactive language use.

When program was removed from the models, age was the sole significant predictor for total number of hours, interactive hours, and receptive hours. Social networking came into play for only one model: Social network size (number of native speaker friends) was a positive predictor for out-of-class hours. Personality again played a role only for in-class language use, where gender, Openness, and Neuroticism served to predict nearly one fourth of the variance.

## **Discussion**

Although previous research has demonstrated that all the factors investigated in this study affect language use, this is the first study to examine all of the variables in one study with a large number of participants learning several different languages during SA. Having a larger sample and a broader range of programs allowed us to determine which factors are most important in predicting language use. The results of our study determined that the most important predictor of L2 use during SA in this study was the participant's program, followed by age. Initial level of cultural sensitivity was not a significant predictor of any type of language use, but personality, gender, initial L2 proficiency, and social network size were predictors in a limited number of models. In what follows we discuss each of these predictors.

Level of intercultural sensitivity was the only factor studied that was not a significant predictor of L2 use while abroad. Given the apparent importance of program in our study, it may be that program design played a role in challenges associated with intercultural sensitivity and in mediating the impact of cross-cultural differences—differences that can influence motivation to use the L2 with locals.

In contrast with our study, Pellegrino (1998), Pellegrino Aveni (2005), and Isabelli-García (2006) found that level of intercultural sensitivity may have influenced degree of interaction with native speakers for certain students (less sensitivity led to isolation and minimal interaction). However, Pellegrino's participants were largely isolated and received only minimal support from program staff, peers, and so on. Little information is available about the program in Isabelli García's study, although she indicates that the learners were part of a large group composed of a cohort from three separate universities. Participants in each of our six programs were part of cohesive groups from the same host institution. Individuals had a network of support ranging from program facilitators and faculty to fellow students. A supportive environment may have mitigated the effects of initial intercultural sensitivity.

As Vande Berg et al. (2009) indicated, students developed greater intercultural competence when they had contact with other foreigners like them: American students who took courses with other American students, or classes with a mix of host culture and international students, showed greater IDI gains than students who took classes with host culture nationals only. Additionally, students in each of the programs included in this study participated in an orientation class prior to going abroad that included instruction in cultural aspects of the host countries that would be helpful for them. Previous studies have found that participating in such an orientation is helpful for SA participants (Vande Berg et al., 2009). These orientations likely did not affect dramatically the cultural sensitivity of students, but they may have mitigated the effects of initial intercultural sensitivity.

Given these findings it might be valuable to perform a similar study using the IDI as a predictor of language use among students who were not part of cohesive groups, such as students who enroll directly in foreign universities. Such a design might allow for the effect of initial levels of intercultural sensitivity on use of the L2 to be seen more clearly.

In this study, personality traits did not serve as predictors of out-of-class L2 use for learners abroad in our regression models. On the other hand, Openness and Neuroticism were among predictors of in-class language use (the latter, a negative predictor, only when program was removed). Both of these personality traits have been shown to influence language use and language development in previous research, but ours is the first relatively large study to link these traits to language use in SA research in multiple countries. In a study of a group of 69 sixth-grade language learners, Verhoeven and Vermeer (2002) found that openness was the greatest personality predictor of communicative competence. Furthermore, Mak and Tran (2001) found that learners who were more open

and more extroverted tended to have higher intercultural self-efficacy than those who were less so. In the most relevant study, Ożańska-Ponikwia and Dewaele (2012) found that Openness and self-esteem were the best predictors of language use for Polish immigrants in Ireland. They also found Openness to be the top predictor of self-assessed L2 proficiency. In short, Openness may be associated not only with language use, but also with communicative competence, intercultural self-efficacy, and self-perceived L2 proficiency.

Several studies (e.g., MacIntyre & Gardner, 1989, 2006; Steinberg & Horwitz, 1986) have connected anxiety with classroom language use and acquisition, suggesting that highly anxious learners (i.e., learners high in neuroticism) tend to underestimate their own language abilities, take fewer risks, use less complex language, and speak less overall. Research on classroom participation in L1 classes likewise reveals a negative correlation between Neuroticism and classroom participation (Caspi, Chajut, Saporta, & Beyth-Marom, 2006). In short, those who are more anxious and tense when it comes to language production are less inclined to use the L2 in the classroom.

One factor that could contribute to the apparent lack of connection between personality and language use out of class versus the presence of a connection in class is the existence of much greater diversity in terms of out-of-class experiences for SA participants than for in-class experiences. Classroom activities tend to be carefully controlled by teachers, and students in a given classroom will often have a very similar experience to students in other classes. On the other hand, once students leave class, their environments may differ significantly, depending on their living situations, their individual choices, and so on. The variation between participants may transcend their personality traits when it comes to the amount of time they spend using the L2.

Previous studies (e.g., DeKeyser, 1986; Dewey, 2004; Freed, Segalowitz, & Dewey, 2004) have found substantial differences between students in terms of both language development and language use in SA environments.

Another possibility is that personality may not have taken the role one might expect in terms of L2 use. For example, an extraverted individual might easily make friends with many people from their home country while abroad and end up using less of the L2 than expected as a result.

Program design may also have neutralized the effects of personality traits on language use. In programs where students were required to speak the L2 for so many hours a day and were graded on completion of this requirement, students with high levels of Neuroticism, who otherwise might have avoided anxiety-inducing interactions in the L2, might have sought out opportunities to practice the L2 in order to avoid poor grades. For example, one learner in

our study who was high in Neuroticism and very introverted was also high in Conscientiousness. This individual reported in journal entries feeling uncomfortable with an assignment to use the L2 for 2 hours a day, but pushing herself to go out and communicate with natives because she felt anxious over being accountable to her SA director on this assignment. In short, conscientiousness seems to have outweighed introversion for this learner and worry over grades and director perceptions outweighed nervousness over communicating with native L2 speakers. A study of classroom participation in various learning environments similarly concluded that learning environment was the primary factor influencing learners' participation in class, while personality variables played a secondary role (Caspi et al., 2006).

Indeed, this may also be the reason why gender played a minimal role in predicting language use in our study as well. While previous research has suggested that gender affects amount of time speaking in class (Gass & Varonis, 1986) and opportunities to use the L2 out of class (Brecht & Robinson, 1993; Pavlenko & Piller, 2011), students who were required by their program to talk to native L2 speakers outside of class or use the L2 a certain amount each day, may have overcome any effects that gender or personality may have initially caused.

Participants' motivation, a variable not measured in our study, may have also mitigated the role of personality and gender. While Freed (1990) found no clear connections between motivation and language use, others (Kaplan, 1989; Martin, 1980) have found that motivation can play a significant role in L2 use (Hernández, 2010; Isabelli-García, 2006). This issue is worth further detailed investigation.

Whatever the explanation, the results concerning personality and gender are encouraging; they suggest a student's personality and gender may not dictate his or her experience. If a participant naturally has low levels of Openness or Extraversion, for example, it would not necessarily mean he or she would be unsuccessful at interacting in the L2 while abroad. The results also suggest that program design could serve to encourage the participation of any kind of student.

Initial level of L2 proficiency only served as a predictor of amount of L2 use for one variable: receptive activities. Freed (1990) found differences in terms of proficiency in the types of activities learners engaged in and how these activities correlated with language acquisition. Lower-level learners tended to seek out social interactions, polishing their basic communication skills, whereas more advanced speakers tended to engage in and benefit more from receptive activities than lower level speakers. Our data support this finding, suggesting

that higher-level learners indeed do engage in more receptive activities, often in an effort to improve their literacy skills and their command of the formal register while abroad. Engagement in these receptive activities may be a requirement associated with higher level language courses, given that higher level learners tend to have a foundation that allows them to discuss literary works, films, or other such pieces. Future studies ought to assess carefully the requirements of these courses to better understand connections between coursework and out-of-class contact.

Regarding a lack of connection between initial proficiency and other types of language use, the evidence suggests that learners of all levels access and use the L2 in a variety of ways while abroad. It may be, however, that these learners engage in entirely different types of language use, depending on their proficiency levels, when it comes to in-class, out-of-class, and interactive language use. Our study did not address the nature of students' language use (i.e., discourse structure, vocabulary use, pragmatic requirements, and so on). Further studies could explore this area to determine how language use varies qualitatively depending on L2 proficiency.

These findings suggest that learners' proficiency does not limit their opportunities to use the L2: participants with high and low proficiency can spend similar amounts of time using the L2, even though the nature of their language use may vary. Instead, again, it suggests that program design, especially a design that provides motivation and opportunity to use the L2, may overcome any effects that initial proficiency may have.

Age proved to be the sole predictor only in the case of interactive language use for regression models including program participation. When program was removed, age was the sole (positive) predictor in three models. In the case of our study, age appears to have a bit of advantage in terms of language use: older learners report using the language more. These findings may appear to contradict most previous research, which suggests that younger learners use the L2 more (e.g., Jia & Aaronson, 2003). However, these studies compare ultimate L2 attainment of children versus adults rather than investigating language *use* across a range of adult ages. In the case of SA, factors associated with differences among adults may have come into play. For example, older learners may have been more mature, been more proficient in the language, or had specific career goals that motivated them to use the L2 more (i.e., Kormos & Csizér, 2008).

One factor that stood out in terms of age was that the Cairo group was the oldest and the Paris group the youngest, followed by the Madrid group as the second youngest. It does not appear that age alone was the determining factor



across the groups, however, because the Mérida group was only slightly older on average than the Paris and Madrid groups, but this group reported using the L2 more in general than both Paris and Madrid. Initial proficiency and age were moderately correlated ( $r = .280$ ), so it is possible that the age effect is partially attributable to higher initial levels of proficiency. However, the fact that the oldest group (Cairo) entered with the lowest initial proficiency and the highest age suggests that it is likely not simply a matter of proficiency. The correlations between age and previous experience abroad ( $r = .656$ ) and between age and year in school ( $r = .688$ ) were substantially higher. Previous experience abroad and year in school did not appear in any of the models reported here largely because age served as a better predictor and, given the problem of multicollinearity, neither variable showed up with age. Previous experience abroad has been shown to be a good predictor of language gains in several studies (Brecht et al., 1990; Davidson, 2010). While we are unaware of studies focusing on connections between year in school and either language use or language acquisition, research on classroom participation by undergraduate students might shed some light. Studies of university-level classrooms have shown that older students tend to participate more actively in classroom conversations and to have greater confidence in classrooms than younger learners (Fritschner, 2000; Howard & Henney, 1998; Weaver, 2005). Gender and classroom environment interacted in complex ways with age in these studies, however. Teasing apart these and other possible confounding variables in the current study is difficult and additional research is needed before solid conclusions can be drawn.

As Flege and his colleagues have found (Flege, 1999; Flege, Frieda, & Nozawa, 1997; Riney & Flege, 1998), the interactions between age, language use, and language attainment are complex. It could be that age, program location and attributes, personality, and other factors interact in ways that require more careful control and measurement to determine.

The strongest predictor of language use was program. Specifically, students in Cairo and Mérida tended to use the L2 more than their counterparts in almost all ways. At the other extreme, overall, students in Paris reported using the L2 less than other groups. While there were many similarities across programs, there were also differences that might explain some of the patterns in language use. Length of program, type of housing, and coursework in English were not significant predictors in any model. However, in this study, variation in terms of program duration was limited (8 to 15 weeks), so additional research with longer and shorter programs is necessary before conclusions can be drawn. Previous SA research addressing type of housing has focused on language gains rather than language use and has resulted in contradictory findings, in

particular when it comes to the home stay setting (Hernández, 2010; Magnan & Back, 2007; Segalowitz & Freed, 2004; Vande Berg et al., 2009). In this study, we observed no trend in terms of one type of housing being clearly associated with greater overall language use than another. Though those who lived in homestay settings reported using the L2 more at home than others, they did not tend to use it more overall, receptively, productively, or interactively. To sum up, the only program-related variable that served as a significant predictor was the program itself (i.e., the program a student was enrolled in).

In another study of the same group of students in Cairo, Dewey et al. (2013) found that the key ingredient influencing social network formation was a requirement to speak the L2 two hours a day outside of class with native speakers. This requirement was accompanied by regular follow-up, including discussion of these conversations in weekly interviews with program staff and reports on the nature of these interactions in journal reports. It is possible that this requirement and the accompanying follow-up, both unique to the Cairo program, played a role in the amount of L2 use reported in the current study, suggesting the potential for such program interventions.

Another program intervention that may promote language use was the presence of regular volunteer activities outside of class. This intervention was a distinctive feature of the Mérida program. In a study comparing service-learning SA with SA without a service component, Martinsen and his colleagues (2010) found that the service-learning group used the L2 more than the nonservice group. The communicative needs associated with volunteer service and the lack of English proficiency of those with whom the students were interacting during their service were reported as important factors contributing to language use for that group. It is possible that the current Mérida group encountered similar demands for L2 use.

The only other distinctive programmatic feature we were able to find was that the Paris group took more classes in English than the other groups (e.g., film and culture classes). It is possible that their tendency to use English more in class was in some way associated with out-of-class English and L2 use as well, but this is purely speculative and additional comparative studies focusing specifically on this aspect of the experience are necessary before conclusions can be drawn. The fact that the Paris students' initial L2 proficiency was the lowest of all of the groups may have also come into play.

In summary, the analyses presented previously indicate that participation in a given program can be an important predictor of language use during SA. This finding implies that the structure of programs can be manipulated to foster more or less use of the L2 among its participants. In the case of the programs

examined in this study, anecdotal evidence suggests that these may include clearly delineating when use of the native language is acceptable, providing natural opportunities for speaking such as community service or requiring students to be accountable for a certain amount of time spent using the L2.

Another possible explanation for differences between programs could be the nature of the cultures of the host countries where each of the programs is located. Research in cross-cultural interaction has shown that national cultures vary greatly from one another in important ways which have been described and even quantified by scholars (Hofstede, 2001; Hampden-Turner & Trompenaars, 2000). These differences have been found to affect cross-cultural contact in business (Nakata, 2009), medicine (Payer, 1996), and mental health (Matsumoto & Juang, 2008) in complex ways. Research examining socialization in a new culture and country suggests that one's country of origin influences how easy it is to create friendships and integrate into a new society. For example, Senyshyn, Warford, and Zhan (2000) found that country of origin was one of the predictors of making friends and integrating into American culture, with Western Europeans and Canadians integrating more easily than Asians. Similar findings have been demonstrated with immigrants in Austria (Strohmeier & Spiel, 2003). How well individuals from one culture can integrate and create friendships in another country/culture seems to be related to how much the two countries differ on Hofstede's (2001) individualism/collectivism continuum as well as on how the two cultures differ in terms of homophily (Rhee, Yang, & Yoo, 2013). Research in this area, however, is scarce, especially when comparing destination and origin countries. More research on how the culture of the host country affects the ability to form friendships and integrate is needed.

One recent longitudinal study of ERASMUS students from Europe studying abroad (Mitchell, McManus, Tracy-Ventura, Richard, & Romero de Mills, 2013) illustrates differences across destination countries in the formation of social networks. Mitchell and her colleagues found that learners' degree of integration into social networks depended on place of study. Learners residing in France scored lower on a six-point social network scale than their counterparts in Spain and Mexico. Furthermore, SA participants in France tended to use English more than participants in Spain and to utilize different means of building social networks with locals than their counterparts in Spain or Mexico. To what extent these findings are associated with cultural differences or individual differences is unclear. Vande Berg et al.'s (2009) recent study may provide some clues. They asked students who participated in SA programs in various countries to indicate how different the host culture seemed from their own culture. Students who rated their host culture as "somewhat dissimilar"

or “dissimilar” made more improvements in cultural sensitivity than students who rated the host culture as “very similar,” “similar,” or “very dissimilar.” It would be interesting to see if a similar relationship would be found in terms of L2 use and host culture differences. The host cultures’ effect on L2 use could be seen in terms of differences in conversational style, gender roles, or myriad other ways. However, in saying this we recognize that amount of time spent using the L2 is likely to be influenced by many other factors (learner attributes, program requirements, instructor interventions, etc.). Research should address these other variables and examine a variety of contexts and programs within a given country to tease out possible effects of the host culture on students’ experience abroad.

Finally, it is possible that program location itself (independent of culture) came into play in terms of L2 use. Dewey, Ring et al. (2013) compared social network formation by learners of Arabic in two locations—one near a university and another in the heart of a middle-class suburb. They found that participants located near the university had greater access to same-age peers and were regularly able to mingle with these people. The students in the suburbs had to draw on other sources for social interaction, which frequently involved speaking with shopkeepers, service personnel, and so on. While there were also many similarities across locations in terms of social network formation strategies, the distinct differences suggest that location could influence the amount and types of L2 interactions learners have.

## Limitations

Two major limitations of this study include the use of self-report and the lack of data regarding individuals’ motivation. Self-reported language logs can offer detail about how relatively large numbers of participants use language during the day—detail that cannot feasibly be collected through observation. However, as Maxwell and Lopus (1994) demonstrate, individuals often self-report data that are rosier than reality, suggesting the need for additional and more objective measures. This is a shortcoming that could be at least partially counteracted by triangulation using observational and qualitative data. Kinginger (2009) suggests such triangulation, using a variety of approaches, is necessary to come to a more complete understanding of “learners’ interactive positioning in language socialization, the stances they adopt, the nature of their interactions, and the qualities of their evolving communicative repertoires” (p. 204).

Two other major limitations of this study involve sampling and control of variables. Given that our research was exploratory and we were seeking

to determine possible contributors to language use by analyzing data we had ready access to, we used a convenience sample and chose forward selection in our exploratory regression analyses (Ramsey & Schafer, 2012) rather than hierarchical, the procedure typically recommended for hypothesis testing in L2 acquisition research (Larson-Hall, 2010). More carefully designed studies could isolate a smaller number of variables and utilize hierarchical regression. Furthermore, cross-validation of our models and future models would allow for the evaluation of the generalizability of these models (Stevens, 2002; Tabachnick & Fidell, 2007).

Because this research was exploratory in nature, the study raises as many questions as it answers. For instance, though program emerged as the biggest single predictor of language use, the design of this study makes it unclear precisely which features of the program had the biggest impact. Teasing apart the possible confounding variables is a task for future research. Nevertheless, the implications of “program” as a significant predictor of language use is very encouraging. These findings suggest that a well-designed program might mitigate a number of other factors that program administrators have little control over, including personality.

In spite of its limitations, this study represents an important first attempt to examine language use in multiple SA programs and to explore a variety of factors in the same research study. This report suggests a possible agenda for future SA research into various individual learner differences as well as into particular aspects of program design that may influence learners’ use of the L2 while abroad.

## Conclusion

In summary, our study is the first of its kind to examine several different predictors of language use in the same design. The results suggest that several factors contribute to language use including age, gender, development of social networks, and personality. Some of these factors played a greater role in determining in-class language use (personality and gender) than out-of-class, suggesting that program directors should keep these factors in mind when planning classroom activities. Moreover, age predicted language use in several areas, although “age” may indicate a greater level of maturity or motivation.

Despite the role of these other factors, the most outstanding predictor of language use was language program—students in some programs clearly used the L2 more than students in other programs. While the programs considered in this study shared similarities (including offering incentives for students to

use the L2), there were differences that might help explain the variation of L2 use present between programs. First, the Cairo and Mérida programs included extra elements that pushed participants to use the L2. Second, the Paris program involved more English language use in class, which could have carried over to influence L2 use out of class. Isolating the influence of such program design factors is a task for future research. Finally, age proved to be a variable of interest, with the oldest group using the language the most and the youngest the least. Learners' level of maturity may have contributed to their extensive use of Arabic in Cairo. This factor needs to be isolated more carefully in order to determine its contribution to learners' use of language.

The findings of this study indicate the need for more research into SA program design. Further investigation into program design may include exploration of the influence of assignments and incentives for L2 use and evaluation of the role of group type (comparisons of more cohesive groups with the same L1 and from the same home institution with less cohesive groups with differing L1s and/or from different home institutions). Learner variables also ought to be more carefully explored. For example, the role of age and life experiences that typically accompanies age (previous experience abroad, amount of time spent living away from home, etc.) could be investigated. These kinds of investigations will help us better understand how both program and individual variables impact participants' L2 use and overall experience. As educators gain a firmer understanding of the contributions of these factors, we will be better positioned to help learners take maximum advantage of the resources available abroad to heighten their degree of second language acquisition during their experiences.

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## Notes

- 1 For information on the available reliability estimates for the measures used in this study, see Table 7.
- 2 We use the term predictor to refer to a variable used to predict the dependent variable, language use. We acknowledge that some of our predictor data (e.g., social network data) was not collected at the same time as the language use data and therefore might not be considered predictors in the traditional sense.

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