This paper is motivated by the difference in how Russian and English employ age-related female labels. Russian monolinguals, English monolinguals, and Russian learners engaged in a free categorization, Likert-scale, and labeling tasks to answer questions about any possible differences in categorical perception, age boundaries of each female term, and influences of acculturation and length of study on successful internalization of a new L2 concept. The monolingual groups demonstrated differences in perception. Russian learners’ performance deviated from the Russian monolingual pattern. Exposure to the L2 culture did not seem to facilitate successful acquisition of the concept devushka, leading the author to argue that explicit L2 instructions are necessary for the successful acquisition of Russian female terms.

INDEX WORDS: Cross-linguistic Differences, Devushka, Bilingualism, Russian as an L2.
THE DYNAMICS OF BILINGUAL MENTAL LEXICON:

THE EFFECTS OF PARTIAL CONCEPTUAL EQUIVALENCE ON ACQUISITION OF RUSSIAN AS AN L2

By

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THE DYNAMICS OF BILINGUAL MENTAL LEXICON:
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CHAPTER 1

INTRODUCTION

Literature Review

It has been shown that cross-linguistic variations between languages (e.g., in the encoding of emotions and color) affect categorical perception in bilinguals. However, only a few cross-linguistic differences and their effect on conceptual storage and representation in the bilingual mental lexicon have been addressed. Moreover, even fewer studies examined acquisition of L2 concepts that partially overlap with one or more categories, despite the strong belief that partial conceptual (non-) equivalency creates acquisition issues for L2 learners (Pavlenko, 2008; Pavlenko & Driagina, 2007). The present study has been motivated by the striking difference in how Russian and English languages employ age-related terms used to refer to females. When it comes to categorizing of females of different ages, English differentiates between girls and women and Russian differentiates between devochki ‘≈little girls’, devushki ‘≈young girls’, and zhenschiny ‘≈women’.¹ Such discrepancy in the lexicon referring to females between the languages might be responsible for differences in conceptual representation of females between speakers of Russian and English. For example, Russian monolinguals might perceive a category of devushki ‘≈young girls’ as a separate concept, while English monolinguals might only differentiate between girls and women since the language does not have a specific term for ‘young girls.’ In addition to possible cognitive

¹ Those are approximate translations; all three female Russian terms do not have exact equivalents in English.
differences, Russian L2 learners might face a challenge in acquiring a new concept with its phonological, lexical, semantic, and pragmatic elements. It has been shown that successful acquisition of partial conceptual equivalents may depend on such sociocultural factors as acculturation level (Andrews, 1994; Athanasopoulos, 2009; Pavlenko, 2002). Therefore, the present study will investigate if a certain acculturation level in addition to language proficiency and length of L2 study might be positive factors in acquisition of *devushka* concept by American learners of Russian.

This paper starts with a description of conceptual representation in the mind, followed by the sections that address conceptual equivalency and non-equivalency between the languages and evidence that conceptual non-equivalency in color terms, emotion lexicon, and concrete lexicon might affect cognitive processing in bilinguals. After a survey of methods currently used in the discipline is presented, the linguistic background for the paper is discussed in detail. The above sections are followed by description of method, participants, and results; finally the paper concludes with results and discussion, where valuable points of the study and implications for L2 instruction are evaluated.

**Conceptual Representation in the Mind**

Conceptual representation in the human mind refers to non-verbal knowledge about the world around us and should not be conflated with semantic meaning of words. In fact, when considering conceptual representation in bilingual and monolingual minds, semantic, lexical, and conceptual levels of representation must be differentiated (Pavlenko, 2000, p.1). Lexical representation includes a “word with its phonological and morphosyntactic properties” (Pavlenko, 2000, p.2). Semantic representation relates to the meaning of a word in a given
language, while conceptual representation relates to the non-linguistic information, which includes “imagery, schemas, motor programs, auditory, tactile, and somatosensory representations, based on experiential world knowledge” (Pavlenko, 2000, p. 2). All three components comprise a lexicalized concept in a language, meaning that each written or spoken word represents a lexicalized concept with lexical, semantic, and conceptual elements (Pavlenko, 2000, p. 2).

It has been shown by multiple studies that languages vary greatly by lexicalized concepts inventories (Malt et al., 2003; Romney et al., 1997; Sachs & Coley, 2006). For example, Malt et al. (2003) found differences in the naming pattern of bottles, jars, and other containers for American English, Mandarin Chinese, and Argentinean Spanish speakers, showing that sometimes certain objects in one language did not belong to any category in another language. These differences in lexicalized concepts inventories between languages are referred to as cross-linguistic differences and can exist in a concrete object lexicon as well as in emotion lexicon (Ameel et al., 2005, p. 60). For example, Russian does not have lexicalized concepts of privacy and personal space (Pavlenko, 2002, p. 71).

It has been suggested that these cross-linguistic differences create issues for L2 learners, because not only do the learners have to learn the meaning of a new word, i.e. semantic component, but also acquire a new concept, i.e. conceptual component, making L2 acquisition problematic (Pavlenko, 2009; Pavlenko & Driagina, 2007). For example, in the study by Pavlenko & Driagina (2007) L2 English learners of Russian were aware of an emotion term perezhivat’, e.g., were familiar with the semantic representation of the word, but avoided using it in their narratives, which pointed to the failure to internalize a new concept.
Conceptual Equivalence and Non-equivalence

Due to cross-linguistic differences between languages, each language might have a unique inventory of lexicalized concepts. For example, an English lexicalized concept frustration does not have lexical and conceptual representation in Russian (Pavlenko, 2008, p. 95). When one language has a concept and another one does not, it is an example of conceptual non-equivalence. There are other possible types of relationships in conceptual storage between languages: conceptual equivalence, when respective words of L1 and L2 share one concept and partial conceptual (non-) equivalence, when there is a partial conceptual overlap between two words (Pavlenko, 2008, p. 95). Due to the partial conceptual equivalence and non-equivalence between L1 and L2, successful L2 acquisition may involve: internalization of new concepts, shift from an L1 to L2 conceptual domain, convergence (when a domain distinct from L1 and L2 emerges), restructuring (when new concepts are incorporated in previously existing concepts), and finally attrition of L1 concepts (Pavlenko, 2000, p. 3). As a result, conceptual storage in a monolingual mind might be different from the one of a bilingual mind. Therefore, conceptual non-equivalence and partial conceptual (non-) equivalence have become promising sources for researches who want to examine conceptual organization in bilinguals and monolinguals. So far, the researchers have explored how partial conceptual (non-) equivalency affect conceptual representation in bilinguals based on color terms, emotion terms, and concrete lexicon.

Partial Conceptual (Non-) equivalence: Evidence from Color Terms

A plentitude of studies has investigated color perception in bilinguals due to its status of the traditional test case for the Sapir-Whorf linguistic relativity hypothesis (Athanasopoulos,
The hypothesis suggests that “speakers of different languages evaluate perceptual contrasts differently, influenced by language-specific partitions of reality” (Athanasopoulos, 2011, p. 241). For example, Navajo does not encode color purple and various languages like Russian and Greek distinguish between lighter and darker shades of blue (Ervin, 1961; Andrews, 1994; Athanasopoulos, 2009). Some early studies by Ervin (1961), Caskey-Sirmons & Hickerson (1977), and Lenneberg & Roberts (1956) demonstrated that cross-linguistic differences in color encoding can affect color perception in monolinguals and can cause shifts of bilinguals’ color perception toward L2 (Athanasopoulos, 2011, p. 241). For example, Ervin (1961), who worked with Navajo and English monolinguals and bilinguals, showed that English- as well as Navajo-dominant bilinguals demonstrated a semantic shift toward L2 in their color perception. Similarly, Caskey-Sirmons & Hickerson (1977) also showed that bilingual English L2 speakers with Korean, Japanese, Hindi, Cantonese, and Mandarin Chinese as their L1s shifted toward the English monolingual color perception pattern.

Despite such coherency between multiple early studies, the domain of color has also been used as an example of universality (Athanasopoulos, 2011, p. 241). For example, Kay & McDaniel (1978) and Berlin & Kay (1969) relied on human physiology, universal principles, e.g., all languages have colors white and black, some empirical data, and on fuzziness of each color category, in their argument that color perception is universal rather than language specific. According to Athanasopoulos (2011, p. 241), the controversy around domain of color is partially caused by researchers’ failure to account for participants’ knowledge of foreign languages and relying solely on monolingual data. For example, in Berlin & Kay (1969) participants of diverse linguistic backgrounds demonstrated an English monolingual pattern in
color naming. Instead of viewing such results as a shift in color naming, the researchers used it as an evidence of universality (Athanasopoulos, 2011, p. 241). Also, investigating monolinguals as well as bilinguals would allow researchers to control for length of language exposure and acculturation, which can yield valuable findings as to whether color perception is innate or learned through language (Athanasopoulos, 2011, p. 242).

For that reason Athanasopoulos (2009) set out to explore how exposure to the English language in Greek bilinguals affected their perception of color. The basis for his research was that Greek distinguishes between more shades of blue than English: ble is a light blue and ghalazio is a dark blue, while in English there is no unique term for the light blue color. The experiment used Greek monolingual data and English monolingual data for comparison with Greek-English bilinguals’ results. During the first task, all the participants were asked to identify ble and ghalazio among Munsell color chips. The results showed that intermediate and advanced Greek-English bilinguals experienced semantic shift toward L2 in their ble naming pattern. As for the ghalazio naming, advanced Greek-English bilinguals started shifting away from their L2 in the dimension of lightness, which sustained perceptual difference between ble and ghalazio but created a unique color perception pattern that is different from both monolingual groups. The findings of the first naming task showed that L2 could affect the way bilinguals perceive colors. Also, the experiment suggested that bilinguals may have a unique perception of colors that are different from monolinguals of their L1 and their L2.

To explore the issue of color perception further, Athanasopoulos (2009) employed a second task which was concerned with categorical perception and conceptual representation,

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2Munsell system description and Munsell color chips can be found at [www.xrite.com/top_munsell.aspx](http://www.xrite.com/top_munsell.aspx)
examining if cross-linguistic differences in color would cause establishment of new categories or restructuring of existing ones. During the second similarity judgment task the participants were given two shades of blue and asked to rate the similarity on a scale from 1 to 10. The results showed that Greek-English bilinguals who resided in the USA were failing to distinguish between their native categories of ble and ghalazio, and shifted in their color perception toward monolingual speakers of their L2, English. In fact, the longer the length of stay was, the greater effect of L2 influence was observed. The findings of Athanasopoulos (2009) have multiple valuable points. First of all, they offered empirical data bolstering L2 effects on color perception in late bilinguals. Secondly, they showed that exposure to a new culture as well as an increased level of language proficiency could cause semantic and conceptual changes in color perception. Lastly, they demonstrated that bilinguals might have color perception that differs from speakers of their L1 and their L2, which makes the bilingual mind not a simple combination of two monolinguals in one, but more like a unique hybrid of the two.

Similarly to Athanasopoulos (2009), Andrews (1994) and Uchikawa & Boynton (1987) also arrived at the conclusion that bilingual color perception can be affected by L2 exposure. For example, Andrews (1994) worked with Russian-English bilinguals to investigate color perception in bilinguals since Russian language also distinguishes between goluboj ‘light blue’ and sinij ‘blue’. The researcher came to the conclusion that length of stay in young émigrés effected color perception, as his advanced Russian-English bilinguals who resided in America failed to distinguish between their native categories of goluboj ‘light blue’ and sinij ‘blue’ because of the influence of the English blue.
Another related study was carried out by Uchikawa & Boynton (1987), where Japanese-English bilinguals performed a similarity judgment task of *ao* ‘dark blue’ and *misuiro* ‘light blue’ on a 1 to 10 scale. The findings revealed that advanced Japanese-English bilinguals had similar color perception and distinction with the English monolingual group. While no effect on length of stay in an English-speaking country was found, the English dominant bilinguals performed similarly to English monolinguals, but the Japanese dominant bilinguals performed similarly to the Japanese monolingual group. Thus, this study not only offered valuable evidence against universality in color perception, but also pointed out *language dominancy* as a factor in bilingual color perception.

Overall, all studies in color domain, despite the controversial nature of the issue, have given us valuable information and directions for future research. The majority of studies revealed that L2 did have an effect on color perception, as semantic shifts as well as conceptual restructuring were observed. Of course, length of stay, acculturation, language-proficiency level, and language dominancy were important factors that could have influenced bilingual cognition and therefore they have to be controlled for. So far, we have evidence from empirical data with Navajo, Japanese, Hindi, Cantonese, Mandarin Chinese, Greek, Korean, and Russian bilinguals pointing to L2 effect on color perception, but more research is needed to “arrive at a more nuanced picture of representation of color categories in the bilingual mind” (Athanasopoulos, 2011, p. 258).

One of the most valuable points about color perception research is examining the data without expectations for the results to confirm to the research hypothesis. For instance, Kay & McDaniel (1978) and Berlin & Kay (1969) appear to center their data around the idea of universality in color perception instead of considering other factors, like L1s and L2 exposure,
that could have influenced English monolingual pattern in color perception. The present paper will not only evaluate acculturation level, length of L2 study, and language proficiency as possible factors for successful acquisition of partial conceptual equivalents, but also approach data without possible research biases, i.e. no strong predictions will be made a priori.

Partial Conceptual (Non-) equivalence: Evidence from Emotion Lexicon

The topic of conceptual organization of emotion lexicon has also received attention from various researchers due to significant differences between languages in the ways they encode emotions. For instance, a Russian emotion verb *perezhivat’* ‘to suffer things through’ does not have a complete lexicalized equivalent in English (Pavlenko, 2002, p. 56). Another example comes from German – an emotion term *Schadenfreude* ‘pleasure derived from another’s displeasure’ does not have an equivalent in English (Sachs & Coley, 2006, p. 209).

The above examples demonstrate that a given language can encode certain emotions, while another language might not. It has been shown that such cross-linguistic differences may lead to differences in conceptual perception and storage of emotions by speakers of different languages (Pavlenko, 2002). In addition to differences in cognition, absence of conceptual equivalents between L1 and L2 creates a cognitively challenging situation for L2 learners. When the L2 has a new concept that is non-existent in the L1, L2 learners would have to internalize a new concept in order to achieve native-like proficiency. In the case of an L1 concept partially overlapping with two or more L2 concepts, concept restructuring might occur (Pavlenko, 2009, p. 141). The overview for this section begins by introducing three possible types of emotion lexicon in bilinguals with examples from up to date studies, and concludes with a discussion of factors for successful acquisition of emotion concepts.
Depending on how successful L2 learners are at internalizing and restructuring of new concepts and at differentiating between L1 and L2 emotion concepts, there can be three types of bilingual emotion lexicons: *L1-influenced emotion lexicon, L2-influenced emotion lexicon, and Transcultural emotion lexicon* (Pavlenko, 2005, pp. 107-108). In case of *L1-influenced emotion lexicon* in bilinguals, L2 words are linked to L1 concepts. “This type of lexicon is common for speakers with low levels of proficiency and acculturation who have not been socialized into the L2 culture” (p. 107). L1 transfers and L1-based emotion categorization are frequent in *L1-influenced emotion lexicon*.

One example of *L1-influenced emotion lexicon* in bilinguals was demonstrated by Pavlenko & Driagina (2007). The researchers compared the uses of emotion vocabulary in narratives elicited from monolingual speakers of Russian and English and advanced American learners of Russian with the same stimulus. The results revealed that not only did L2 learners rely on an adjectival pattern native to them in situations where Russian prefers verbs, like *ona byla grustnaja* ‘she was sad’ instead of *ona zagrustila* literally ‘she started manufacturing sadness’, but also L2 learners demonstrated multiple L1 conceptual transfers in their Russian emotion narratives. For instance, they mapped the Russian term *serdica* ‘to be angry at someone’ onto *angry* which is a broader concept in English; the term *angry* can be split between two verbs in Russian, *serdica* ‘to be angry at someone’ and *zlitca* ‘to experience anger’, which may have abstract causes (p. 227). The learners simply connected an L2 word with a partial equivalent in their native language, thus demonstrating an L1 conceptual transfer.

Another area of deviation from native speakers was complete absence of salient emotion verb *perezhivat’* ‘to suffer things through’. Some Russian monolinguals employed the
verb 8% of the time (total of 16 tokens) while none of the L2 Russian learners mentioned it in their narratives. The absence of the language-specific emotion term *perezhivat’* ‘to suffer things through’ points to the fact that the L2 learners in the study had not yet internalized a new concept. Additionally, these learners utilized the English-specific emotion term *frustracija* ‘frustration’ in their Russian narratives through lexical borrowing. The term *frustration* does not have an equivalent in Russian, yet L2 learners decided to include it in their narratives probably because they felt it was contextually appropriate. Such dependence on L1 emotion vocabulary and inability to interpret a situation in L2 culture-specific terms demonstrated learners’ reliance on L1 emotion concepts.

The study by Pavlenko & Driagina (2007) offered a valuable input for understanding the structure of the bilingual mental lexicon. It showed that a high language-proficiency level in late bilinguals did not guarantee successful acquisition of language specific concepts. It also showed that partial conceptual (non-) equivalency as well as conceptual non-equivalency might have been factors that prevented acquisition. Unfortunately, the study did not include bilinguals who had been exposed to authentic L2 speaking culture. Incorporating acculturated bilinguals in the analysis might have offered explanation as to whether acculturation might facilitate acquisition of the examined L2 concepts.

The second type of emotion lexicon that can be observed in bilinguals is *L2-influenced emotion lexicon* where L2 concepts influence L1 concepts, leading to L2 transfer in L1, L1 concept attrition, and L1 concept restructuring. “This type of lexicon is common for speakers who have experienced prolonged L2 socialization and live and work in the L2 environment and thus constantly interact with L2 speakers” (Pavlenko, 2005, p. 107). *L2-influenced emotion lexicon* in conceptual organization in bilinguals was observed in Grabois (1999). The
researcher examined the semantic structure of concepts like *love*, *fear*, *happiness*, and *death* in Spanish and English monolinguals, Spanish L2 learners, and acculturated Spanish bilinguals. The participants were asked to list their associations with each emotion word. The data showed that monolingual groups had different associations connected to the examined concepts; e.g., English monolinguals exhibited indirect and symbolic associations with the concept *love*, while Spanish monolinguals showed an inclination for sensory associations. As for the advanced and acculturated Spanish L2 bilinguals, they approximated the Spanish L1 in their associations when performing task in English; e.g., the native concept of *love* changed its structure. Thus, Grabois’s findings suggested that his subjects experienced conceptual restructuring in emotion terms due to the exposure to L2 culture.

Another example of *L2-influenced emotion lexicon* in bilingual cognition came from Stepanova & Coley (2006). Their research was motivated by an inter-linguistic difference between romantic jealousy and envy in Russian and English. In English the word *jealousy* can be used interchangeably for romantic jealousy and for envy situations, while in Russian two distinct verbs have to be employed. The research question was whether *jealousy* and *envy* would be mapped onto a single concept for English monolinguals and advanced acculturated bilinguals. The findings of the triad similarity task revealed that Russian monolinguals differentiated between *envy* and *jealousy* more consistently than English monolinguals. As for the Russian-English bilingual group, they were more likely to group *envy* and *jealousy* situations together in comparison with Russian monolinguals, when performing in their first language. This finding suggested that advanced acculturated Russian-English bilinguals began to merge two concepts of their native language into one, thus experiencing restructuring in their emotion lexicon. The acculturated bilinguals successfully acquired partial conceptual
(non-) equivalency and internalized a new more general concept of jealousy. In addition, the participants in Stepanova & Coley’s experiment demonstrated how moving from two linguistic categories to one might be less challenging for L2 learners.

The third type of possible conceptual organization of emotion lexicon is transcultural emotion lexicon where “representations of emotion words correspond more or less to those of monolingual native speakers of the respective languages or are easily modified depending on the context and interlocutors” (Pavlenko, 2005, p. 108). This type of lexicon can be observed in bicultural bilinguals who interact with L1 and L2 speakers on a regular basis (p. 108).

Panayiotou (2004) demonstrated an example of transcultural emotion lexicon in advanced and acculturated English and Greek bilinguals. The participants read a story in either English or Greek and shared their emotional reaction in the language of the stimulus. In a month, the same story in a different language was presented to them. The L1 and L2 responses were compared in a qualitative analysis. The findings revealed that bilinguals produced culturally and linguistically appropriate emotion narratives in both L1 and L2 with no transfers between the languages. The participants demonstrated flexibility in their emotion mental lexicon use; also, their bilingual emotion selves were contextualized. Panayiotou’s analysis offered an insightful view into a bilingual mind, suggesting that bilinguals had co-existing L1 and L2 emotion lexicons and were able to employ them in culture and language specific ways. According to Panayiotou, her study revealed how “the self can be multilayered, both English and Greek, both satisfied and confused, both at home and at a loss” (p. 134). Unfortunately, the study did not indicate acculturation levels for the bilinguals. The researcher admitted that “the criteria […] were less stringent: if a person was able to talk to me about experiencing emotions in two languages, they were included in the study” (p. 126). For future research it seems to be
beneficial to differentiate between various lengths of stay in an L1 and L2 speaking country to verify acculturation levels and biculturalism of the bilinguals.

Overall, studies on bilingual emotion lexicon seem to be in agreement on the importance of continuous exposure to L2 culture in successful acquisition of L2 emotion concepts. They have shown that extensive exposure to L2 culture may lead to attrition of L1 concepts, successful acquisition of L2 concepts, and conceptual restructuring. It is important to point out that acculturation should not be understood as purely cultural, but rather as “prolonged participation in discursive practices of the L2 speech community” (Pavlenko, 2005, p.107). As for the low language proficiency and absence of socialization into L2 culture, L1–influenced emotion lexicon where L2 words are linked to L1 concepts has been observed (Pavlenko, 2005, p. 107). Despite this agreement about L2 socialization as a factor for successful emotion vocabulary acquisition, only Grabois (1999) examined acquisition of the same emotion concepts in L2 learners and acculturated L2 users. Pavlenko (2002) demonstrated that exposure to an L2 speaking culture caused L2 transfer in emotion narratives by Russian-English bilinguals; however, participants who stayed in the States for three years were not separated from participants with eight years of stay in the data analysis. It seems to be necessary to differentiate between various levels of acculturation in future research to assess the importance of the L2 socialization factor in emotion vocabulary acquisition.

This paper will investigate the acquisition of a single concept in learners who received classroom instruction and in learners who had L2 culture exposure in addition to their L2 instruction. There will be made a clear differentiation between various levels of acculturation. In addition to degree of acculturation, proficiency level and length of L2 study will be also
analyzed as possible factors in successful acquisition of partial conceptual (non-)equivalents in Russian as an L2.

Partial Conceptual (Non-) equivalence: Evidence from Concrete Lexicon

While multiple studies with monolinguals demonstrated complexity and variation of naming patterns of objects between the languages, only a few studies have explored mental representations of objects in bilinguals (Pavlenko & Malt, 2010, p. 21). The studies by Graham & Belnap (1986) and Malt & Sloman (2003) examined whether L2 learners successfully internalized new object categories of L2, Ameel et al. (2005) analyzed whether L1 object categories influenced categorical perception in L2, and Pavlenko & Malt (2010) examined possible effects of L2 on L1 categorical perception in the domain of concrete objects.

Graham & Belnap (1986) examined naming patterns of furniture objects by intermediate and advanced Spanish-English bilinguals. The study revealed that both intermediate and advanced learners of English who had resided in the States for less than a year seemed to rely on their native categories of *silla* and *banco* and failed to distinguish between English L2 categories of *stools*, *chairs*, and *benches*. The findings suggested that exposure to L2 and high L2 proficiency had little effect on successful L2 acquisition of object lexicon. Moreover, the study demonstrated that even advanced acculturated English learners did not internalize new object categories.

To examine the effects of the length of stay and level of proficiency further, Malt & Sloman (2003) analyzed naming patterns by English L2 speakers of three levels of proficiency and various lengths of stay in the States by a large pool of learners with various L1s. The participants were asked to label 60 pictures of household containers used for preparing and
serving food. After bilingual data was compared to the monolingual data, it became clear that participants with low English proficiency and short periods of stay in the States significantly deviated from the monolingual naming pattern. However, even advanced English learners with a mean of 13.5 years in the L2 speaking country did not demonstrate a native-like pattern in their naming task. Although the study demonstrated a positive effect of L2 proficiency and length of stay on acquisition of L2 object naming, it also showed that even high proficiency and extended length of stay in the L2 speaking country did not guarantee successful acquisition and internalization of object categories. Unfortunately, the study by Malt & Sloman (2003) did not examine a potential correlation between acquisition failure and influence of L1 object categories (Pavlenko & Malt, 2010, p.21).

To analyze L1 influence on acquisition of L2 object categories, Ameel et al. (2005) conducted a study with Dutch monolinguals, French monolinguals, and Dutch-French bilinguals who performed naming, similarity judgment, and free similarity sorting tasks with 73 pictures of storage containers and 67 pictures of cups and dishes. The free sorting task demonstrated that Dutch monolinguals as well as the French monolinguals placed all the containers into 3 categories. The distribution of the objects was, however, different between the two languages: 25 objects called *fles* in Dutch appear to be divided into two different categories in French: 13 objects are called *bouteille* and 10 are called *flacon*. Also, the Dutch category *bus* does not have a full equivalent in any French category, i.e. the objects called *bus* are spread over 6 French categories like *bouteille, flacon, spray, bidon, brique,* and *bombe*. When performing naming and similarity judgment tasks, the Dutch-French bilinguals demonstrated L1 influence in their naming pattern. For example, they had a smaller category of *flacon* than monolingual French speakers and a larger category of *bouteille*, which
corresponded to the Dutch category of *fles*. The study by Ameel et al. (2005) revealed that unsuccessful acquisition of L2 object categories was caused by L1 transfer and that extensive exposure to L2 object lexicon did not foster internalization of new object categories.

To further examine interaction between L1 and L2 mental lexicons in the domain of concrete objects, Pavlenko & Malt (2010) analyzed categorical boundaries of 60 drinking containers in Russian and English. Childhood (arrival between ages of 1-6), early (arrival between ages of 8-15), and late Russian-English bilinguals (arrival between ages 19-27) performed a typicality Likert-scale rating task from 1 (“not very confident at all”) to 7 (“very confident”) in their native language. The findings revealed that all three groups demonstrated L2 influence in assessing boundaries of object categories. Even the late Russian-English bilinguals, who arrived to the States after puberty and rated themselves at low English proficiency, differed from native Russian speakers. For example, one object named *bokal* by the majority of RM (60%), was named *stakan* by most late Russian-English bilinguals (73%) (p. 34). The study by Pavlenko & Malt (2010) suggested possible L2 influence on L1 categorical perception of objects, which implied a more complex structure of the mental lexicon in the domain of concrete objects. It became evident that not only could L1 could influence L2 naming patterns and categorical perception, but even limited exposure to L2 could also result in restructuring of native categories.

In sum, the research on the mental lexicon in the domain of concrete objects in bilinguals was initiated with studies that examined how L2 learners acquired new object categories (Graham & Belnup, 1987; Malt & Sloman, 2003). It was shown by Graham & Belnup (1987) that advanced late bilinguals failed to acquire new linguistic categories despite a high level of L2 proficiency and exposure to L2 culture. The studies by Malt & Sloman
(2003) as well as the study by Ameel et al. (2005) further demonstrated that whereas language proficiency and length of stay in an L2 speaking country facilitated acquisition of object lexicon, those factors were not enough for successful internalization of new categories. The recent study by Pavlenko & Malt (2011) suggested a reverse effect of L2 on L1 object categories, showing that native categories could be affected by L2 exposure. While more research is needed to evaluate factors influencing categorical restructuring, shifting, or lack thereof, it is evident that the mental lexicon might either experience changes due to L2 exposure or maintain L1 categories in the domain of concrete words.

The above discussion on acquisition of concrete lexicon was indispensable, since the present paper will investigate cross-linguistic differences in what can be considered concrete lexicon. The words girl and woman in English and devochka, devushka, and zhenschina in Russian can be considered as having “direct sensory referents and, typically, easily accessible images” which is the main characteristic of concrete lexicon (Schwanenflugel & Akin 1994, p. 252). In other words, when a native English speaker hears the word girl, he or she can easily picture a female of a certain age because this linguistic label implies specific age boundaries. However, all five terms used to refer to females in both languages are somewhat different from concrete words. Firstly, the age boundaries for each of the term may vary across speakers of the same language. One native Russian speaker might call a 30 year old female devushka but another might label her zhenschina. Of course, the age of the labeler may interfere with the judgment; i.e., an older woman might be tempted to consider herself a devushka, since this term has connotations of youth. But even putting aside the age factor of the speaker or the labeler, there might be some discrepancies in labeling among native speakers of the same age.

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3 It is important to point out that all three terms in Russian can be used as forms of address. However, the current paper is not concerned with pragmatics, setting the issue aside for possible future research.
stemming from individual differences. Secondly, the referents for females of different ages might not be easily accessible in comparison with referents for objects like furniture and household items. If a prototypical piece of furniture with a correct label can be shown once during L2 instruction, the demonstration of only one picture of a female is not enough: there can be a variety of terms with age ranges and age overlaps. As a result, native speakers have had years of exposure to the language and culture and therefore employ their linguistic intuition when referring to someone as a *devochka*, *devushka*, and *zhenschina*, while L2 learners have to rely on dictionaries and textbooks that frequently fail to address cross-linguistic differences between the languages (Pavlenko, 2008, p. 112). Not only do dictionaries and textbooks fall short of addressing partial conceptual (non-) equivalency, but they fail to provide connotations and cultural context. For instance, the term *zhenschina* in Russian has connotations of passed youth and perhaps female withering. Therefore, while it is logical to assume that terms used to refer to females have characteristics of concrete lexicon, at the same time they appear to be concepts socially constructed by language, dictating what female label would be acceptable for a certain age.

Thus, establishment of age boundaries for each female term in Russian and English would be beneficial for L2 learners and L2 instructors, assessment of which is one of the main goals of this paper. Another key focus will be the effect of cross-linguistic differences on bilingual and monolingual cognition. Since the appropriate research methodology is crucial to exploring cognition, it seems imperative to provide an overview and criticism of methods employed by other researchers before presenting the methods for the present study.
A Survey of Methods Employed in Conceptual Organization Research

Researchers have long been trying to get inside the bilingual mind and explore its conceptual organization. A number of psycholinguistic tasks like reaction-time tasks, word-rating tasks, and similarity judgment tasks are commonly employed in mental lexicon research. Those tasks have been criticized due to their inability to reflect the conceptual organization of the mind (Pavlenko, 2009, p. 125). In reaction-time tasks, bilinguals have to translate, name a picture, or perform semantic categorization. In these tasks, a correlation is drawn between faster reaction time and connection between concepts of L1 and L2 (De Groot, 1992).

However, as pointed out by Pavlenko (2009, p. 128), the faster reaction time is not always an indicator of shared meaning; i.e., language proficiency and language activation can also affect the reaction time. Word-rating and similarity judgment tasks deal with translation equivalents. They also fail to expose the conceptual organization of the bilingual mind due to their inability to capture implicit conceptual knowledge (Pavlenko, 2009, p. 129).

Psycholinguistic tasks are gradually being replaced by methodologies developed in the fields of linguistic anthropology, cognitive psychology, and applied linguistics (Pavlenko, 2009, p.130). These new methodologies include categorization, sorting, (not timed) naming, and narration elicitation (Pavlenko, 2009, p. 130). Categorization and sorting tasks and their relation to cognition have been investigated in psychology (Harnard, 1987). They were first adapted in studies of color perception in humans (Bornstein, 1981). Later, they was borrowed by cross-linguistic researchers to investigate color perception in bilinguals (Athanasopoulos, 2009), cross-linguistic differences in object categories (Malt et al., 1999), and emotion words (Stepanova & Coley, 2006). Usually participants have to categorize or sort pictures into as many categories as they like (Ameel at el., 2005). The task can be utilized for object
categorization as well as for abstract words. Most importantly, categorization and sorting tasks allow researchers to avoid referring to linguistic labels, thus revealing the implicit conceptual knowledge of the participants.

Another novel method - the naming task - has also been employed in bilingual mental lexicon research. Usually participants have to name objects (Malt et al., 1999) or abstract concepts like emotions (Stepanova Sachs & Coley, 2006). After the data are gathered from monolinguals and bilinguals, a contrastive analysis is performed to compare naming patterns between the groups (Athanasopoulos, 2009). This task is employed in research on the conceptual organization of the mental lexicon, since it reveals differences between monolingual and bilingual conceptual storage (Pavlenko, 2009, p.131).

The narrative elicitation task, where participants are asked to retell a story they heard or read, is also employed in bilingual mental lexicon research. This task has high ecological validity and can give an insight into the bilingual mind. For example, in Pavlenko & Driagina (2007) the same video of a worried woman elicited different verbal responses; e.g., Russian monolinguals consistently used a verb *perezhivat’* ‘to suffer deeply’, while English-Russian bilinguals avoided using the term. The researchers came to the conclusion that the English language did not have a complete conceptual equivalent to the Russian lexicalized concept *perezhivat’*. Despite its ecological validity, the narrative elicitation task has its disadvantages. As pointed out by Lucy (1992), purely linguistic tasks can interfere with the analysis of cognitive processing, since language and human cognition are two separate entities and thus should not be conflated. It is assumed that “there are many more concepts than words and some concepts have no linguistic encoding in any language” (Pavlenko, 2009. p. 132).
Therefore, it is crucial to avoid language-related tasks when analyzing cognitive processing and organization.

Finally, various rating tasks have been employed by researchers. For example, in Stepanova & Coley (2006) participants rated the appropriateness of ten emotion words in reference to five scripts. The task demonstrated cross-linguistic differences in Russian and English and served as a basis for comparing monolingual and bilingual patterns. Rating tasks can be also employed for establishing categorical boundaries. For instance, Pavlenko & Malt (2010) used a Likert-scale from 1 (“not confident at all”) to 7 (“very confident”) to rate names of various pictures of cups, mugs, and glasses in English and kruzhka, stakan, and chashka in Russian. The experiment demonstrated cross-linguistic differences in naming patterns of drinking containers in the examined languages. In addition, clear boundaries for each category were established. The Likert-rating scale revealed valuable information about what appears to be a typical representative in each drinking container category in English and Russian. Also, shifts in categorical perception were assessed for the bilingual groups.

Overall, it appears that researchers have access to multiple valid research methods. Still, cross-linguistic differences and their effect on bilingual cognition are under-researched. Moreover, categorical boundaries for various concepts have not been established. This paper is concerned with the partial conceptual (non-) equivalency of the terms used to refer to females in English and Russian languages. A Likert-rating scale and naming tasks were employed to access age boundaries for each female term; a free categorization task was employed to evaluate correlation between cross-linguistic differences and the perception of females of different ages. Before the experiment and methodology are introduced in more detail,
linguistic differences in how Russian and English languages refer to females of different ages are discussed.
CHAPTER 2

METHOD

Linguistic Background: Terms Used to Refer to Females in Russian and English

English and Russian languages differ in how they label females of various ages. More precisely, English employs two terms, *girl* and *woman*, while Russian has three terms, *devochka*, *devushka*, and *zhenschina*. In English, a *girl* can be defined as a female from birth to full growth or maturation. English speakers would agree that six year old, twelve year old, and even thirty-year-old females can be easily referred to as *girls*. For example, Tyra Banks says to a thirty year old model Lisa, “You are a young girl,” during the show *America’s Next Top Model*, cycle seventeen. The lexeme *girl* can be even used to refer to females of older ages. For example, a character in *Everybody loves Raymond* says “The girls will buy that!” referring to three females, two in their late thirties and one in her sixties. Of course, in the above example *the girls* is more of a collective term referring to three females than a categorizing label; still, most Native English speakers would agree that categorical age boundaries for the *girl* concept are rather wide. Another term used to refer to females in English is *woman*; it is used to refer to an adult female, unless a modifier “young” is used.

*Girl* and *woman* can be used more or less interchangeably for females of certain age. For example, such collocations as *lovely young* can be used when describing a girl and a woman. The COCA database shows 11 tokens for *lovely young girl* and 60 for *lovely young*
woman, which suggests that youth can be associated with both concepts. It is more commonly associated with the concept woman, despite the fact that woman usually refers to an adult female. However, the description mature is more likely to appear with a word woman than with a word girl. The COCA database shows 64 tokens for mature woman and only 1 token for mature girl, which suggests that experience and maturity are associated with the concept woman. Girls can be described as mature, but it is less common, although not completely inacceptable in the language.

As for Russian, the language distinguishes between three distinct concepts: devochka, devushka, and zhenschina. A female can be categorized as devochka from birth up to the time she shows signs of maturation. Devochka in Russian can be translated into English as little girl. The second concept devushka is somewhat similar to the English concept of teenager, but is different in respect that 25 year old and even 30 year old females can be called devushka. The words devochka and devushka share the same stem /dev-/ that can be found in words devstvennik ‘virgin’ and devchushka ‘little girl’. According to Slovar’ Ruskogo Jazyka, devushka is reserved for females who are post pubescent, but not yet married. The dictionary does not state that the term can be also extended to young married females, but native speakers of Russian would agree that a married female can be also called devushka. For example, “Ja ved’ zamuzhnjaja devushka” ‘I am a married devushka’ (Russian National Corpus). Devushka can be translated as ‘≈young girl’ into English. Lastly, the term zhenschina is reserved for adult females.

The terms devochka and devushka cannot be used interchangeably in Russian, which is supported by the following list of collocations from the Russian National Corpus (RNC). The RNC has 253 occurrences of the phrase malen’kaja devochka ‘little girl’ that refer to females’
age and immaturity. However, the collocation *malen’kaja devushka* appears to be marked in terms of its semantics and use: there are only 17 occurrences of the phrase *malen’kaja devushka* ‘little devushka’ in the RNC, and all of them highlight the small physical size or height of a female rather than young age or maturity. For example, “Vdrug proshlepala toschaja malen’kaja devushka” ‘All of a sudden a skinny small devushka came about’. Here the word *malen’kaja* is close in the meaning to the English word *small* and refers to the size of *devushka* not her age or maturation. It is logical that *devushka* cannot mean immature, because by definition *devushka* is somebody who has reached some level of maturation. Thus, a collocation like *malen’kaja devochka* ‘little girl’ are allowed in Russian when referring to female’s age and immaturity, but a collocation like *malen’kaja devushka* ‘little devushka’ can be only used to refer to the size or height of a female, not her age or maturation.

There is more evidence from the RNC that Russian native speakers consistently differentiate between concepts of *devochka* and *devushka* in their speech: “Objavilis’ devochka, devushka i bolonka” which can be translated as ‘There appeared a girl, a devushka, and a dog’. Here the speaker finds it necessary to distinguish between two females of different ages, thus showing that *devochka* and *devushka* cannot be used interchangeably.

Conversely, two terms *devushka* and *zhenschina* can be used interchangeably albeit with certain sociopragmatic differences. We find the following sentence in the RNC “Trubku snimaet zhenschina/devushka let tak-edak tridcati” ‘A woman/devushka around thirty years of age answers the phone’. Here we can see that a thirty year old female can be called *devushka* or *zhenschina*. Despite this possible interchangeability of the terms, Russian native speakers realize the complexity of this relationship. For example, Russian females would not like to be
called *zhenschina* because of connotation of *being old*. In the episode of Russian reality show *Dom-2*, we find the following dialogue between a man and a young female:

*Male: Nu ja skazhu tak, ja opredelilsja i mne nravitca eta zhenschina.*

‘Well, I will tell you this, I have decided to like this woman’

*Female: Ja devushka! (S obidoj)*

‘I am a devushka!’ (With a hurt expression)

*Male: Nu ja eto i imeju vidu (v smuschenii).*

‘Yes, this is what I mean’ (embarrassed).

The above dialogue demonstrates possible interchangeability of two terms, except that a twenty something female does not want to be called *zhenschina*, even if she is married or had been married before. This nuance in meaning might be clear for Native Russian speakers, but can create acquisition issues for American learners, since English does not have an exact equivalent for *devushka*. In fact, all five female terms do not have conceptual equivalents between the two languages.4

**Research Objectives**

The present research is carried out with the following three research questions, research goals, and three hypotheses in mind:

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4 Russian language also distinguished between three male-specific labels: *malchik* ‘boy’, *molodoj chelovek* ‘young man’, and *muzhchina* ‘man’. Since the second term is not of high frequency and is mostly used as a form of address, the male Russian terms were not investigated by this paper.
The research goals:

1. Investigate any possible effects of cross-linguistic variability in female terms on cognition of Russian and English monolinguals as well as the L2 effect on Russian L2 learners’ cognition.
2. Establish age boundaries for each female term, the assessment of which can be applicable for L2 instruction.
3. Examine the acquisition of the partial conceptual (non-) equivalent *devushka* by American learners of Russian.

The research questions:

1. Will English monolinguals fail to distinguish a category of *devushka* ‘young girl’ because of the absence of this linguistic label in the language?
2. What age range for females will be perceived as *devushka* by Russian monolinguals?
3. Will acculturation, length of study, and language proficiency be positive factors in successful acquisition of a new concept by American learners of Russian?

Research hypotheses:

1. English monolinguals are expected to highlight fewer categories in their sorting in comparison to the Russian monolinguals due to fewer female-specific age-related terms in the language.
2. For the concept *devushka* the lower age boundary is expected to be around the pubescent period of 12-15 years of age while the upper age boundary is expected to be around 25-30 years of age.
3. The Russian learners’ performance in categorization, Likert-scale, and labeling tasks will deviate from Native Russian pattern; higher L2 proficiency, greater amount of L2 study, and higher acculturation level will be associated with approximating native-like performance with acculturation being the strongest factor.  

Participants

Three groups of participants were recruited for the study, a Russian monolingual group (RM), an English monolingual group (EM), and a Russian L2 learners group (RL). The RM group included 30 participants, 22 females and 8 males, ages 18 to 27 ($M=21.84$, $SD=1.51$). They were recruited from the Philology Department at Omsk State University in Siberia, Russia. The EM group included 30 participants, 22 females and 8 males, ages 18 to 24 ($M=19.9$, $SD=1.58$), and were recruited from undergraduate programs at the University of Georgia in Athens. Some monolinguals did not know any foreign languages, while others had only minimal knowledge of Spanish, Latin, Portuguese, French, German, Polish, English, and Korean. They also had never resided abroad. As for the Russian L2 learners group, L2 learners with three or more years of Russian language study, with or without abroad experience were invited to participate. As a result, data were gathered from 20 participants, 12 females and 8 males, ages 20 to 28 ($M=23$, $SD=2.4$), who had various lengths of L2 study (minimum of 3 years and maximum of 8), different L2 proficiencies, and various acculturation levels (Table 1).  

5 The hypotheses are only formulated to give the research a sense of direction; the data will not be structured around predictions made by the hypotheses.  
6More English monolingual, Russian monolingual, and English-Russian bilingual participants filled out the survey; two participants were exempted due to their advanced knowledge of Dutch and German languages and ten participants were exempted due to the failure to follow the directions of the Likert-scale task correctly.
Georgia, University of Toronto, Yale University, and Northwestern University. The
geographical and school information was not tracked because it was not considered in the
study. The monolinguals received a course credit or participated as unpaid volunteers. The
Russian bilinguals were reimbursed for their participation with a 10$ Wal-Mart gift card.

As shown in Table 1, six participants had studied Russian for three years, five
participants had studied Russian for four years, and seven participants had studied the
language for five years or more. Also, 15 participants had had exposure to the L2 culture
ranging from 10 days to 25 months, while five participants had never been to a Russian
speaking country. Although such a diverse group of participants does not allow for generalized
conclusions applicable to all L2 learners of Russian, having diversified data

Table 1

*Russian L2 Learners Participants Characteristics*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Age</th>
<th>Gender</th>
<th>Length of study, Russian (years)</th>
<th>Russian L2 self-rated proficiency on a 1-7 scale (7 is “the most fluent”)</th>
<th>Study abroad, Russian speaking countries (months)</th>
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permitted the researcher to analyze each participant on his or her own merit and consider factors like years of L2 study, acculturation level, and L2 proficiency.

**Procedure**

The experiment was administered through the website [www.surveymonkey.com](http://www.surveymonkey.com) so the participants could take the survey at their own convenience. The participants had researcher’s e-mail address and phone number in case any questions arose. Also, each version, Russian and English, was piloted by native speakers to verify the clarity of instructions. Each survey started with a language background questionnaire followed by 58 questions. The RL survey had 60 questions due to the extended language background section that included questions about L2 length of study and abroad experiences. The questionnaire was followed by a categorization task, a Likert-scale task, and a labeling task in the order listed here. Participants reported a maximum of 30 minute completion time for the entire survey.

**The Categorization Task**

The participants were presented with 24 pictures of females of various ages and were asked to sort them into as many categories as they liked\(^7\). They were also asked to explain how they formed their groups. The pictures had been obtained from a publicly shared database of photography, [www.dreamstime.com](http://www.dreamstime.com). All the women were smiling brunettes, keeping the stimuli as consistent as possible (Figure 1).

\(^7\)The task initially was intended to be a free categorization task, where participants were free to sort the pictures in as many categories as they liked based on any parameter. However, after the survey piloting on 30 English monolinguals, the truly free categorization task turned out to be problematic; i.e., participants considered hair color, hair length, appearance, and clothing in their sorting. Therefore, for the actual experiment, participants were asked to sort the pictures in as many categories as they liked based on the factor of age. This correction did not seem to undermine the experiment since age-related female terms were examined.
The goal of the categorization task was to reveal any possible conceptual differences in how English and Russian speakers categorize females of various ages. Because English has fewer female-specific terms than Russian, it was anticipated that RM would differentiate among at least three categories of females of different ages, while EM would distinguish among fewer categories. If EM failed to highlight a category of *young girl* which can be interpreted as an equivalent to the concept of *devushka* in Russian it would suggest that the absence of the term in the language affects categorical perception.

![Figure 1. Pictures of 24 females of various ages.](image)

However, if EM and RM systematically formed similar age groups in their sorting, it would indicate common underlying conceptual representation for females of various ages, regardless of the cross-linguistic differences between the languages. If any conceptual
differences were established in the RM and EM responses, Russian learners would be expected to highlight a category of *devushka* in their sorting due to exposure to Russian. Of course, length of L2 study, acculturation level, and L2 proficiency might all be factors in the participants’ ability to perceive the *devushka* concept as a distinct category in their sorting.

The Likert-scale and Labeling Tasks

After the categorization task, the participants were presented with the same 24 pictures of females one at a time and were asked to judge the acceptance of the linguistic label on a Likert-scale from 1 (labeled “I do not agree at all”) to 5 (labeled “I agree completely”) (Figure 2).

The Likert-scale task was employed in order to explore boundaries for the concepts *girl* and *woman* in English and the concepts *devochka*, *devushka*, and *zhenschina* in Russian. When presented with a picture of a 40-year-old female, the EM were expected to rate the statement “This is a woman” as 5 (“I agree completely”), while when presented with the same picture, the EM were expected to rate the statement “This is a girl” as 1 (“I do not agree at all”). Of course, in case of age overlap between *girl* and *woman*, the EM were expected to give any in-between rating of “2,” “3,” or “4.”

The RM evaluated three statements *Eto devochka* ‘This is a little girl’, *Eto devushka* ‘This is a devushka’, and *Eto zhenschina* ‘This is a woman’ on the same scale from 1 (labeled “*J’a polnost’u soglasna/soglasen* ‘I agree completely’) to 5 (labeled “*J’a sovsem ne soglasna/soglasen*” ‘I do not agree at all). The RL performed the Likert-scale task in Russian; therefore any deviations from the monolingual pattern can be investigated.
Figure 2. The Likert-scale task. The participants were asked to rate the correctness of each statement.

After the completion of the Likert-scale task, the participants were asked to label each picture and estimate the age for each female (Figure 3).

The goal of the labeling task was to explore the most common labels for females of a certain age and the inventory of possible labels for females in both languages. Since all the participants labeled the same pictures, any possible overlaps between the terms could be investigated. It was hypothesized that some pictures that were labeled as devushki by the RM might be consistently labeled as women by the EM, or pictures that were labeled as girls by the EM could be labeled either devochki or devushki by the RM.\(^8\) Not only could the monolingual labeling data reveal the distribution of the terms in both languages, but it could serve as the

\(^8\)This statement is only a prediction; the true relationship between the terms will be revealed after the data is presented.
basis for analyzing RL naming pattern. For instance, if those pictures that were labeled with the broader term *women* by the EM were consistently labeled with the direct Russian translation *zhenschina* by the RL, it would indicate an L1 transfer in naming. However, if the RL performed similarly to the RM, it would suggest successful acquisition of partial conceptual equivalent. Lastly, the labeling and the age assessment were crucial for connecting the Likert-scale data with the estimated ages for determining age boundaries.

**Please answer the following questions**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Who is in the picture?</td>
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<td>How old do you think this person is?</td>
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</tbody>
</table>

*Figure 3.* Labeling and age assessment tasks for the EM. The RM and RL answered the same questions in Russian, which were translated as *Kto izobrazhen na fotografii?* ‘Who is depicted in the picture’ and *Kak vy dumajete, skol’ko ej let?* ‘How old do you think she is?’
CHAPTER 3

RESULTS

The Categorization Task Results

As predicted, the RM highlighted more categories in the sorting task ($M=4$) in comparison to the EM ($M=3.5$). Twenty one out of 30 RM (70%) had a separate group with the label *devushka*. As for the EM, four participants (13.3%) chose to separate the category of *young girl*. Also, nine out of 30 EM (30%) chose to highlight the category of *young woman* or *young adult*. Both monolingual groups relied on female-specific labels like *girls/devochki*, *devushki*, *women/zhenschiny* as well as on non-female-specific labels like *children/deti*, *teenagers/podrostki*, *adults/vzroslije*, *school girls/shkol’nici*, and *youth/molodezh*.

As for the RL, only five out of 20 (25%) of the L2 learners sorted pictures of *devushka* into a separate group and four out of 20 (25%) placed pictures of *devushka* together with *deti* ‘children’, *podrostki* ‘teenagers’, or *molodie zhenschiny* ‘young women’ (Table 2). Length of L2 study, acculturation levels, and language proficiency were not positive factors for highlighting the category of *devushka* in the RL’s sorting. In fact, two out of five learners (45%) who formed a separate *devushka* group had studied Russian for only three or four years, one of these learners had spent three months in Russia. At the same time, the learners with the greatest L2 study lengths (of seven and eight years) failed to form a group *devushka* (participants #1, #12, and #15) or placed pictures of *devushki* with *molodie zhenschiny* ‘young
women’ (participant #7). Acculturation did not seem to play a significant role in the RL’s ability to separate pictures of *devushki* into a separate group; e.g., four participants with abroad experience ranging from three to 24 months formed the *devushka* group, whereas participants with extended exposure to the L2 culture of two years and more (participants # 1, # 3, #4, #5, and #6) failed to sort out pictures of *devushki* into a separate category.

Table 2

*L2 Russian Learners who Highlighted a Category of Devushka*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Length of study, Russian (years)</th>
<th>Russian L2 self-rated proficiency on a 1-7 scale (7 is “the most fluent”)</th>
<th>Study abroad, Russian speaking countries (months)</th>
<th>Devushka in free sorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>5.5</td>
<td>6.3</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>#9</td>
<td>8</td>
<td>5.7</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>#10</td>
<td>5</td>
<td>5.3</td>
<td>10.2</td>
<td>1</td>
</tr>
<tr>
<td>#12</td>
<td>4</td>
<td>4.7</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>#20</td>
<td>3</td>
<td>3.7</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>#7</td>
<td>7</td>
<td>7</td>
<td>21</td>
<td>Molodie zhenschiny i devushki</td>
</tr>
<tr>
<td>#8</td>
<td>5</td>
<td>5.3</td>
<td>16</td>
<td>Deti i devushki</td>
</tr>
<tr>
<td>#14</td>
<td>3</td>
<td>6.7</td>
<td>2</td>
<td>Molodie zhenschiny i devushki</td>
</tr>
<tr>
<td>#16</td>
<td>3</td>
<td>4.3</td>
<td>0</td>
<td>Podrostki i devushki</td>
</tr>
</tbody>
</table>

*Note.* The self-rated proficiency parameter is an average of the reading, writing, and speaking scores. “1” stands for presence of *devushka* group in the sorting.
As can be seen in Table 2, the participants who formed a *devushka* group did not share any common L2 characteristics; i.e., all of them had various acculturation periods, self-rated proficiency levels, and different lengths of L2 study. In fact, participant #20, with only three years of study and no exposure to L2 culture, was able to highlight the *devushka* category. At the same time, participants #1, #3, #4, #5, and #6, who have studied Russian for four or five years and had spent two years in the L2 speaking country, avoided sorting pictures of females into a group named *devushki* (Table 3).

**Table 3**

**L2 Russian Learners Who did not Highlight a Category of Devushka**

<table>
<thead>
<tr>
<th>Participants</th>
<th>Length of study, Russian (years)</th>
<th>Russian L2 self-rated proficiency on a 1-7 scale (7 is “the most fluent”)</th>
<th>Study abroad, Russian speaking countries (months)</th>
<th>Devushka in free sorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>8</td>
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<td>25</td>
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</tr>
<tr>
<td>#3</td>
<td>4</td>
<td>6</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>#4</td>
<td>4</td>
<td>6.3</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>#5</td>
<td>5</td>
<td>5</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>#6</td>
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<tr>
<td>#11</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>#13</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>#15</td>
<td>7</td>
<td>4</td>
<td>0.4</td>
<td>0</td>
</tr>
<tr>
<td>#17</td>
<td>3</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>#18</td>
<td>3</td>
<td>4.3</td>
<td>0</td>
<td>0</td>
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<tr>
<td>#19</td>
<td>3</td>
<td>6.3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note.* The self-rated proficiency parameter is an average of the reading, writing, and speaking scores.

An analysis of the RL sorting task was performed using logistic regression, which allows estimating the probability of whether the length of L2 study, acculturation, and
proficiency are positive factors in highlighting a category of *devushka*. The results revealed that none of the L2 parameters were strong predictors for performing in a native-like pattern (Table 4).

Table 4

*Logistic Regression Results for Probability of Length of L2 Study, Proficiency, and Months Spent Abroad in Highlighting a Devushka Group by RL*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DF</th>
<th>Estimate</th>
<th>Standard error</th>
<th>Wald chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>-1.804</td>
<td>1.5613</td>
<td>1.335</td>
<td>0.2479</td>
</tr>
<tr>
<td>Study Years</td>
<td>1</td>
<td>0.1446</td>
<td>0.2957</td>
<td>0.2391</td>
<td>0.6248</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DF</th>
<th>Estimate</th>
<th>Standard error</th>
<th>Wald chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>1.0185</td>
<td>2.8317</td>
<td>0.1294</td>
<td>0.7191</td>
</tr>
<tr>
<td>Proficiency</td>
<td>1</td>
<td>-0.3969</td>
<td>0.5310</td>
<td>0.5587</td>
<td>0.4548</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DF</th>
<th>Estimate</th>
<th>Standard error</th>
<th>Wald chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>-0.9948</td>
<td>0.7304</td>
<td>1.8553</td>
<td>0.1732</td>
</tr>
<tr>
<td>Abroad Months</td>
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<td>-0.0098</td>
<td>0.0501</td>
<td>0.0384</td>
<td>0.8446</td>
</tr>
</tbody>
</table>

Table 4 reveals that the probability increases by 0.1446 for every one-year increase in studying across students. This is not a significant increase (p-value 0.6248), which means it is not a result of an actual effect of length of study in the language learners. Also, the logit of the

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9 Logistic regression models the response \( \ln(p/(1-p)) \), where \( \ln \) indicates the natural log function, and \( p \) indicates the probability that an individual would exhibit the Russian pattern. The response is called the “logit” of the probability. The logit is predicted as \( \ln(p/(1-p)) = a + bx \), where “x” is the characteristic of interest, such as proficiency or number of years of study. If the probability of exhibiting the Russian pattern changes based on any characteristic, then a test is done to determine whether the estimate \( b \) in the equation is significantly different from 0. The judgment of whether it is significant is done through a “p-value”, which typically must be less than 0.05 to indicate significance.
probability decreases by 0.3969 for every one-point increase in proficiency across students. This is not a significant decrease (p-value = 0.4548), which means it is not a result of an actual effect of proficiency in the language learners. Lastly, the logit of the probability decreases by 0.0098 for every one month increase in time abroad across students. This is also not a significant decrease (p-value = 0.8446), which means it is not clearly a result of an actual effect time spent abroad in the language learners.

The Likert-scale and Age Assessment Tasks Results

The data were analyzed by calculating the mean appropriateness rating for each picture and by correlating each image with estimated ages. Based on the Likert-scale values and estimated ages, native age boundaries for each female term were established (Table 5 for RM and Table 6 for EM).

The RM demonstrated agreement on age boundaries for all three female terms. According to the sample of 22 Russian native-speaking females and 8 males, core age boundaries for devochka are between ages 6.13 and 15.17, for devushka between 17.67 and 26.27, and for woman between 32.77 and 52.83. Considering overlap gaps, a female can be labeled as devochka if she is between ages 6.13-17.67, devushka if she is between ages 13.80-33.33, and zhenschina if she is between 23.90-52.83.

According to the 22 female and 8 male native speakers of English who participated in the survey, female is considered a girl when she is between the ages of 5.53-26.83 and a woman when she is between the ages 18.23-58.87 with core age boundaries for girl between ages 5.52-18.23 and for woman between ages18.90-58.87.
As for the Russian L2 group, age boundaries were assessed for each participant, therefore a comparison could be made with the Russian monolingual pattern (Table 7).

Table 7

<table>
<thead>
<tr>
<th>Picture#</th>
<th>Devochka</th>
<th>Devushka</th>
<th>Zhenschina</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>5.00</td>
<td>1.10</td>
<td>1.07</td>
<td>6.13</td>
</tr>
<tr>
<td>19</td>
<td>5.00</td>
<td>1.13</td>
<td>1.07</td>
<td>6.33</td>
</tr>
<tr>
<td>15</td>
<td>4.97</td>
<td>1.33</td>
<td>1.07</td>
<td>8.77</td>
</tr>
<tr>
<td>23</td>
<td>4.83</td>
<td>1.57</td>
<td>1.20</td>
<td>9.80</td>
</tr>
<tr>
<td>2</td>
<td>5.00</td>
<td>1.50</td>
<td>1.13</td>
<td>10.77</td>
</tr>
<tr>
<td>13</td>
<td>4.47</td>
<td>2.07</td>
<td>1.10</td>
<td>12.80</td>
</tr>
<tr>
<td>14</td>
<td>4.10</td>
<td>3.10</td>
<td>1.13</td>
<td>13.80</td>
</tr>
<tr>
<td>8</td>
<td>3.80</td>
<td>3.43</td>
<td>1.23</td>
<td>14.50</td>
</tr>
<tr>
<td>24</td>
<td>3.83</td>
<td>3.57</td>
<td>1.27</td>
<td>15.17</td>
</tr>
<tr>
<td>10</td>
<td>2.87</td>
<td>4.30</td>
<td>1.67</td>
<td>17.67</td>
</tr>
<tr>
<td>11</td>
<td>1.70</td>
<td>4.60</td>
<td>2.33</td>
<td>20.80</td>
</tr>
<tr>
<td>17</td>
<td>1.33</td>
<td>4.90</td>
<td>2.03</td>
<td>21.57</td>
</tr>
<tr>
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<td>1.57</td>
<td>4.87</td>
<td>2.47</td>
<td>23.27</td>
</tr>
<tr>
<td>16</td>
<td>1.27</td>
<td>4.50</td>
<td>3.00</td>
<td>23.90</td>
</tr>
<tr>
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<td>1.33</td>
<td>4.53</td>
<td>3.13</td>
<td>26.27</td>
</tr>
<tr>
<td>5</td>
<td>1.20</td>
<td>2.70</td>
<td>4.47</td>
<td>32.77</td>
</tr>
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<td>1.30</td>
<td>2.73</td>
<td>4.13</td>
<td>33.33</td>
</tr>
<tr>
<td>22</td>
<td>1.17</td>
<td>1.97</td>
<td>4.77</td>
<td>37.53</td>
</tr>
<tr>
<td>18</td>
<td>1.13</td>
<td>1.70</td>
<td>4.90</td>
<td>42.70</td>
</tr>
<tr>
<td>9</td>
<td>1.10</td>
<td>1.57</td>
<td>4.93</td>
<td>43.73</td>
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<td>20</td>
<td>1.13</td>
<td>1.43</td>
<td>4.97</td>
<td>44.77</td>
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<tr>
<td>1</td>
<td>1.07</td>
<td>1.37</td>
<td>4.97</td>
<td>45.17</td>
</tr>
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<td>12</td>
<td>1.10</td>
<td>1.20</td>
<td>5.00</td>
<td>48.77</td>
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<tr>
<td>21</td>
<td>1.13</td>
<td>1.13</td>
<td>5.00</td>
<td>52.83</td>
</tr>
</tbody>
</table>

Note. If the first highest rating is below 4.50 and the second highest rating is above 2.50 for any two given categories, these two categories can be considered to overlap.
Table 6

*Likert-scale Task Results for the English Monolingual Group: Age Boundaries for Girl and Woman in English*

<table>
<thead>
<tr>
<th>Picture#</th>
<th>Girl</th>
<th>Woman</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>5.00</td>
<td>1.13</td>
<td>5.53</td>
</tr>
<tr>
<td>19</td>
<td>4.93</td>
<td>1.23</td>
<td>6.10</td>
</tr>
<tr>
<td>15</td>
<td>5.00</td>
<td>1.17</td>
<td>8.07</td>
</tr>
<tr>
<td>23</td>
<td>4.93</td>
<td>1.20</td>
<td>8.90</td>
</tr>
<tr>
<td>2</td>
<td>4.83</td>
<td>1.40</td>
<td>10.70</td>
</tr>
<tr>
<td>13</td>
<td>4.57</td>
<td>1.53</td>
<td>11.87</td>
</tr>
<tr>
<td>14</td>
<td>4.40</td>
<td>1.77</td>
<td>12.70</td>
</tr>
<tr>
<td>8</td>
<td>4.23</td>
<td>2.20</td>
<td>13.77</td>
</tr>
<tr>
<td>24</td>
<td>4.27</td>
<td>2.13</td>
<td>14.23</td>
</tr>
<tr>
<td>10</td>
<td>3.57</td>
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<td>18.90</td>
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<td>2.47</td>
<td>4.57</td>
<td>29.67</td>
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<td>2.37</td>
<td>4.80</td>
<td>34.77</td>
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<td>4.83</td>
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<td>42.87</td>
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<td>56.67</td>
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<tr>
<td>21</td>
<td>1.60</td>
<td>5.00</td>
<td>58.87</td>
</tr>
</tbody>
</table>

*Note.* If the first highest rating is below 4.50 and the second highest rating is above 2.50 for any two given categories, these two categories can be considered to overlap.
Table 7

*Likert-scale Task Results: The Age Boundaries for Devushka, L2 Russian Learners*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Length of study, Russian (years)</th>
<th>Russian L2 self-rated proficiency on a 1-7 scale (7 is “the most fluent”)</th>
<th>Study abroad, Russian speaking countries (months)</th>
<th>L2 age boundaries for concept devushka</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>8</td>
<td>6.7</td>
<td>25</td>
<td>14-34</td>
</tr>
<tr>
<td>#2</td>
<td>5.5</td>
<td>6.3</td>
<td>24</td>
<td>16-24</td>
</tr>
<tr>
<td>#3</td>
<td>4</td>
<td>6</td>
<td>24</td>
<td>12-29</td>
</tr>
<tr>
<td>#4</td>
<td>4</td>
<td>6.3</td>
<td>24</td>
<td>4-19</td>
</tr>
<tr>
<td>#5</td>
<td>5</td>
<td>5</td>
<td>24</td>
<td>5-20</td>
</tr>
<tr>
<td>#6</td>
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<td>14-30</td>
</tr>
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<td>7</td>
<td>21</td>
<td>10-32</td>
</tr>
<tr>
<td>#8</td>
<td>5</td>
<td>5.3</td>
<td>16</td>
<td>12-18</td>
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<tr>
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<td>8</td>
<td>5.7</td>
<td>13</td>
<td>16-22</td>
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<td>5</td>
<td>5.3</td>
<td>10.2</td>
<td>13-36</td>
</tr>
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<td>7</td>
<td>6</td>
<td>4</td>
<td>14-31</td>
</tr>
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<td>#12</td>
<td>4</td>
<td>4.7</td>
<td>3</td>
<td>12-29</td>
</tr>
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<td>#13</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>14-24</td>
</tr>
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<td>3</td>
<td>6.7</td>
<td>2</td>
<td>15-30</td>
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<td>4</td>
<td>0.4</td>
<td>14-28</td>
</tr>
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<td>3</td>
<td>4.3</td>
<td>0</td>
<td>13-25</td>
</tr>
<tr>
<td>#17</td>
<td>3</td>
<td>5</td>
<td>0</td>
<td>11-27</td>
</tr>
<tr>
<td>#18</td>
<td>3</td>
<td>4.3</td>
<td>0</td>
<td>10-30</td>
</tr>
<tr>
<td>#19</td>
<td>3</td>
<td>6.3</td>
<td>0</td>
<td>12-23</td>
</tr>
<tr>
<td>#20</td>
<td>3</td>
<td>3.7</td>
<td>0</td>
<td>12-33</td>
</tr>
</tbody>
</table>

*Note.* According to the Russian monolinguals the age boundaries for *devushka* are between ages of 13.80-33.33.

As can be seen in Table 7, RL varied in how they assessed age boundaries for the *devushka* concept; e.g., participants #1, #2, #7, #9, #11, #13, #14, #15 had age boundaries that are within the range for native speakers, while participants #3, #4, #5, #7, #8, #12, #16, #17, #18, #19, and #20 deviated in the lower age boundary value, participants #10 and #20 deviated in the upper age boundary, and participants #10 and #20 differed in both lower and upper boundaries values. The participants #20, #4, and #5 demonstrated the greatest deviation from
the native pattern by assessing the upper age boundary at 53 years of age, the lower boundary at four years of age, and lower boundary at five years of age, respectively (Figure 4).

Figure 4. Age ranges for *devushka* concept by Russian L2 learners in comparison to the native pattern. The area inside of the rectangle is representative of the native range. The vertical axe represents age range and the horizontal axe represents participants.

Figure 4 demonstrates that only eight out of 20 (40%) RL have an age range for *devushka* within the native boundaries, whereas the other 12 (60%) have deviation either in the lower age boundary value or the upper age boundary value. According to the t-test, L2 Russian learners as a group showed little difference in the upper age boundary value for *devushka* in comparison to RM (*p*=0.77). At the same time, the RL as a group differed significantly in the lower age boundary value for devushka (*p*=0.0006). On average, the RL assessed a lower age
boundary for devushka at 12.15 in comparison to 15.16 by RM, and 28.2 for the upper age boundary for devushka in comparison to 28.77 by RM.

The within-group comparison through logistic regression analysis of RL demonstrated that L2 study length was the only positive factor for assessing the lower age boundary for devushka in a native-like pattern (Table 8).

Table 8

*Logistic Regression Results for Probability of Length of L2 Study, Proficiency, and Acculturation in RL’s Assessment of the Lower Age Boundary for Devushka*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DF</th>
<th>Estimate</th>
<th>Standard error</th>
<th>Wald chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>-3.6889</td>
<td>1.7151</td>
<td>4.6259</td>
<td>0.0315</td>
</tr>
<tr>
<td>Study Years</td>
<td>1</td>
<td>0.6755</td>
<td>0.3365</td>
<td>4.0290</td>
<td>0.0447</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>-2.7715</td>
<td>2.7159</td>
<td>1.0413</td>
<td>0.3075</td>
</tr>
<tr>
<td>Proficiency</td>
<td>1</td>
<td>0.4322</td>
<td>0.4846</td>
<td>0.7952</td>
<td>0.3725</td>
</tr>
<tr>
<td>Intercept</td>
<td>1</td>
<td>-0.5695</td>
<td>0.6698</td>
<td>0.7229</td>
<td>0.3952</td>
</tr>
<tr>
<td>Abroad Months</td>
<td>1</td>
<td>0.0149</td>
<td>0.0439</td>
<td>0.1157</td>
<td>0.7337</td>
</tr>
</tbody>
</table>

As can be seen in Table 8, the logit of the probability increases by 0.6755 for every one-year increase in studying across students. This is potentially a significant increase (p-value = 0.0447), which means it is possibly a result of an actual effect of years of study in the
population of language learners, and not necessarily due to the random individuals selected to participate in this study. As for proficiency, the logit of the probability increases by 0.4322 for every one-point increase in proficiency across students. This is not a significant increase (p-value = 0.3725), which means it is not a result of an actual effect of L2 proficiency in the language learners. Lastly, the logit of the probability increases by 0.0149 for every one-month increase in months abroad across students. This is not a significant increase (p-value = 0.7337), which means it is not clearly a result of an actual effect of months abroad in the language learners.

**The Labeling Task Results**

In order to investigate labeling patterns of RM, EM, and RL, the most common labels were selected with percentage values of the number of people who used a particular label (Table 9).

Based on the RM and EM labeling pattern of the same pictures, it can be seen that the term *devochka* in Russian mostly overlaps with the term *girl* in English. This overlap is consistent at least for females ages 5.79-14.15. However, when a female is between ages 14.69-26.8, in Russian the term *devushka* is used, while in English, the term *girl* for ages 14.69-17.79 and term *woman* for ages 19.98-26.8 would be applicable. At the same time when a female is approximately older than 32.78, the term *zhenschina* in Russian and the term *woman* in English are employed. The RL’s naming pattern deviated slightly from the RM pattern three out of 24 times: pictures #14 and #8 were labeled *devushka* instead of *devochka* and picture #16 was labeled *zhenschina* instead of *devushka*. Overall, as a group the RL placed the label *devushka* on females starting at younger age than did RM.
### Table 9

**Dominant Names for the Three Language Groups**

<table>
<thead>
<tr>
<th>Picture number</th>
<th>Average estimated age across three groups</th>
<th>Russian monolinguals</th>
<th>English monolinguals</th>
<th>Russian Learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>5.79</td>
<td>Devochka 96.7% Girl</td>
<td>96.7% Devochka</td>
<td>3.3%</td>
</tr>
<tr>
<td>19</td>
<td>6.09</td>
<td>Devochka 96.7% Girl</td>
<td>93.3% Devochka</td>
<td>3.3%</td>
</tr>
<tr>
<td>15</td>
<td>8.36</td>
<td>Devochka 100% Girl</td>
<td>100% Devushka</td>
<td>53.3%</td>
</tr>
<tr>
<td>23</td>
<td>9.1</td>
<td>Devochka 100% Girl</td>
<td>96.7% Devochka</td>
<td>3%</td>
</tr>
<tr>
<td>2</td>
<td>10.73</td>
<td>Devochka 96.7% Girl</td>
<td>96.7% Devochka</td>
<td>90%</td>
</tr>
<tr>
<td>13</td>
<td>12.19</td>
<td>Devochka 93.3% Girl</td>
<td>80% Devochka</td>
<td>40%</td>
</tr>
<tr>
<td>14</td>
<td>13.23</td>
<td>Devochka 70% Girl</td>
<td>80% Devushka</td>
<td>50%</td>
</tr>
<tr>
<td>8</td>
<td>14.15</td>
<td>Devochka 56.7% Girl</td>
<td>60% Devushka</td>
<td>90%</td>
</tr>
<tr>
<td>24</td>
<td>14.69</td>
<td>Devushka 53.3% Girl</td>
<td>96.7% Devushka</td>
<td>80%</td>
</tr>
<tr>
<td>10</td>
<td>17.79</td>
<td>Devushka 93.3% Girl</td>
<td>33.3% Devushka</td>
<td>96.7%</td>
</tr>
<tr>
<td>11</td>
<td>19.98</td>
<td>Devushka 90% Woman</td>
<td>36.7% Devushka</td>
<td>93.3%</td>
</tr>
<tr>
<td>17</td>
<td>21.4</td>
<td>Devushka 100% Woman</td>
<td>46.7% Devushka</td>
<td>90%</td>
</tr>
<tr>
<td>3</td>
<td>22.8</td>
<td>Devushka 96.7% Woman</td>
<td>70% Devushka</td>
<td>93.3%</td>
</tr>
<tr>
<td>4</td>
<td>26.59</td>
<td>Devushka 80% Woman</td>
<td>83.3% Devushka</td>
<td>83.3%</td>
</tr>
<tr>
<td>16</td>
<td>26.8</td>
<td>Devushka 86.7% Woman</td>
<td>90% Zhenschina</td>
<td>73.3%</td>
</tr>
<tr>
<td>6</td>
<td>32.78</td>
<td>Zhenschina 83.3% Woman</td>
<td>86.7% Zhenschina</td>
<td>36.7%</td>
</tr>
<tr>
<td>5</td>
<td>35.36</td>
<td>Zhenschina 80% Woman</td>
<td>83.3% Zhenschina</td>
<td>90%</td>
</tr>
<tr>
<td>22</td>
<td>40.1</td>
<td>Zhenschina 96.7% Woman</td>
<td>90% Zhenschina</td>
<td>80%</td>
</tr>
<tr>
<td>18</td>
<td>43.65</td>
<td>Zhenschina 93.3% Woman</td>
<td>93.3% Zhenschina</td>
<td>93.3%</td>
</tr>
<tr>
<td>1</td>
<td>43.73</td>
<td>Zhenschina 96.7% Woman</td>
<td>80% Zhenschina</td>
<td>93.3%</td>
</tr>
<tr>
<td>9</td>
<td>45.03</td>
<td>Zhenschina 96.7% Woman</td>
<td>93.3% Zhenschina</td>
<td>96.7%</td>
</tr>
<tr>
<td>20</td>
<td>45.95</td>
<td>Zhenschina 96.7% Woman</td>
<td>93.3% Zhenschina</td>
<td>93.3%</td>
</tr>
<tr>
<td>12</td>
<td>52.66</td>
<td>Zhenschina 100% Woman</td>
<td>86.7% Zhenschina</td>
<td>93.3%</td>
</tr>
<tr>
<td>21</td>
<td>55.45</td>
<td>Zhenschina 100% Woman</td>
<td>90% Zhenschina</td>
<td>93.3%</td>
</tr>
</tbody>
</table>

*Note.* % refers to the percentage of participants who produced the label listed.

**Discussion**

The Likert-scale task results of RM and EM demonstrate the relationship between the terms within each language (Figure 4).
As can be seen in Figure 4, the terms *girl* and *woman* in English overlap with each other, which suggests some degree of interchangeability of these labels for females ages 18.23-26.83. The concepts *devushka* and *zhenschina* in Russian also have a significant overlap with each other since these two terms can be applicable for females ages 23.90-33.33. The overlap between the concepts *girl* and *woman* (8.6 years) in English is comparable to the overlap between the concepts *devushka* and *zhenschina* in Russian (9.4 years). At the same time, the age overlap between the terms *devochka* and *devushka* in Russian is rather narrow (3.87 years). This overlap of 3.87 years seems to be representative of individual variation in perception; i.e., native Russian speakers might have different age boundaries for the concept. In addition, the significant age overlap between the concepts *girl* and *woman* (8.6 years) in
English and between the concepts *devushka* and *zhenschina* in Russian (9.4 years) suggests a certain degree of interchangeability between the two.\(^{10}\)

The labeling task further demonstrates the cross-linguistic relationship between the two English female terms and three Russian female terms: none of the five labels have complete equivalents within the two languages and therefore they exhibit partial overlap. It has been suggested that in the case of partial overlap between L1 and L2 categories, L2 learners would have to restructure their native concept or concepts (Pavlenko, 2000, p. 3). When the terms are used to refer to females, American learners of Russian would have to internalize a new concept *devushka* and learn how this new concept overlaps with their native understanding of *girl* and *woman*; i.e., Russian learners would have to realize that females of certain ages should be called *devushka* and not to use the direct translations of their native concepts *girl* and *woman*. According to the labeling pattern of RL, the learners seem to be aware of the overlap between their two native terms and three L2 terms: the RL labeled pictures *devushka* accurately six out of seven times. However, two deviations can be observed in the RL labeling. The first one can be seen in picture #16 where 86.7% of RM used the label *devushka*, 90% of EM used the label *woman*, and 73.3% of RL labeled the picture *zhenschina* (employing a direct translation equivalent of *woman*).

The second deviation can be observed in picture #8, where 56.7% of RM labeled it *devochka* while 90% of RL labeled it *devushka*. In the case of picture #8, RL applied the term *devushka* instead of the more acceptable term *devochka*. The same pattern can be observed in the labeling of picture #14 where 70% of RM chose the label *devochka*, while 50% RL chose

\(^{10}\) The interchangeability between *devushka* and *zhenschina* is possible in the language under certain sociopragmatic conditions. Please see the “Linguistic Background” section of the paper.
the label *devushka*. All three examples demonstrate incomplete restructuring in RL cognition. Russian learners as a group have not yet restructured their two native concepts into three L2 concepts successfully. They applied the label *devushka* twice to pictures that were considered *devochka* by RM. Only one time did they fail to apply the label *devushka* to pictures that were named *devushka* by 86.7% of RM.

RL as a group showed significant deviation in assessing the lower age boundary for the concept *devushka* during the Likert-scale task. The tendency to place the label *devushka* at a younger age than did the RM might have been caused by RL’s belief that the terms *devochka* and *devushka* can be applied to females of the same young age. In fact, 50% of RL applied the label *devushka* and 35% of RL applied a label *devochka* for a 13.23 years old female (picture #14), whereas 70% of RM used a term *devochka* and only 20% of RM used a label *devushka*. This tendency in RL might have been caused by misleading definitions of female terms in the learners’ dictionaries. *Oxford Russian Dictionary* translates *girl* as both “*devochka*” and “*devushka*” (2007). Another English-Russian dictionary, *English-Russian, Russian-English Dictionary* (Katzner, 1994), also states that *girl* can be translated as both “*devochka*” and “*devushka*”. Not only do the above definitions misrepresent the correct relationship between the terms, but they also mistakenly suggest that *devushka* and *devochka* can be mapped on a single concept of *girl* and used interchangeably, which is not the case in Russian. Clear definitions should be made available to the Russian learners that represent the correct relationship between the terms.

The categorization task demonstrates the saliency of the *devushka* concept in RM’s cognition, causing 70% of participants to form a distinct group in their sorting. On the other hand, only four out of 30 (13.3%) of EM highlighted the category of *young girl*, which points
to the fact that the majority of English speakers do not distinguish females who are more mature than girls but not old enough to be called women as a separate concept in their cognition. At the same time, 30% of EM seem to differentiate between girls, women, and a category in between that they named young women or young adults. These groups formed by the EM might be perceived as being similar to the concept of devushka, since the last means “a young female who is mature but not old enough to be called a woman.” However, it is problematic to make any correlations between young woman and young adult concepts in English and the concept of devushka in Russian for various reasons.

Firstly, eight out of 30 (26.7%) of RM also differentiated between younger women and older women and between younger devushki and older devushki. Thus, RM specified each age-related female term with the modifiers younger and older similarly to the EM. Perhaps, the sorting of young women/zhenschiny molozhe and older women/zhenschiny postarshe in EM and RM might have been caused by the shared understanding of a certain youth threshold in a female’s life. Secondly, the participants did not always assign ages to their formed groups, which makes any predictions about equivalency between young woman and young adult terms in English and devushka in Russian problematic. With that being said, the EM sorting task results suggest that only some English speakers might perceive females who are more mature than girls but not old enough to be called women as a separate category despite the absence of a devushka label in the language. The results of the sorting task support hypothesis #1, which states that cross-linguistic differences in female terms affect cognitive perception in monolinguals. The majority of RM relied on the female-specific term devushka while sorting pictures of females into different groups, whereas only an eighth of EM formed the group young girl.
As for the RL group, according to the t-test they deviated significantly from RM with only 25% of participants highlighting the category of *devushka* in comparison to 70% of RM ($p=0.01$). The RL’s failure to form the group *devushka* and their placing of pictures labeled *devushki* together with *deti* ‘children’, *podrostki* ‘teenagers’, or *molodie zhenschiny* ‘young women’ may indicate RL’s lack of confidence with a term that does not have a full equivalent in their L1. A total of 75% of RL avoided sorting pictures into the separate *devushka* group. Avoidance has been suggested to be one of the signs of acquisition failure of L2 concepts (Pavlenko & Driagina, 2007, p. 229). Of course, 75% might not be considered complete avoidance, but the fact that RL were not consistently forming *devushka* group and were placing pictures of *devushki* with pictures of children, teenagers, and young women certainly suggests incomplete acquisition of this partial conceptual equivalent in RL as a group.

Despite the non-native like performance in the sorting task, RL formed the group *devushka* slightly more frequently ($p=0.05$), five out of 20 participants (25%) in comparison to four out of 30 EM (13.3%) who chose a group *young girl* (Figure 5).

As demonstrated in Figure 5, Russian L2 speakers were more likely to highlight the category *devushka* ‘young girl’ than English speakers in their sorting. This data tentatively suggests that exposure to Russian as a second language might have been responsible for perceiving females who are older than girls but younger than women as a separate category in RL. However, the assumption that exposure to the Russian language might affect how speakers perceive females of various ages is undermined by the fact that the higher L2 proficiency, greater amount of L2 study, and higher acculturation levels are not correlated with
the formation of the group *devushka* by RL. Moreover, the acculturation level that has been shown to be the best predictor for acquiring L2 concepts (Andrews, 1994; Athanasopoulos, 2009; Pavlenko, 2002), did not seem to be a positive factor for highlighting *devushka* in sorting by RL. In fact, only one out of six participants with two years or more abroad experience highlighted the category of *devushka* in the sorting task. The fact that higher L2 proficiency and higher acculturation levels were not positive factors for successful acquisition of the *devushka* concept does not support hypothesis #3. There are two possible explanations for such an outcome. Firstly, terms used to refer to females of various ages in Russian as well as in English might have a unique status within a concrete lexical domain, i.e. the labels for animate beings in comparison to labels for objects usually contain cultural connotations, similarly to the emotion lexicon. At the same time, new L2 emotion concepts are usually internalized through watching people expressing unfamiliar emotions and through experiencing emotions.

*Figure 5.* Number of participants in each language group who highlighted the category of *devushka* or young girl.
In the case of female terms, L2 learners can neither “experience” them nor “watch” them, unless pictures of females with correct labels are introduced during L2 instruction. However, even if L2 instructors wanted to give explicit instructions about cross-linguistic variation in female terms between Russian and English, they would not have the material to demonstrate this because so far age boundaries for the female terms have not been established.

Another possible explanation for acculturation not being a factor in the acquisition of devushka might be the nature of study abroad itself. One of the L2 participants with an extensive exposure to L2 culture of 25 months and with no group devushka in his sorting mentioned that he was in Russia on a missionary trip. At the same time, another participant with three months of experience abroad who highlighted the category devushka talked about staying with a Russian speaking family and taking language classes six times a week. 11 In the case of the first participant, the assumption is that he spent most of his time in Russia interacting with English speakers or Russians who spoke mostly English to him, whereas the second participant actively interacted with native Russian speakers in her L2. Of course, it is hard to draw any conclusions based on very little information about the nature of the RL’s abroad experiences; however it seems plausible that the quality of L2 culture exposure rather than quantity may play a role in acquisition of partial conceptual equivalents.

The fact that months and years spent in a Russian-speaking country by the RL did not have a positive effect on acquisition of the partial conceptual equivalent devushka demonstrates an evident struggle with acquisition of the term. At the same time, RL who have studied Russian for more than three years were at least more likely to assess the lower age

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11 Although the participants were not asked to provide any details about their abroad trips, a few participants decided to share their information voluntarily.
boundary for the *devushka* concept in a native-like pattern. The assumption is that L2 learners who study language for a greater period of time receive in-depth instruction about the L2 lexicon. Therefore, Russian L2 learners who have studied Russian for a greater amount of time are more likely to acquire partial conceptual equivalents, at least as the Russian female terms are concerned. Both the findings about the importance of length of L2 study and the irrelevance of acculturation in the acquisition of Russian female terms suggest the need for explicit L2 instruction. L2 instructors should disambiguate the relationship between partial equivalents by using clear definitions and visual representations. In addition, L2 instructors may find it beneficial to employ age boundaries for the concepts *devochka, devushka,* and *zhenschina* that were assessed in the paper. Of course, instructors would have to differentiate between strict labeling and pragmatics, since all three female terms can be used as a form of address in the language. The term *devushka* might be applicable for females of older ages, but more research is needed to establish the correct age boundaries for this form of address in Russian.
CHAPTER 4

CONCLUSION

This paper examined the possible effects on cognition of English and Russian monolinguals as well as the English-Russian bilinguals through the analysis of cross-linguistic difference between Russian and English in the use of female age-related terms. The results suggest that the discrepancy in female labels might have caused Russian monolinguals to differentiate between females who are more mature than girls but not as old as women more consistently than English monolinguals. At the same time, it was shown that Russian learners have started to internalize a new concept by employing it in the sorting and labeling tasks. However, the learners have not yet completely restructured their conceptual storage, which was demonstrated by assessing the lower age boundary for devushka as low as four and five years of age and by not forming the group devushka consistently during sorting.

It was expected that language proficiency and especially a greater amount of acculturation would be factors facilitating acquisition of the partial conceptual equivalent. Yet, neither of those L2 parameters seemed to be relevant for successful acquisition. Only length of L2 study proved to be somewhat significant in the RL’s assessment of the lower age boundary for devushka. Of course, a larger sample of learners is needed to fully evaluate the importance of these L2 parameters; however struggle with the acquisition of the Russian female terms is apparent in the Russian L2 learners. Due to acquisition difficulties, stronger emphasis on the matter in L2 instruction is recommended, especially considering the fact that now L2
instructors have access to appropriate age boundaries for each term. As a whole, these findings present value for the discipline of bilingualism and L2 instruction as well as encourage future investigation in pragmatics.
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