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Factors Influencing L2 Maintenance in the L1 Environment: A Case Study of an Arab Returnee Child

Dukhayel M. Aldukhayel
Department of English Language and Translation, College of Arabic Language and Social Studies, Qassim University, Buraidah, Saudi Arabia

***Abstract*—The purpose of this cross-sectional observational study is to show how the perception of returnees' L2 can be changed in the digital era and how the massive spread of technology, among other factors, has eased an Arab (Saudi) returnee child's maintenance of English as an L2. The study discusses how technology allowed the returnee to continue to receive abundant L2 input, use the L2 daily, and interact with native speakers. The child was 9 months old when his family moved to the United States and was 6.2 years old when returned to Saudi Arabia. The study took place 5.4 years after their return when his age was 11.6 years old. A free conversation with the child, observation of online gaming, and an interview with parents were conducted to observe the child's L2 maintenance. The child demonstrated an intermediate level of fluency and produced non-verbal communication in free conversation and online gaming. The parents held positive attitudes toward bilingualism and English which was believed to have a great influence on the child's L2 maintenance. The study concludes that technology, parental attitudes, and personality and motivation have all contributed to the child's successful L2 maintenance.**

***Index Terms*—bilingualism, bilingual children, L2 maintenance, L2 attrition**

I. Introduction

It is usually taken for granted that young returnees will eventually forget the L2 after returning to the L1 environment. Previous research that studied the issue of L2 attrition (e.g., Tomiyama, 1999, 2000; Flores, 2010; Fujita, 2000, 2002; Reetz-Kurashige, 1999; Treffers-Daller et al., 2016) has reported that the attrition of the L2 is normal for returnees before the age of 9 years old. L2 attrition research suggests that returnees' L2 attrition is mainly caused by the L2 disuse in their home country due to the lack of or reduced natural L2 input and L2 contact (Bardovi-Harlig & Stringer, 2010), regardless of the returnee's age on arrival in the L2 environment, length of residence in the L2 environment, and attained L2 proficiency level. Thus, returnees' L2 attrition has been defined as a "process in which returnees' L2 knowledge (competence in the majority language of the host country) becomes less accessible or is modified to some extent as a result of re-immersion in their native language environment and reduced contact to the L2" (Kubota et al., 2021, p. 2). For example, studies that reported cases of child Japanese returnees (e.g., Reetz-Kurashige, 1999; Yoshitomi, 1999) suggest that the lack of opportunities for communication produced L2 attrition and the traditional receptive-skills focused special classes for returnee children were not valuable. Nevertheless, within the literature on returnee children, studies focused mainly on the maintenance of the L2.

Researchers have recognized the continued L2 input post-return (Slavkov, 2015) and active bilingualism (Kubota et al., 2020) in the L2 environment as major factors in L2 maintenance and improvement. For instance, Kubota et al. (2021) found that returnees who continued to receive L2 input better maintained their English microstructure after being re-immersed in the L1 environment. Slavkov (2015) declares that "continued input in a language that has become passive can be beneficial" (p. 715). Bardovi-Harlig and Stringer (2010) also argue that "technological resources that facilitate continued contact with the target language […] would thwart attrition and aid retention" (p. 31). Overall, as emphasized by Tomoyama (2009), findings from the L2 attrition research "support the relative ease of L2 maintenance" and underscore "the quantity and quality of L2 input and output for maintenance" (p. 272). Tomoyama suggests that "turning our attention from negative aspects, 'attrition', to positive aspects, 'maintenance', would be valuable for L2 attrition research" and "providing maintenance strategies and curriculum designs will directly benefit returnees in this increasingly globalized world" (p. 272). Following the above-mentioned arguments with regards to the potential of continued input on L2 maintenance, the current study aims to investigate how the massive spread of technology, smartphones, social media, online gaming, etc. has eased an Arab (Saudi) returnee child's L2 maintenance and how that contributed to his successful L2 maintenance. As emphasized by Reinders (2017), multiplayer online role-playing games "create many opportunities for collaboration and competition and rich opportunities for exposure to L2 input as well as opportunities for L2 output and interaction" (p. 332). The study contributes to the field and discusses how the available technology allowed the returnee to continue to receive abundant L2 input, use the L2 daily, and interact with

native speakers after returning home and how that aligns with recent findings on the significance of continued L2 input post-return (e.g., Huensch et al., 2019; Kubota et al., 2020, 2021).

As such, here comes the importance of this study. In addition to the fact that research on returnee children is scarce (Kubota et al., 2021), most studies on children returnees' L2 attrition have been conducted years before the era of social media and web 2.0 (e.g., Flores, 2010; Fujita, 2000, 2002; Reetz-Kurashige, 1999; Tomiyama, 2000, 2009; Yoshitomi, 1999). Given the influence of technology on language learning, the importance of this research is that it attempts to enrich our knowledge of the role of technology in L2 learning and shows how its influence can be extended to L2 maintenance. Secondly, to the best of our knowledge, this is the first study that reports on a child returnee whose L1 is Arabic; as very few L1 languages have been reported in the current research; Hebrew L1 (e.g., Berman & Olshtain, 1983; Olshtain, 1986, 1989); Japanese L1 (Reetz-Kurashige, 1999, Tomiyama, 2000, 2009; Yoshitomi, 1999); Turkish L1 (Kuhberg, 1992). Thus, this study relates to more than 400 million Arabic-speaking people (Boshers, 2020). Thirdly, most studies that report successful L2 maintenance post-return involved adult participants (e.g., Pizziconi, 2017; Howard, 2009; Regan, 2005; Pérez-Vidal & Juan-Garau, 2009; Sasaki, 2011; Huensch et al., 2019; Hessel, 2020). This should be among the very first studies that report successful L2 maintenance post return by a returnee child after Kubota et al. (2021). Lastly, as "timing is crucial" (Bardovi-Harlig & Stringer, 2010, p. 18) for attrition studies, what makes the findings of this study worthy is the timing of investigation of the returnee's L2 which was years after arriving in the home country; thus, any notable high L2 performance or successful L2 maintenance should be linked to other factors rather than recent exposure to the L2 in its context.

II. Literature Review

A. L2 Attrition

Language attrition has attracted people from a variety of perspectives (e.g. psycholinguistics, neurolinguistics, sociolinguistics) due to its multidimensional nature. Language attrition has been broadly defined as the loss of any language or part of a language by individuals or entire linguistic communities for causes such as the overwhelming exposure to the language of the majority (e.g., Bardovi-Harlig & Stringer, 2010; Freed, 1982). Attrition studies in the current research have examined both L1 and L2 attrition, including pathological and nonpathological settings. Attrition is further defined by Van Els (1986) who considered both the language being attrited as well as the environment in which attrition occurs. There are four situations of language attrition predicted by Van Els (see Table 1) based on 1) the language being attrited (the L1 or the L2) and 2) where the loss occurs (the L1 or L2 environment). In the present study, we focus on L2 attrition (or maintenance) in the L1 environment. L2 loss in this category is observed in returnees who returned to their home country and disused the L2 language due to the usually drastically reduced L2 input in the surroundings (Paradis, 2007; Tomiyama, 2009). Based on this framework, we can classify the present study as Type 3: a male child returnee losing (or maintaining) his L2 in an environment that is his L1, Saudi Arabia, as a result of living in an L1 environment.

Table 1
Language Attrition Typology

		Language	
		L1	L2
Environment	L1	Type 1	Type 3
	L2	Type 2	Type 4

based on Van Els (1986)

According to Bardovi-Harlig and Stringer (2010), the first studies in L2 attrition research can be dated back to the early decades of the 20th century. Early studies focused on patterns of L2 loss of lexical items by young adult learners of French, Latin, and German (Cole, 1929; Kennedy, 1932; Scherer, 1957; respectively) over the summer holiday breaks. However, these studies did not evoke any wide-ranging research interest (McCormack, 2001). L2 attrition research saw its first significant publication after the May 1980 conference on foreign language loss at the University of Pennsylvania. Since then, a major body of research was carried out that resulted in journal articles, theses and dissertations, and several books. In 1982, a book edited by Lambert and Freed was published with selected papers from the conference. In the book, Lambert (1982) made a notable distinction between criterion variables and predictor variables influencing L1 attrition, named linguistic variables and extralinguistic variables by Bardovi-Harlig and Stringer (2010) who observed that L2 attrition shares many features of L1 attrition. Therefore, linguistic variables influencing L2 attrition include L1 transfer in certain aspects of lexicon, morphology, and syntax, the amount of and exposure to the L2 input, lack of morphological complexity, and loss of significant language registers. On the other hand, extralinguistic factors subsume the learners' age, the duration of lack of input, and motivation to maintain the language.

Within the area of L2 attrition, a major part of research efforts has been devoted to L2 attrition in children which can be dated back to Cohen (1974). Cohen studied the effect of summer vacation on Anglo children's Spanish-speaking ability. He examined patterns of L2 retention experienced by 14 students between the first and second grades. The study found that a summer recess of three months affected the children's oral performance in Spanish. For example, the

subjects produced shorter utterances and fewer prepositions than before and made more errors than before summer recess. Oxford (1982) has argued that "the study has all the methodological problems of a pre-experimental pre-post design with no control group, although the findings are interesting" (p. 162). Indeed, Cohen's study has produced wide-ranging research interest in children's L2 attrition and contributed to another line of research that informed this study; namely, L2 attrition of returnee children.

B. Returnee Children's L2 Attrition

The term *returnees* refers to children of immigrants who were raised in the immigration environment where their L2 was the language of the majority in that society and returned to the environment of their native language after they acquired the L2 in its naturalistic settings (Kubota et al., 2020). A specific definition of L2 attrition of returnees has been also proposed by Kubota et al. (2021), "process in which returnees' L2 knowledge (competence in the majority language of the host country) becomes less accessible or is modified to some extent as a result of re-immersion in their native language environment and reduced contact to the L2" (p. 2). The first research effort that observed children returnees' L2 attrition can be traced back to Berman and Olshtain (1983) who studied patterns of L1 usage in the process of L2 attrition. The authors compared the L2 English interlanguage grammar of L1 Hebrew child returnees to interlanguage forms produced by their counterparts who had never been abroad. Since then, children returnees' L2 attrition studies started to appear in publications (e.g., Cohen, 1989; Flores, 2010; Kuhberg, 1992; Olshtain, 1986; Reetz-Kurashige, 1999; Tomiyama, 1999, 2000, 2009; Yoshitomi, 1999). These studies have reported on children returnees mainly of four different L1s (namely, English L1; Hebrew L1, Japanese L1, and Turkish L1). We will focus our review on the findings of the most significant studies.

- The longer lapse of time since children returned to their home country the most significant decline is in L2 production (e.g., shorter and fewer utterances, less complex structures). Older children's performance (i.e., number of utterances, length, and complexity) was better than that of younger children regardless of the length of the interval (e.g., Yoshida et al., 1989).
- The duration of lack of contact or exposure to the L2 heavily influences the amount of loss of L2 structures (e.g., Yoshitomi, 1999).
- The amount of L2 language use influences the maintenance of speaking fluency and the occurrence of pauses (e.g., Tomiyama, 1999, 2000, 2009).
- Age, attained L2 proficiency, and literacy have frequently been reported to be significant variables in attrition processes; however, these variables are still confounding because they are interrelated and cannot be separated from each other. For instance, older children naturally acquire more L2 because they have longer L2 exposure and experience more social/educational opportunities. Older children retain more than younger children because they have L2 literacy skills and continue reading in the L2 which provides them with continued input after arriving in their home country (Olshtain, 1986; Tomiyama, 1999, 2000, 2009).
- Different aspects of L2 can be affected in various degrees including the lexicon (lexical complexity and productivity), morphology, syntax (grammatical complexity and accuracy), and fluency (Tomoyama, 2000, 2009).
- Production skills (speaking and writing), especially vocabulary retrieval, are more difficult compared to receptive skills (listening and reading; e.g., Cohen, 1989; Tomiyama, 1999).
- Lexical diversity and syntactic complexity are found to gradually decrease over time (Tomiyama, 1999, 2000, 2009; Yoshitomi, 1999).
- Fluency is the most likely aspect of language to be lost after returning home (Hansen et al., 1998; Tomiyama, 1999).
- During the period of reduced input and use, motivation and attitude have been identified as important factors in L2 maintenance (Edwards, 1976; Gardner et al., 1985; Nagasawa, 1999; Snow et al., 1988).

C. Successful L2 Maintenance Post-Return

The attrition studies reviewed so far have focused mainly on the process of attrition although they also have reported that most L2 knowledge could be maintained. In this section; however, we will focus our review on studies that have focused mainly on factors influencing the maintenance of the L2. In recent years, the amount of exposure began to receive attention from researchers as an important factor in affecting the rate of English attrition in returnees (e.g., Huensch et al., 2019; Kubota et al., 2020, 2021). The findings suggest that regardless of an abrupt, total withdrawal from the L2 environment, the extended time since the home return, and being re-immersed in the L1 environment, L2 can be maintained if L2 contact and usage (L2 exposure) were not discontinued. One of these studies is Huensch et al. (2019) who studied a group of 17 L2 French and 14 L2 Spanish adult learners four years post return. Participants who obtained a bachelor's degree in these languages spent their third year of a four-year degree abroad in a French- or Spanish-speaking country as part of their degree requirements. They found that continued L2 contact and usage (for example, additional living abroad experienced or used their L2 often for work) during the four years post return influenced the maintenance of speed fluency, breakdown fluency, and overall oral proficiency. Kubota et al. (2021) studied the bilingualism of 32 Japanese-English bilingual returnee children. Subjects (Mage = 4.1, SD = 2.0) attended schools with English as a medium of instruction and lived in either a country where English is the majority language (e.g. USA, UK, Australia) or in a country where English is not the official language (e.g. Malaysia, France,

Netherlands). The study found that continued input and L2 exposure in the L1 environment influenced children's maintenance of their L2 microstructure despite living in the L1 surroundings. Types of L2 exposure they had included reading in English with an adult, watching English programs on TV, and playing with friends/cousins who speak English. Those who experienced more than around 45% of reduction in L2 exposure produced fewer verbs per utterance. They concluded that a 40% or more reduction in (L2) exposure is a detrimental effect on L2 maintenance.

As children returnees' L2 attrition studies differed in observation timing and length, we have developed a typology for child L2 attrition studies to provide a clear perspective of where the present study stands within the framework of observation timing and length (see Table 2). It offers four types of studies: (1) immediate, short observation, (2) immediate, extended observation, (3) delayed, short observation, and (4) delayed, extended observation. According to this framework, the present study falls within Type 3: namely, the observation length is brief and takes place a long time after the participant returns from the L2 environment.

TABLE 2
CHILDREN RETURNEES' L2 ATTRITION STUDIES TYPOLOGY

		Observation timing	
Observation length		immediate	delayed
	short	Type 1	Type 3
	extended	Type 2	Type 4

Overall, several gaps can be identified in children returnees' L2 attrition research, particularly in the studies mentioned above. First, current research has only shown the effect of continued input obtained from reading and watching TV and continued exposure such as going to schools where English classes are offered. The effect of technology in facilitating L2 maintenance has been overlooked. To date, no study before the present one has examined how smartphones, social media, online gaming, etc. can provide a resource for L2 continued input for returnees. For example, video-sharing social media sites such as YouTube and TikTok offer the young generation unprecedented access to videos rich in language and culture-based content and instruction from around the world. They provide learners with an opportunity to engage meaningfully in the target language. YouTube especially provides language learners around the world with an unlimited source of L2 listening authentic materials in almost all the desired genres (Blake, 2016; Hubbard, 2017; Romeo & Hubbard, 2010). With regards to online multiplayer video games, Horowitz (2019) emphasizes that L2 learners have the opportunity to be engaged in different virtual worlds that are populated by English native speakers. Reinders (2017) suggests that multiplayer online role-playing games "create many opportunities for collaboration and competition and rich opportunities for exposure to L2 input as well as opportunities for L2 output and interaction" (p. 332).

Second, there is a lack of research on L2 attrition of returnee children whose L1 is Arabic. Although the L1 will not be considered as a factor per se, enriching the L2 attrition research literature with speakers of different L1s makes the current research more relatable to an additional audience of readers and should inspire further researchers. Third, while most studies examined L2 attrition immediately after returnee children return home, this study took place after a long time post-return because the "effects of L2 attrition and heritage language reversal appear to take some time to manifest in the returnee's grammar" and in other aspects of language. To this end, the following research questions were posed:

1- To what extent do linguistic changes occur in a returnee child's L2 after a long time of re-immersion in their home country?

2- What factors may explain potential L2 maintenance and development that take place after re-integrating into their L1 environment?

III. METHODOLOGY

Participant

The participant was an 11.6-year-old Saudi male returnee child, who will be called by his pseudonym, Ahmed. He and his family were known to the author prior to the study. He voluntarily participated in the research after the consent of his parents was obtained. A returnee is defined by Collins COBUILD Advanced Dictionary as "a person who returns to the country where they were born, usually after they have been away for a long time". In that sense, returnees usually belong to families from the upper-middle class and so was this study's participant. His parents are both Saudi nationals. His father holds Ph.D. and M.A. degrees in English and is particularly proficient in English. His mother had a college education and her English is intermediate. Ahmed was 9 months old when they moved to the United States due to his father's studying for his Ph.D. and M.A. degrees. During their 5.5 years of residence in the US, he went through a daycare (age 2), early childhood program (age 3), preschool (age 4), and kindergarten (age 5). Thus, he acquired English as his L2 in a natural environment (Tomiyama, 2000).

Information about his L2 acquisition process, L2 attainment, and general language environment in the US and Saudi Arabia was obtained from an interview with his parents. According to the family, as a language policy, the parents spoke only Arabic between them and used Arabic and English almost 50/50 with Ahmed during the full period of their stay in the US. Exceptions to this policy were the situations where the child is in the company of monolingual English

friends. During their years of residence in the US, the family visited Saudi Arabia four times and spent around two months each visit in which Ahmed had no exposure to the English language. By the second year, Ahmed turned two and because his mother was attending English courses in an IEP, he was dropped into daycare for four hours a day for six months. There, he began picking up English in its natural environment. By the third year, he was enrolled in an 'early childhood program' when he began speaking English naturally, i.e., answered simple questions and spoke in sentences of five to six words. By the fourth year, he was performing well in English as he was attending preschool; he could use longer sentences, say what he was thinking, and describe feelings. By the fifth year, English became his dominant language and he was also functioning well in kindergarten and the daily life exchanges.

Given the restraints of Ahmed's age of arrival (9 months old) and the age of removal from the L2 environment (6.2 years old), the L2 input he received from his daily life throughout the years is considered limited. However, he was active in extracurricular activities and grasped some aspects of American culture. Ahmed was six years old when the family returned to Saudi Arabia. He was immediately placed in a local public school in the first grade and "naturally, English input [gets] drastically reduced in [the] surroundings" (Tomiyama, 2009, p. 258). However, by the time in which Ahmed's family returned (2015), technology was vastly spread across the globe and in Saudi Arabia which helped Ahmed continue his exposure to abundant English input. At home, Ahmed had an iPad, a PlayStation, and access to high-speed internet which he used to continue his access to L2 input. From their arrival until the age of 9, Ahmed was granted by his parents two hours on weekdays, three hours on weekends, and four hours on holidays watching YouTube and other video-sharing social media sites via his iPad which he watched mostly English videos. From the age of 9 until the time of this study, Ahmed had a PlayStation and he was granted three hours on weekdays, four hours on weekends, and five hours on holidays for watching English videos and online gaming in which he talked and chatted in English with native and non-native English speakers. Ahmed does not watch TV a lot which is a typical situation for kids of his age as it is found by Sylvén and Sundqvist (2012) that playing digital games was more popular than watching TV or listening to music by Swedish youths (aged 11–12).

Ahmed's first language proficiency was developed during his residence in the US. As mentioned earlier, Arabic was used at home. Moreover, he was exposed to Arabic in Saudi gatherings, religious ceremonies, and cultural events. In addition, he had occasional phone and skype calls with family members in Saudi Arabia. As a result, upon returning home, his Arabic was considered by family members and by school teachers to be on par with relatives of his age and with classmates.

Ahmed has a positive attitude and is a motivated student at school. He is an active, outgoing, and extrovert boy, and also he is very prudent and mature for his age. He likes the social stimulation and opportunities in which he can engage with others. He is full of life, energy, and positivity. Verbally, he is uninhibited, impulsive, and willing to take risks. He would adopt codeswitching and ask-for-help strategies. He did not hesitate to switch to Arabic or ask for assistance whenever a problem arose. He tended to utter whatever came to his mind first and made frequent repetitions and self-corrections.

IV. Data Collection

A. Free Conversation

The researcher (L1 Arabic and L2 English) held a free conversation in English with Ahmed to collect spontaneous speech data. The conversation centered around his daily life activities in school and home including his watching favorite YouTuber channels and playing online games. Also, the topics covered included his outdoor activities and family gatherings. As such, the free conversation allowed us to collect data on his morphological, syntactic, and conversational discourse skills. In addition, the conversation provided data on his mannerisms, i.e., his habitual gestures and ways of speaking.

B. Parents' Interview

An interview was conducted with the child's parents to determine their attitudes towards bilingualism, English as a global language, and Arabic as the family heritage language. Also, the interview was intended to understand the parent's influence on the child's use or attrition of English.

C. Online Gaming Observation

Griffiths et al. (2003) found that the favorite aspect of playing online fantasy role-playing games was grouping, interacting with other people, and chatting with friends and guildmates (members of a strategic playing team). Such free conversations between gamers constitute spontaneous speech data. The observation was conducted to examine how online games provide opportunities for someone's free expression. As such, the observation allowed us to collect data on Ahmed's pronunciation and fluency as well as his ways of speaking online. In the observation, the child played a very popular multiplayer online role-playing game, *Fortnite*, with people from the globe who spoke English either as an L1 or as an L2. The observation lasted for about two hours and was both audio- and video-taped and some observational notes were also taken.

V. Results

A. Free Conversation

During the conversation lasted for approximately 25 minutes, Ahmed freely expressed himself, and considering his young age, he was able to sustain the relatively long conversation with the researcher. He did not only answer the researcher's questions but also volunteered topics and commented on topics whenever applicable to him. He was comfortable speaking English with the researcher and responded in English right from the beginning and continued to do so throughout the conversation. He demonstrated an intermediate level of fluency and produced non-verbal communication. Concerning pronunciation, the researcher could understand the child easily. Being aware of the researcher's bilingual capacity, he codeswitched in two instances to Arabic when he experienced lexical retrieval difficulty. He also opted for paraphrasing, avoidance, and approximation in a few other instances. He was very proud of his English proficiency level.

B. Parents' Interview

The interview with his parents revealed that they held positive attitudes toward bilingualism and English which had a great influence on his L2 maintenance. We also believe that the parents' levels of education (father held Ph.D. and M.A. degrees in English; mother had a college degree and had an intermediate proficiency level in English) likely influenced their attitudes. The attitudes and intentions held by Ahmed's parents towards his bilingualism were that the Arab/Saudi identity and Arabic language should be firmly established in Ahmed during their residence in the US since he just started picking up his L1 when they moved to the US. The family believed that the L2 acquisition should not be exercised at the expense of risking the L1 acquisition and that Arabic was important for "easier reintegration" (Bahhari, 2020) into Saudi society and schools when they return home. After he returned home, the parents thought that English was an asset, that they should help Ahmed maintain his L2, and that L2 maintenance should not be neglected. While the parents considered it very important for Ahmed to have a normal life as a Saudi child, they believed that he could live a normal life as a bilingual child in Saudi Arabia.

C. Online Gaming Observation

Similar to his performance in the free conversation, Ahmed showed considerable ease in expressing himself in the games. He showed more comfortability speaking English due to the relevant same age as the other players and showed no signs of hesitation in speaking English as if it was his L1. As an indication of high proficiency and confidence, he even was giving directions and orders in English to his guildmates. He even sometimes got involved in an argument while speaking English when losing games. He spoke fluently at an intermediate level and his pronunciation was clear. He did need to repeat or explain himself and his accurate use of English words was obvious. He needed codeswitching in some cases because he could not easily find the right words in English; however, he kept thinking of the right words and spoke only English due to the monolingualism of the other players.

VI. Discussion

A. The Role of Technology on L2 Maintenance

Ahmed was removed from the target language environment at a very young age (6.2 years old) when his English was still developing and the L2 input he was receiving from his daily life in the L2 environment was limited. His age of departure from the L2 environment belongs to a group reported as being more vulnerable to attrition. Upon return, his English input got drastically reduced in his surroundings. The L2 of returnee children, like Ahmed, who return home around and before the age of nine is more vulnerable to attrition than those returning at older ages. Upon returning home, returnee children experience language pressure from people around them in the new environment forcing them to mainly use the L1 at a native-like level of L1 proficiency. At the same time, loss of L2 contact and discontinued input in schools and society leads to overall attrition of the L2 (Fujita, 2002). However, Ahmed survived attrition of most aspects of the L2 thanks to the technology that was available to him. The availability of technology was coupled with parents' attitudes towards bilingualism and Ahmed's personality and motivation in maintaining his English.

Like most Saudi gamers, Ahmed plays L2 digital games and browses videos on social media in his leisure time. The time spent by Ahmed on social media and online gaming undoubtedly allowed for a large amount of input and practice which explains Ahmed's relatively successful L2 maintenance and the relatively high scores on the two measures, i.e., the PPVT and the BMS. As confirmed by Tomiyama (2009), "a small amount of practice is enough to maintain the returnees' grammatical complexity, lexical complexity, and lexical productivity […] For the older participant, we may also add grammatical accuracy" (p.271). Oxford (1982) confirms that "practice of the L2 in a supportive environment is essential if the L2 is not to be lost" (p. 168).

However, he could not reach the ultimate maintenance of the L2 due to the limited exposure he had. The only exposure Ahmed had was an online L2 input and contact via technology; however, we believe that if he had naturalistic L2 exposure (Kubota et al., 2020) such as immersion in school where English is the medium of instruction, he should have higher L2 proficiency because some recent studies (e.g., Bialystok & Barac, 2012; Nicolay & Poncelet, 2013; Purić et al., 2017) suggest that high exposure in L2 immersion programs (5 or more hours a day) for more than six months affects bilingual children. Although Ahmed opted sometimes for paraphrasing, avoidance, and approximation which might be seen as signs of deficiency in the L2 (e.g., Tomiyama, 2000), these strategies are also used in the L2

acquisition process (e.g., Olshtain, 1986; Turian & Altenberg, 1991). In sum, the analysis of Ahmed's social environment reveals that three factors have contributed to his maintenance of the English language: technology, parental attitudes, and personality and instinct motivation.

The use of social media and online video games has become standard means of communication in many individuals' daily life and their accessibility allows people to be engaged in online conversations with people from other cultures who have never met in person using new languages. As many people around the world wish to speak English as the most widely used language around the globe, social media and video games, including online multiplayer games offer opportunities and activities that require knowledge and the use of English. These informal settings, which are free from the evaluation and scrutiny of the classroom, help increase motivation and reduce the fear and anxiety that many ESL speakers feel when using their L2 (Horowitz, 2019).

Technology, namely video-sharing social media sites and online multiplayer video games played a significant role in Ahmed's L2 maintenance. Video-sharing social media sites such as YouTube and TikTok are state-of-art opportunities for the young generation to watch videos and engage with different languages and cultures from around the globe. Social media sites are useful sources to learn the target language and interact with its people. YouTube can be imagined as an unlimited source of L2 listening authentic materials in almost all the desired genres (Blake, 2016; Hubbard, 2017; Romeo & Hubbard, 2010).

Concerning online multiplayer video games, Horowitz (2019) emphasizes that L2 learners have the opportunity to be engaged in different virtual worlds that are populated by English native speakers. Reinders (2017) suggests that multiplayer online role-playing games "create many opportunities for collaboration and competition and rich opportunities for exposure to L2 input as well as opportunities for L2 output and interaction" (p. 332). Sylvén and Sundqvist (2012) state that L2 gaming can contribute to incidental and informal L2 learning, and reading in-game texts can increase L2 learning. Peterson (2012) concludes that L2 learners who actively participate in online multiplayer video games utilize different types of strategies to manage their interaction and undertake collaborative dialogues exclusively in the L2 which improves their fluency and discourse management practice.

B. Parental Attitudes

In addition to their positive attitudes toward bilingualism and English, Ahmed's parents were fully aware of the role of technology in L2 learning and maintenance. The time spent by Ahmed on social media and online gaming was authorized and supervised by his parents and their rationale was that technology would compensate for the L2 input decrease in the home country. The father who has a well-established background in L2 acquisition is aware of the effect of watching videos on Ahmed's L2. He declared that his son can increase, consolidate, and maintain many aspects of the L2 including vocabulary and pronunciation by watching L2 videos on social media sites such as YouTube and TikTok. With regards to online multiplayer video games, the father believed that such games would ensure Ahmed continue listening to English, using and speaking English, and interacting with native speakers. That perspective is supported by research. For example, Sylvén and Sundqvist (2012) found that Swedish youths (aged 11–12) frequent gamers achieved higher scores on a vocabulary test, compared to moderate and non-gamers. In sum, the parents' supportive attitudes towards bilingualism may lie in the fact that they also had fearless attitudes towards the heritage language.

C. Personality and Instinct Motivation

Ahmed's personality traits undoubtedly helped him maintain the L2. As mentioned earlier, he has traits of an extraversion personality; he is an active, outgoing, and sociable boy. That kind of personality allowed him to engage, with full pride in his English, in conversations, chatting, and playing games with people from around the globe. The effect of personality has been witnessed in free conversation and in online gaming in which he did not feel embarrassed to use several strategies including code-switching, paraphrasing, avoidance, and approximation. With regards to his attitudes and motivations toward L2 learning, these two concepts are very important in the maintenance or loss of the language (Oxford, 1982). Paradis (2007) also emphasized that motivation and affection among different factors offer children the ability to activate a neglected language. Similar to the Japanese child, Eugene, one of the participants in Tomiyama (2009), Ahmed has a positive attitude towards his L2 and is a motivated student at school. Ahmed's motivation has probably been enhanced by online video games. As concluded by Peterson (2012), massively multiplayer online role-playing games are engaging, motivating, and enjoyable and improve fluency and discourse management practice.

VII. Implications

While the results of our study are obtained from only one individual, we believe that it is worthwhile to consider the implications since many returnee children have profiles similar to that of Ahmed. The results suggest that language-supportive environments enrich the use of the L2 which is a key factor in the maintenance of the L2. The study shows the significance of daily exposure to the L2 (receiving and producing L2 input through watching videos on social media sites and through online gaming). Watching videos and playing online games provide opportunities for listening to the L2, speaking the L2, consolidating known vocabulary and phrases, and learning new L2 structures. Multiplayer games

are viewed as a productive way to enhance language learning because of their high level of interaction. Education practitioners should be aware that the fun times spent online, be it on social media or online multiplayer video games, might be golden opportunities that offer learners rich and authentic environments for L2 learning that other educational methods and settings cannot, and their online engagement increases young learners' motivation to learn. Technology has reduced the need to take study tours or to travel to places to practice the L2. Therefore, practitioners involved in education planning and even the learners themselves are recommended to exploit authentic online experiences to practice English in.

Another implication from the results is that parents need to provide their children with the necessary support to use social environments and allow them as much active use of the L2 as possible. Parents should be involved in planning activities such as personal contact with native speakers to improve attitudes, increase motivation, and foster practice. They should monitor their children's attitudes and motivations toward L2 learning, loss, and maintenance. Children of one family might have different learning styles, personality traits, and L2 proficiency levels. Therefore, children might retain or lose different elements of the L2 over time. To facilitate L2 maintenance, parents should be concerned for each child as an individual.

VIII. Conclusion

The present study was conducted to investigate the L2 maintenance of a Saudi returnee child after 5.4 years of his return to Saudi Arabia and to explore the factors that influenced that maintenance. Data was collected through a free conversation with the child, an online gaming observation, and an interview with parents to triangulate the data. The child demonstrated an intermediate level of fluency and produced non-verbal communication in free conversation and online gaming. The parents held positive attitudes toward bilingualism and toward English which was believed to have a great influence on the child's L2 maintenance. Three factors have contributed to the child's successful L2 maintenance: technology, parental attitudes, and personality and instinct motivation.

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Dukhayel Aldukhayel is an Associate Professor in the Department of English Language and Translation, College of Arabic Language and Social Studies, at Qassim University in Saudi Arabia. He holds an MA degree in TESL/TEFL from Colorado State University and a Ph.D. in Applied Linguistics from the University of Memphis. His research interests include L2 vocabulary, L2 listening, and CALL. Email: dmdkhiel@qu.edu.sa