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MOOD-DEPENDENT MEMORY IN ENGLISH/SPANISH BILINGUALS

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Abstract

Past research examining the effects of emotion on memory has documented that individuals find material more memorable when the emotional valence of the information is consistent with their mood state. While these mood-congruency effects have been applied to different contexts, one situation that has not been investigated is the effects of language on mood-congruency in bilinguals. This study explored mood-congruency effects in English and Spanish bilinguals by inducing a happy or sad mood and examining between-language and within-language memory for positive, neutral, or negative information. I investigated whether mood effects are consistent across languages or if the switch from one language to another reduces the mood-congruency effect. 110 bilingual undergraduate students listened to a happy or sad song in either English or Spanish and then completed a mood state questionnaire. Next, they heard a story that contained happy, neutral, and sad events in either the same or the opposite language and tried to recall the story details. I hypothesized that mood would impact the recall of emotional information when the languages of the song and story were consistent, but not in the cross-language conditions. Although mood congruency effects did not emerge in any of the conditions, results instead suggested that the effect of emotion on memory is language dependent. Participants who heard the Spanish story remembered positive and negative details better than neutral details while those who heard the story in English remembered sad details better than happy and neutral ones. Taken together, these results are consistent with the idea that, as proficiency in a second language increases, its representations in the brain gradually overlap with first language representations. However, my findings suggest that these language stores maintain separate connections to emotional structures, leading to different emotional memory effects in the two languages.

When examining the effects of emotion on memory, past research has documented that individuals find material more memorable when the emotional valence of the information is consistent with their mood state (Mayer, Gayle, Meehan & Haarman, 1990). This mood congruency effect means that a person in a happy mood is more likely to remember happy than sad information, while a person in a sad mood is more likely to remember sad than happy material. Bower, Gilligan, and Monteiro (1981) elicited a happy or sad mood in participants through a hypnotic procedure. Participants listened to a story containing both a sad character and a happy character. The experimenters hypothesized that participants in a happy mood state would identify with the happy character and those in a sad mood state would identify with the sad character. When the participants returned the next day and attempted to recall the story while in a neutral mood state, they remembered more information about the character that matched their mood state at the time they initially heard the story (Bower et al., 1981).

In a summary article, Ellis and Moore (1999) establish three factors that elicit stronger mood-congruency effects. Individuals are more likely to exhibit the effects when they know their mood and the new material match in emotional valence. Also, the effects are stronger if the new material is related to the person encoding the information or is “self-referential.” Finally, and perhaps most obviously, the mood of the individual and the emotionality of the new material both need to be strong for the mood congruency effect to emerge (Hunt & Ellis, 2004).

While mood-congruency effects have been supported throughout the literature and applied to different contexts, one situation that has not been thoroughly investigated is the effects of language on mood-congruency in bilinguals. Research on second language acquisition has shown that proficient bilinguals’ first language (L1) and second language (L2) often share regions of the brain. For example, Illes et al. (1999) demonstrate this finding through neuroimaging. During a task that involved decision-making about words in English and Spanish, experimenters performed an fMRI to attempt to identify the locations activated by language processing in English/Spanish bilinguals. The results showed significant overlap in the brain regions activated by the two languages. While most of the research agrees that first and second languages overlap in the brain in proficient bilinguals, there are two explanations offered for how second language acquisition occurs. One possibility is that L2 is simply mapped directly onto L1 during second language acquisition. However, another hypothesis is that early in second language acquisition, the two languages are stored separately, but, as proficiency in-

creases, the second language begins to share a common semantic network with the first (Alvarez, Holcomb, & Grainger, 2003).

Language may be an important factor to consider in the mood-congruency effect. Although emotional stimuli have been found to be more memorable than non-emotional stimuli regardless of language, emotion can have different effects on memory in bilinguals. Specifically, despite the overlap in localization of multiple languages in the brain, the first language acquired (L1) has more emotional connections than secondary languages (L2), and these emotional connections provide greater support to remembering (Anooshian & Hertel, 1994). The results of a study by Ayçiçeği and Harris (2004), however, call this conclusion into question, finding an advantage for recognition and recall of taboo words in L2 over L1. Thus, the ways that language impacts memory for emotional information remain unclear.

Taken together, these past studies indicate that emotional state affects memory and that language mediates how effectively an individual remembers emotional information. Emotional stimuli have been found to be more memorable in both primary and secondary languages, and mood states predict the emotional valence of the content that is most likely to be remembered in monolinguals. However, no studies to date have investigated the strength of the mood congruency effect in a secondary language compared to a primary language, nor has past research examined whether mood-congruency effects generalize across languages. If a person is induced into a happy or sad mood state in one language, will their mood affect memory for emotional content in a different language? First, I hypothesized that mood-congruent memory effects would be apparent in both L1 and L2, but would be stronger in L1 than in L2. Second, I did not expect that mood congruency effects would transfer across languages. Thus, mood would impact the recall of emotional information when the languages of the mood induction and memory were consistent, but not in a cross-language condition.

Method

PARTICIPANTS

One hundred and sixteen Butler students participated in this study. Participants were recruited with the help of Spanish professors teaching 300 or 400 level courses. Those who were enrolled in psychology classes were offered extra credit for their participation. Those enrolled in Spanish classes who were not eligible to earn extra credit received a \$5 gift card.

DESIGN

This study involved an experimental design with three between-subjects independent variables: 1) language of mood induction song (Spanish vs. English), 2) emotion of mood induction song (happy vs. sad), and 3) language of story (Spanish vs. English). This full factorial design resulted in four same-language conditions (English-English Happy, English-English Sad, Spanish-Spanish Happy, Spanish-Spanish Sad) and four cross-language conditions (English-Spanish Happy, English-Spanish Sad, Spanish-English Happy, Spanish-English Sad). There was also a within-participants variable comprised of the emotional valence (positive or negative or neutral) of the story elements. Thus, this study involved a 2 (song mood: happy vs sad) \times 2 (song language: English vs Spanish) \times 2 (story language: English vs Spanish) \times $[3$ (emotional valence of story elements recalled: positive, neutral or negative)] mixed factorial design. Examining recall of details associated with each emotional valence allowed evaluation of mood congruency across the eight conditions.

MATERIALS

Song-Based Mood Induction. Participants heard a happy or sad song in either English or Spanish. The happy song was “Walking on Sunshine” by Katrina and the Waves and the sad song was “Without You” by Mariah Carey. Both songs were available in equivalent Spanish versions. While listening, participants also followed a written script of the lyrics matching the language of the song.

Mood Questionnaire. The questionnaire consisted of 11 Likert-scale items that assessed participants’ current mood state. This mood questionnaire was written in the language of the mood induction. Thus, participants who heard the song in Spanish completed the mood questionnaire in Spanish, while those who heard the English song completed it in English.

Paul Smith Story. This study included a short story entitled either “Paul Smith” or “Pablo Sanchez” for each assigned language condition. The story gave details about a character’s life (12 positive, 12 negative, 16 neutral). Participants followed along with the story as it was read aloud to them and then immediately wrote all of the details they could recall from the story during the memory portion of the test. The memory test was scored by calculating the number of positive, negative, and neutral details the participant recalled. These numbers were then converted into percentages to account for

the different possible number of recalled details in happy (12), sad (12), and neutral (16) categories.

Demographic Questionnaire. A demographic questionnaire asked participants to provide basic demographic information such as age, gender, and education.

Proficiency Test. Participants translated 10 phrases from the happy and sad Spanish songs as well as the “Pablo Sanchez” story from Spanish to English to determine their proficiency level. Each phrase was valued 2 points and the items were scored consistently based on severity of errors. In order to be included in the final sample, participants had to achieve a 70% on the proficiency test (consistent with a passing grade in most Butler University Spanish courses). Five participants failed to meet this criterion.

PROCEDURE

This study examined how mood congruency effects transfer across languages by adapting a mood congruency procedure and applying it to bilinguals. Participants were tested in groups ranging in size from one to twelve. I pseudo-randomly assigned the groups to one of the eight conditions assuring a fairly equal number of participants across conditions.

After giving informed consent, participants listened to a song that was either happy or sad in either English or Spanish, depending on their assigned condition. They also followed along with the lyrics to ensure language salience during the mood induction. After listening to the song, participants were given a questionnaire to evaluate their mood state. Then, participants were presented with a shortened version of the Paul Smith story (see Appendix A) in either English or Spanish (Bower et al., 1981). Half of the participants read the story in the same language as the song they heard during mood induction and half read the story in the opposite language of the song they heard. Participants were then asked to write down as many details from the story as they could freely recall. No prompts or recognition items were given. Finally, participants completed a brief demographic questionnaire and a proficiency test. I later analyzed the results using a coding template (see Appendix B) to determine whether participants tended to remember material that was congruent with the mood of the song they heard and whether the magnitude of the mood congruency effect differed between the same-language and cross-language conditions.

Results

DEMOGRAPHIC COMPARISONS

In addition to the five participants who were excluded after failing the proficiency test, there was one individual who did not complete all measures. Thus, the final sample included 110 participants divided across the eight conditions resulting in groups ranging in size from 13-15. Before conducting my primary analysis, a one-way ANOVA with condition as the independent variable ensured that all of the participant groups were statistically equivalent in age ($F(7, 101) = 1.58, p = .15$), education ($F(7, 102) = 1.11, p = .36$) and Spanish proficiency ($F(7, 102) = .88, p = .53$). A chi-square analysis indicated that the groups were also similar in their gender distribution ($\chi^2(2, N=110) = 10.90, p = .69$). See Table 1.

Table 1. Mean (*SD*) Demographic Characteristics of Participants in the Eight Conditions

Song Mood	Happy				Sad			
	English		Spanish		English		Spanish	
Song Language	English		Spanish		English		Spanish	
Story Language	Eng* (<i>n</i> =14)	Span (<i>n</i> =15)	Eng (<i>n</i> =14)	Span (<i>n</i> =13)	Eng (<i>n</i> =14)	Span (<i>n</i> =13)	Eng (<i>n</i> =14)	Span (<i>n</i> =13)
Age	20.46 (1.51)	19.47 (.92)	19.86 (1.17)	21.62 (5.06)	19.79 (.98)	19.54 (.66)	20.21 (1.05)	20.38 (1.04)
Gender (% Female)	85.71	93.33	78.57	76.92	85.71	76.92	78.57	92.31
Education	13.71 (1.07)	13.13 (.99)	13.43 (.76)	13.62 (1.19)	13.50 (1.22)	13.00 (.71)	13.79 (.98)	13.69 (.95)
Proficiency†	16.89 (1.73)	17.87 (1.37)	17.46 (1.91)	17.65 (1.71)	17.82 (1.88)	17.62 (1.60)	18.25 (1.16)	18.08 (1.94)

* Eng = English; Span = Spanish

† Raw score out of 20

MANIPULATION CHECK

To confirm the effectiveness of the mood induction procedure regardless of the emotional valence and language of the song participants heard, I also conducted a 2 (song mood: happy vs. sad) by 2 (song language: English vs. Spanish) between-subjects ANOVA on the scores from the mood questionnaire. As expected, a main effect of song mood emerged with happy songs ($M=14.37, SD=4.34$) eliciting a more positive mood than sad songs ($M=4.72, SD=6.02$), ($F(1, 106) = 94.38, p = .00$). Neither the main effect of song language

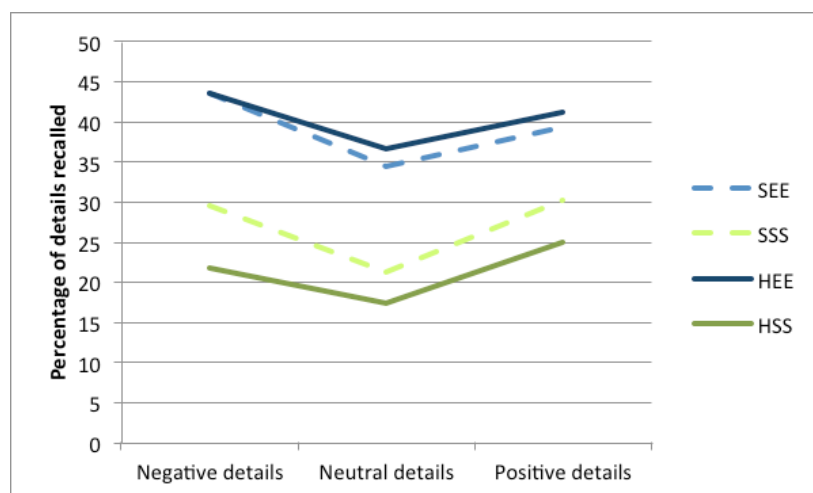
($F(1, 106) = 2.89, p = .092$) nor the song mood by song language interaction effect ($F(1, 106) = .77, p = .38$) reached significance. Thus, the mood induction was equally effective regardless of the language in which it occurred.

PRIMARY ANALYSIS

To investigate the presence and strength of mood congruency effects, I ran a 2 (song mood: happy vs sad) $\times 2$ (song language: English vs Spanish) $\times 2$ (story language: English vs Spanish) $\times [3$ (emotional valence of story elements recalled: positive, neutral or negative)] mixed model ANOVA. The song mood by memory valence interaction failed to reach significance, $F(2, 101) = .219, p = .623$. Thus, there was no support for mood congruency effects in my study. To determine whether participants in any of the within language or cross-language conditions demonstrated mood congruency effects, I analyzed the data from participants in the English-English, Spanish-Spanish, English-Spanish, and Spanish-English conditions separately. Again, no mood congruency effects emerged in any of these analyses. See Figure 1.

Although there were no mood congruency effects, the $2 \times 2 \times 2 \times [3]$ mixed model ANOVA did reveal a main effect of story language, $F(1, 102) = 75.21, p = .00$. Participants who heard the story in English recalled a higher percentage of details from the story ($M = 38.66, SD = 8.42$) than those who heard the story in Spanish ($M = 23.80, SD = 8.89$). Additionally, I found a near significant interaction between story language and emotional valence of recalled elements, $F(2, 101) = 2.69, p = .07$. To follow-up on this interaction, I examined the valence of recalled elements separately for those who heard English vs. Spanish stories. The results revealed a significant valence effect for both English, ($F(2, 54) = 9.38, p = .00$) and Spanish ($F(2, 52) = 8.25, p = .00$) stories. Specifically, participants who heard and read the story in English remembered significantly more negative information ($M = 44.05, SD = 13.27$) than neutral ($M = 34.71, SD = 10.32$) or positive ($M = 38.54, SD = 14.87$) information. However, participants who heard and read the story in Spanish remembered positive ($M = 27.47, SD = 13.41$) and negative ($M = 25.93, SD = 13.51$) information significantly better than neutral ($M = 19.44, SD = 10.90$) information. See Figure 2.

A. Same-Language Conditions



B. Cross-Language Conditions

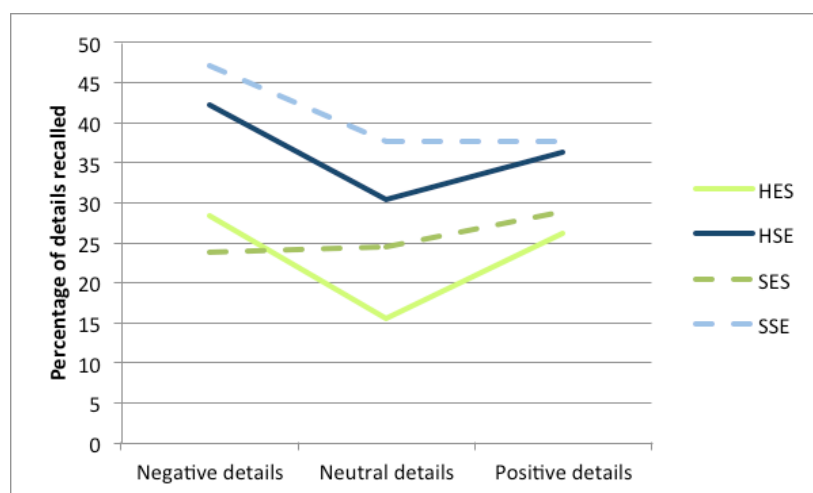


Figure 1. Percentage of negative, neutral and positive story details recalled in the four same-language conditions (A) and the four cross-language conditions (B). SEE: Sad English Song, English Story; SSS: Sad Spanish Song, Spanish Story; HEE: Happy English Song, English Story; HSS: Happy Spanish Song, Spanish Story; HES: Happy English Song, Spanish Story; HSE: Happy Spanish Song, English Story; SES: Sad English Song, Spanish Story; SSE: Sad Spanish Song, English Story.

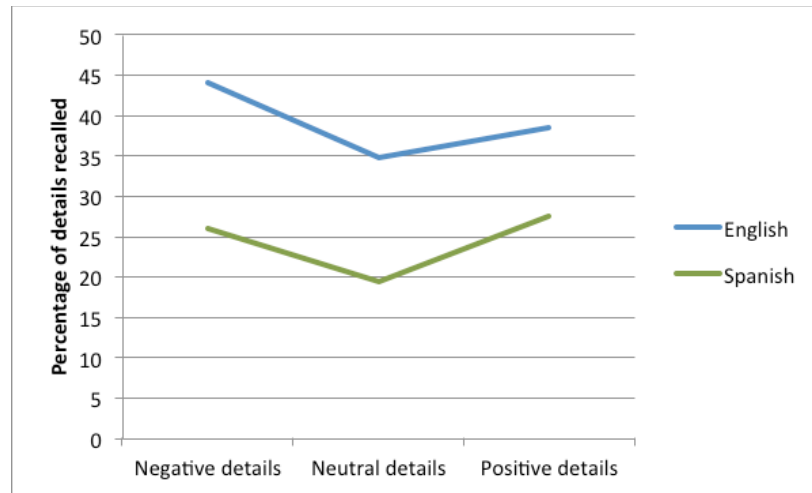


Figure 2. Percentage of story details recalled in the English versus Spanish story conditions.

Discussion

This study aimed to examine the effects of mood congruency within the context of bilingual memory. The primary hypothesis was that mood congruency effects would occur in the same-language conditions for both L1 and L2, but that the effects would be stronger in L1 than L2. In contrast, I did not expect mood congruency effects in the cross-language conditions, instead anticipating that the way the two languages of bilinguals are processed in the brain would inhibit the shared emotional effect. My data revealed no support for any mood congruency effects in either the cross-language or the same-language conditions. Thus, none of my hypotheses were supported by my results.

One possible explanation for the lack of support for the mood congruency effect is that the mood induction was not strong enough. Although those who listened to the happy songs reported a happy mood, those who listened to the sad songs were merely put into a neutral or minimally sad mood. This difference between strong reports of happiness and moderate reports of sadness may have contributed to the absence of mood congruency effects, suggesting that truly meaningful sad emotions may be necessary for mood congruency effects to occur.

Another possible reason for the lack of mood congruency effects in my study is that participants were asked to recall events from the story immediately after hearing it, rather than following a delay. In the original research by Bower, Gilligan, and Monteiro (1981), the participants read the story and

returned the following day to recall story details. Perhaps the immediate recall in the current study did not lead participants to better remember information based on mood because there was no delay during which some memories were selected for consolidation into long-term memory and others were not. Additionally, Erber, Wegner and Therriault (1996) demonstrated that mood-congruency effects can be influenced by social interactions. Thus, completing my study in a social context may have diminished mood-congruency effects in my sample.

Though the original hypotheses of mood congruency were unsupported, not surprisingly, participants remembered English stories better than Spanish stories. More interestingly, however, there was a nearly significant emotionality effect showing those who heard and read the story in English remembered negative information better than neutral or positive information, whereas those who heard and read the story in Spanish were more likely to remember negative and positive than neutral information. These findings help provide some clarity to the controversy that has surrounded emotional memory in bilinguals by investigating English-Spanish bilinguals specifically. Although Anooshian and Hertel (1994) state that one's primary language has stronger connections to emotions (bilinguals in their study recalled emotional words better than neutral ones in L1 while they recalled emotional and neutral words equally in L2), my results call this finding into question. Instead, more consistent with the results reported by Ayçiçeği and Harris (2001), I found that bilinguals better recalled emotional information (both positive and negative) in L2, whereas they were more likely to remember negative emotional information than positive in L1. These findings expand on previous research that examined how emotion impacts bilingual memory and can help advance our understanding of how language is mapped in the brain. Specifically, my results suggest that L1 and L2 are not mapped directly onto each other during early language acquisition (Alvarez, Holcomb, & Grainger, 2003; Illes et al., 1999) because L1 and L2 seemed to have unique connections to emotional centers in the brain in my study.

While the emotionality effect has important implications for the study of language acquisition and emotion, there are some limitations to my study. First, there is a question of whether or not my participants were adequately proficient to be considered bilingual. Although all participants included in the data analysis passed the proficiency test, many seemed to struggle to follow directions in Spanish. This lack of true bilingualism makes it difficult to generalize the results of my study to individuals who are more fluent English/Spanish speakers.

Additionally, the story elements that were chosen from the original story to be used in this study were highly relevant to college aged individuals. Ellis and Moore (1999) found that mood congruency effects are more likely to emerge when the material is self-referential, so my study design should have elicited mood congruency effects. However, the participants were already able to relate the details to personal memories perhaps making the mood relevancy less important (Bower et al., 1981). Furthermore, I did not draw participants' attention to their mood or to the emotional valence of the story elements. Ellis and Moore (1991) indicated that knowing one's mood matches the material enhances the effects of mood congruency, suggesting that perhaps making it clear that the information could be emotionally categorized and was related to mood would have enhanced mood congruency in my research design.

Lastly, the majority of my participants were female. Though gender was distributed evenly across all the conditions making it unlikely that gender drove my current findings, the emotionality effects could be gender specific. Thus, it is necessary to replicate these findings in samples with more male representation to ensure that these effects are actually indicative of language acquisition in general and are not merely a reflection of how women process emotional information in a secondary language.

In summary, although no mood congruency effects emerged in my study, the emotionality effect I found provides important contributions to the understanding of emotional memory in bilingual individuals. Though past research provides mixed findings on how emotion can impact memory in primary and secondary languages (Anooshian & Hertel, 1994; Ayçiçeği & Harris, 2004), my results are consistent with the idea that, as proficiency in a second language increases, its representations in the brain gradually overlap with first language representations. However, my findings suggest that these language stores maintain separate connections to emotional structures, leading to different emotional memory effects in the two languages.

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Appendix A

PAUL SMITH STORY

Paul Smith had been seeing a psychiatrist for several sessions now. They had been making some progress together, but Paul's ambivalence in certain areas of his experience still remained prominent. The psychiatrist had suggested hypnotic age regression sessions as a possible therapeutic modality for him, so Paul had agreed.

The first trance experience uncovered adolescent years. In this trance, Paul recalled the happiness which enveloped him when he was blissfully with his first girlfriend; he also sadly remembered her family moving to another town. He re-experienced the elation in scoring high on his SAT test, and the fantastic joy of being accepted in college. Other memories included the sadness of departing from his high school friend, and his sorrowful attendance at his grandmother's funeral. These experiences were interspersed with others that included a jubilant back-packing outing in the mountains, a fun-filled beer party with his close friends, and a despair filled evening that resulted from a sorrowful rejection by a steady date. After several hours, the trance session was terminated and Paul left with a mixture of feelings.

He arrived somewhat depressed for the next session, but reported he had been generally happy during the week. After brief casual conversation, an age regression trance was once again utilized. The memories recalled in this session involved Paul's early teenage years. He remembered the elation in receiving his first iPod as a gift and the high he felt in going to his first rock concert. He also recalled the despondency experienced in hearing rumors of the breakup of his favorite band, and the despair of not obtaining tickets to Lollapalooza. Other memories quickly flashed through his awareness: the delight of meeting an old friend, the jubilation of a last-second victory in a football game, and the hilarious performance of a stage comedian in a night club. The thoughts continued at a quick but natural rate: the flunking of an important final exam; the grief in his best friend's voice when he informed Paul of his rejection by college admissions committees; the remorsefulness after losing some money his parents had sent him; and the overwhelming sorrow in hearing his mother had developed cancer. Paul experienced himself as a passive but involved observer to these fleeting incidents. However, as the session ended, he knew a shift inside of him had occurred. He walked out of the office in deep internal processes.

When Paul returned to the office several days later, he was in the same state as when he left the last session. They discussed the various outcomes of the age regression sessions, and decided that the therapeutic investigation would continue, but no longer using hypnosis.

PABLO SÁNCHEZ STORY

Pablo Sánchez ha estado yendo al psiquiatra durante algunas sesiones ahora. Habían progresado pero la ambivalencia de pablo en algunas áreas de su experiencia han sido prominente. El psiquiatra le recomendó unas sesiones de hipnosis como una modalidad de terapia posible a las que Pablo accedió.

La primera experiencia de trance reveló sus años adolescentes. En este trance, Pablo recordó la felicidad que le envolvió cuando estaba con su novia primera; también tristemente recordó cuando la familia de ella se mudó al otro pueblo. Él experimentó de nuevo la elación por haber conseguido una puntuación alta de la SAT, y la fantástica alegría de ser aceptado a la universidad. Otras memorias incluyeron la tristeza de despedirse de su amigo de escuela secundaria, y su asistencia triste al funeral de su abuela. Estas experiencias se entremezclaban con otras como ir de viaje jubilosamente con mochila a las montañas, una fiesta de cerveza con sus mejores amigos, y la tarde desesperada producto del rechazo de su novia. Tras unas horas, el trance terminó y Pablo salió con sentimientos contrarios.

Él llegó algo deprimido a la sesión próxima, pero reportó que había estado feliz generalmente la semana pasada. Después de una conversación breve y casual, empezaron la hipnosis de nuevo. Las memorias recordadas en esta sesión captaban los años antes de juventud. Él recordó su exaltación al recibir un iPod como regalo y al asistir a su primer concierto de rock. También recordó el desánimo que había experimentado cuando escuchó rumores de separación de su grupo musical favorito y la desesperanza cuando no obtenía billetes a Lollapalooza. Otras memorias albergaban su mente: la felicidad de encontrarse con su amigo de la niñez, la alegría de una victoria al minuto final en un partido de futbol americano, y un sketch satírico de un cómico en una barra. Los pensamientos seguían siendo rápidos pero naturales: el fracaso en un examen final; el dolor y tristeza en la voz de su amigo mejor cuando le dije del rechazo de una universidad por admisión; el remordimiento de perder su pensión; y la tristeza completa cuando descubrió que su madre fue diagnosticada con cáncer. Pablo se había experimentado a sí mismo como observante pasivo pero involucrado en los eventos de la memo-

ria. Sin embargo, cuando la sesión terminó, sabía que había ocurrido un cambio. Caminó a la oficina con pensamiento profundo.

Cuando Pablo regresó a la oficina unos días después, él estaba en el mismo estado como cuando salió la sesión previa. Ellos discutieron los resultados variados de las sesiones hipnóticas y decidieron que la terapia debe continuar pero sin el uso de hipnosis.

Appendix B

NEUTRAL ENGLISH RECALLS: 1 OR 0

- seeing **psychiatrist***
- **hypnosis** or **age regression**
- session focused on **adolescent years**
- **multiple experiences** or **interspersed**
- first session **several hours**
- **mixture of feelings** after first session
- **two** age regression **sessions**
- session focused on **teenage years**
- **multiple memories** or **flashed quickly**
- **thoughts continued** or at **quick but natural** rate
- **shift inside** at end of session 2
- **deep thoughts** at end of session 2
- **session 3** or several days later
- **same state when returned** third time
- discussed **outcomes**
- decided **not** to do any more **hypnosis**

POSITIVE ENGLISH RECALLS: 1 OR 0

- first **girlfriend**
- good **SAT**
- accepted in **college**

- **back-packing** in the mountains
- **party** with friends
- **happy between session 1 and 2**
- first **iPod** as a gift
- first rock **concert**
- seeing an old **friend**
- victory in a **football game**
- **comedian** in a night club
- **same state when returned** third time

NEGATIVE ENGLISH RECALLS: 1 OR 0

- girlfriend **moving**
- **departing from** his high school **friend**
- grandmother's **funeral**
- **rejection** by a steady date
- **depressed at beginning of session 2**
- **breakup** of his favorite **band**
- **no tickets** to Lollapalooza
- the **flunking** of an important final exam
- friend's **rejection** from **college**
- **losing** some **money** his parents had sent him
- mother's **cancer**
- **same state when returned** third time

NEUTRAL SPANISH RECALLS: 1 OR 0

- Hablando con **psiquiatra**
- **Hipnosis**
- Enfocado en los **años adolescentes**
- **Experiencias variadas**
- Primera sesión **dura unas horas**

- salió con **sentimientos contrarios**
- **dos sesiones** de hipnosis
- sesión 2 enfocado en **los años antes de juventud**
- **memorias múltiples** o **albergaban la mente**
- Los **pensamientos seguían** siendo **rápidos pero naturales**
- Había ocurrido un **cambio**
- **Pensamientos profundos** al final de sesión 2
- **Sesión 3** o días después
- **Mismo estado cuando regresó** la tercera vez
- discutieron los **resultados**
- decidieron que la hipnosis debe para

POSITIVE SPANISH RECALLS: 1 OR 0

- **novia** primera
- **SAT** buena
- ser aceptado a la **universidad**
- **ir de viaje** a las montañas
- **fiesta** con sus mejores amigos
- recibir un **iPod** como regaló
- **feliz entre sesión 1 y 2**
- primer **concierto** de rock
- encontrarse con su **amigo** de la niñez
- victoria en un **partido de fútbol americano**
- **cómico** en una barra
- **mismo estado cuando regreso** por la tercera vez

NEGATIVE SPANISH RECALLS: 1 OR 0

- novia **se mudó**
- **despedirse** de su **amigo** de escuela secundaria
- funeral de su abuela

- **rechazo** de su novia
- **deprimido al empieza de sesión 2**
- **separación** de su **grupo musical** favorito
- **no billetes** a Lollapalooza
- el **fracaso** en un examen final
- **rechazo** de amigo de una **universidad** por admisión
- **perder su pensión**
- madre tiene **cáncer**
- **mismo estado cuando regreso por la tercera vez**

* Bolded words are key words that are necessary to earn a point for each item