THE INFLUENCE OF CULTURAL SCHEMATA ON
RETRIEVAL-INDUCED FORGETTING AND FALSE MEMORY

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Abstract

An active organization of past experiences shared by an entire cultural group is known as cultural schemata (Bartlett, 1932; Garro, 2001). One may fail to recognize a culture-specific action, behaviour, or concept because it is not a part of the individual’s cultural schemata. For instance, extending one’s pinkie and index fingers upward is a gesture commonly used by rock stars. But, it also symbolizes one’s spouse having an affair in Mediterranean countries (Padmavat, 2013). Thus, cultural-context is important when eliciting meaning to individuals of varying cultures.

This study examined the ability to memorize culturally foreign concepts by investigating individuals’ susceptibility to retrieval-induced forgetting (RIF) and false recognition when presented with narratives containing foreign concepts. RIF is a mental phenomenon that occurs when a target memory is retrieved in the context of high levels of competition from related memories. The retrieval of the target memory suppresses related memories, making them more difficult to access (Anderson, Bjork, & Bjork, 1994). Narratives containing culturally familiar concepts were used as control stimuli. It was hypothesized that participants would experience greater RIF effects, greater false recognition rates, and worse overall memory for the culturally foreign narratives when compared to the culturally familiar narratives. The results of the study support this hypothesis. The study intended to create awareness for the necessity of cultural context in educational course material. With countries such as Canada having increasing rates of immigration, this issue becomes more relevant as more individuals are introduced to new cultural environments.

KEYWORDS: cultural schemata, cultural context, retrieval-induced forgetting, false recognition
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Dedication

I dedicate this thesis to my late grandfather. Your courageous ability to lead our family into a new and foreign country after times of war and famine is what drove me to pursue a topic that aims to aid immigrants adjust into their new environments. Your later struggle with dementia is what inspired me to incorporate the aspect of forgetting into this study. Thank you for always believing in me.
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The Influence of Cultural Schemata on Retrieval-Induced Forgetting and False Memory

Culture is an integral factor in defining an individual’s identity (MacDonald, 1991). For instance, the prototypical Japanese man most likely speaks Japanese and has a daily diet consisting of rice as his main dish. He works 12 hours a day and comes home to his elderly parents who live under his care; this is despite him being financially capable of sending them to a retirement facility. These aspects of the hypothetical man’s life are influenced by his culture. As of 2005, 47% of Japanese citizens over the age of 65 years live with their children (Population Statistics Japan, 2008). Southeast Asian countries tend to be more collectivistic than their North American and European counterparts, which have cultures emphasizing individualism (Darwish & Huber, 2003; Hofstede, 1981; Hsu, 1981, 1983, 1985; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). Individualistic cultures emphasize self-promotion, whereas collectivistic cultures emphasize interdependence and sharing of wealth (Darwish & Huber, 2003). Thus, culture influences an individual’s perception of the world, their behaviours, as well as their general knowledge about the history, traditions, beliefs, language, and norms of the society they live in. Cultures are distinct and aspects of one’s life such as the components of their daily diet may seem foreign and bizarre to someone from another culture. This is especially true if the culture-specific concept being discussed is not a part of the individual’s schema.

Schema

Schemata are the “semantic memories for commonly experienced aspects of life” (Radvansky, 2011, pp. 192). They act as a blueprint for events that an individual can draw upon to understand particular situations. Personal schemata are unique to individuals and are developed through personal experiences (Strauss & Quinn, 1997). The term schema has been used as early as the 20th century. For instance, Kant (1963) developed the theory that an individual’s experiences are gathered together in memory forming higher order concepts. Hudson (1990)
demonstrated how schemata stored in long-term memory could be used to integrate details from past experiences in order to remember a latter experience that is similar. He looked at preschool children’s ability to remember a creative movement workshop that was repeated four times. What Hudson found was that when the children were asked to recall the events of the fourth workshop, they mistakenly recalled details from the previous three workshops as having occurred in the fourth. Thus, schemata enable the ability to piece together information from experience in order to have a mental representation of the event or concept. Forgetting, leads to the reliance of one’s schemata as opposed to their memory to make sense of the world around them (Gilovich, 1981).

The present study looked at how cultural familiarity influences one’s ability to rely on their schemata once forgetting effects are induced.

**Cultural schemata.** Cultural schemata are the totality of knowledge that is related to one’s own culture. They are schemata shared by an entire cultural group (Garro, 2000), resulting from shared experiences. When a cultural environment provides experiences in which every individual of that culture is exposed, their experiences enable the group to acquire cultural schemata (Nishida, 1999). This allows the cultural group to think as if it was one mind (Malcolm & Sharifian, 2002). For instance, a knit cap is a cap that is worn for warmth in cold weather. Alternatively, Canadians refer to this item as a toque due to shared cultural experiences. An individual may not be able to comprehend a culturally unfamiliar situation if they are not equipped with the appropriate cultural schema (Malcolm, Sharifian, 2002).

The present study examined the influence of cultural schemata on the ability to memorize culturally influenced narratives. Prior knowledge can influence the recall of to-be-remembered material if the memorization of that particular material is error-prone or incomplete (Hemmer & Steyvers, 2009). It was theorized that culturally foreign literary narratives are inclusive of material whose memory is generally error-prone. The theory was tested in the study by
comparing one’s ability to memorize culturally foreign narratives with their ability to memorize narratives that were culturally familiar.

**Bartlett (1932).** Through the conceptual application of schema, one can assume that individuals are generally able to understand literary material due to their prior knowledge of concepts within the material. Bartlett (1932) used the term *schema* to explain what he described as prior knowledge. He indirectly studied how schemata influence memory by studying memory for meaningful material. As opposed to Ebbinghaus’ (1885) study of memory for meaningless, nonsensical syllables (i.e., consonant-vowel-consonant trigrams that have no meaning, such as PAB), Bartlett aimed to examine memory for information that his participants could semantically comprehend (i.e., meaningful material).

In his original experiment, Bartlett (1932) used the Native American folk tale “War of the Ghosts” as the meaningful material his participants were asked to study. In the story, two young men from an unknown, foreign region called Egulac went down to a river to hunt for seal. While they were there, the area became foggy and calm. After hearing distant war cries, five men arrived to the area via canoes. They asked the two young men to come fight with them in a war. One of the young men refused to go but the other young man ended up agreeing to go. Many individuals died during the fight, but the young man soon realized that the men he was fighting with were ghosts. Soon after this realization, he was shot by an arrow, which he did not feel. The group retreated back to Egulac to tend the young man’s ailment. Back home, the young man told the tale of how he fought with ghosts to his family. He stated that the ghosts said that an arrow had hit him, but he did not feel sick. However, once the sun rose, a black substance exited his mouth. His face was distorted and his family were startled, he was dead.

Bartlett’s (1932) participants, who were university students from Britain, were asked to recall the story several times, once shortly after the study and again at later intervals. The
intervals at which Bartlett requested them to recall this story varied widely, ranging from an hour to a month following the initial reading. He found that their ability to reproduce meaningful material was not perfect and diminished over time. When memory is tested over short intervals between tests, performance typically improves; this phenomenon is known as hypermnesia (Wheeler & Roediger, 1992). However, the magnitude of forgetting increases with increased time between recall tests (Ashcraft & Klein, 2009). Bartlett’s (1932) participants were unfamiliar with many concepts within the story, particularly ghosts. This provoked them to normalize and rationalize the events from the story. This tendency was stronger with each successive recall and over longer periods of time. For instance, one participant stated that the young man thought he saw ghosts as opposed to actually seeing them.

Participants also tended to combine elements from the original material together with their existing knowledge (i.e., schemata), a phenomenon known as reconstructive memory (Ashcraft & Klein). For instance, instead of using the term canoe to describe what was used to cross the river, many of the participants used the term boat, which they were more culturally familiar with. Prior knowledge and the expectations about an event strongly influence one’s proneness to reconstructive memory (Hemmer, 2011). The present study was similar to Bartlett’s (1932) study, but it not only examined the influence of cultural schemata on memory, but also on retrieval-induced forgetting (RIF) and false recognition.

**RIF**

RIF refers to the cognitive phenomenon in which the retrieval practice of a particular item in memory suppresses the ability to recall related, but non-practiced items (Anderson & Bell, 2001; Anderson, Bjork, & Bjork, 1994, 2000; Anderson & McCulloch, 1999; Anderson, 2003). Retrieval is the “recovery or utilization of stored information” (Tulving, 1989, pp. 263). According to Anderson et al. (1994), when one attempts to retrieve a target item from memory,
the memory of other related items compete with the target item during the retrieval process creating interference. Thus, inhibition of these related memories is necessary in order to control interference. Anderson (2003) suggested that forgetting is the result of an active inhibitory control mechanism that is designated to override mistaken retrieval of related but undesired information. Inhibition is the result of repeatedly retrieving related items. Repeated retrieval practice of an item causes the competing memory traces of related items to be inhibited (Bäuml & Kuhbander, 2003; Perfect et al., 2004; Williams & Zacks, 2001). Therefore, one would be less likely to retrieve related, unpractised items (Tulving & Hastie, 1972). The retrieval-induced inhibition of related but unpractised memories is known as the repeated practice effect (Anderson & Spellman, 1995). This effect can be reduced if one is able to integrate the information, thus reducing the number of competing memories and eliminating interference (Anderson & McCulloch, 1999). Since there is no interference, there is no need for inhibition of related memories. In contrast to the retrieval practice effect, if memory traces have sufficiently high relations, retrieval practice may actually enhance the retrieval of related, unpractised items from memory (Anderson, Green, & McCulloch, 2000; Bäuml & Hartinger, 2002; Chan, 2009; Chan, McDermott, & Roediger, 2006).

**Retrieval practice paradigm.** Anderson et al. (1994) developed the retrieval practice paradigm to demonstrate RIF. The paradigm consists of three phases: study, retrieval practice and test phase. In the study phase, participants are presented with CATEGORY-exemplar word pairs (e.g., FRUIT-banana, DRINKS-scotch) that they would need to recall later. In the retrieval practice phase, half of the exemplars from half of the categories are practiced using word stems. For example, a participant would say aloud ‘banana’ when presented with ‘FRUIT-ba _ _ _ _’. The retrieval practice phase is followed by a delay in which participants complete a distractor task. Similar to most forgetting effects, RIF effects are most significant over a short time delay.
CULTURAL SCHEMATA AND RETRIEVAL-INDUCED FORGETTING

(MacLeod & Macrae, 2001); thus, the need for a delay between the retrieval practice and testing phases. During the test phase, participants are presented with the categories presented in the study phase and asked to recall all of the exemplars presented during the study phase.

As expected, the Anderson et al. (1994) study resulted in practiced items from the practiced categories (e.g., FRUIT-banana, termed RP+ items) having better retrieval rates than the unpracticed items from the unpracticed categories (e.g., DRINKS-scotch, termed NRP or baseline items). This illustrated the positive effects of retrieval practice (Raaijmakers & Jakab, 2011) and is commonly known as the practice effect. More interestingly, unpracticed exemplars from the practiced categories (e.g., FRUIT-apple, termed RP-) had lower retrieval rates compared to the NRP items. This was a case of retrieval-induced inhibition. Due to the repeated practice effect, the retrieval of the RP+ items (e.g., FRUIT-banana) during the retrieval practice phase inhibited the retrieval of the related RP- items (e.g., FRUIT-apple) when compared to the baseline NRP items (e.g., DRINKS-scotch). The failure to retrieve information was not due to an absence of the information in one’s memory, but rather, a process of retrieval inhibition (Ashcraft & Klein, 2009).

**False memories**

False memories are memories that are mistakenly taken to be a veridical representation of an event from one’s past (Johnson, 2001). For instance, Loftus and Palmer (1974) examined their participants’ ability to recall the details of a videotaped car crash. Many of the participants later stated that they witnessed broken glass when there was none. Prior to being asked if there was broken glass, one group of participants were asked to estimate the speed of the cars when they hit each other. The other four groups were asked the same question, but the word hit was replaced with similar verbs (e.g., bumped, smashed). Participants who were prompted with more extreme verbs (e.g., smashed) had higher estimates of speed and were more likely to recall there being
broken glass. The reverse effect was true for participants presented with less extreme verbs (e.g., bumped). This study and Bartlett’s (1932) study demonstrated the effects of bias, which is one of Schacter’s (1999) sins of memory. Participants in Loftus and Palmer’s (1974) study were biased due to the leading question and their preconceived schemata of what a typical car crash entails. This integration of prior knowledge (i.e., schemata) with new information is another example of reconstructive memory.

**False recognition and the DRM paradigm.** The present study focused on false recognition, which is a form of false memory. False recognition occurs when one falsely recognizes a novel item as a part of the original list of learned items (Schacter & Dodson, 2002). The Deese-Roediger-McDermott (DRM) paradigm is known for generating false memories (Deese, 1959; Roediger & McDermott, 1995), presenting participants with strongly related items for study and later retrieval. The recognition version of this procedure consists of participants being presented with a mixture of old (i.e., studied) items, unrelated new items, and related new items (i.e., critical lures) during the testing phase (e.g., Salthouse & Siedlecki, 2007). For example, if death, breakups, and family reunions are the studied items, a potential critical lure is tragic events. Participants are asked to identify the items as old or new. The percentage of old items that are correctly identified as old is known as hit rates (HRs). The percentage of new items that are incorrectly identified as old was known is, false alarms to new items (FANs). Lastly, the percentage of related new items that are incorrectly identified as old is known as false alarms to critical lures (FACLs). FANs and FACLs are measures of false recognition.

**Summary and Purpose**

This study examined the influence of cultural schemata on RIF and false recognition by using variants of both the retrieval practice and DRM paradigms (Anderson et al., 1994; Deese, 1959; Roediger & McDermott, 1995). The study was a comparison between participants who
were born in Canada, those who immigrated to Canada from countries outside of China, and immigrants who immigrated to Canada from China. Inspired by Bartlett’s (1932) study, participants read narratives from a foreign culture as well as narratives from their own culture. It was hypothesized that participants would have better overall memory and experience less forgetting effects for the culturally familiar narratives compared to the narratives that were culturally foreign to them. The reasoning behind this was that it was expected that participants would utilize their pre-existing cultural schema in order to better remember the narratives from their respective cultures. In addition, it was anticipated that participants would experience less RIF in regards to material that was more culturally familiar because cognitive integration of this material would be easier. They would not have the ability to do this with the narratives that were culturally foreign to them because a group’s shared cultural schemata does not span beyond their own culture.

The present study is different from Bartlett’s (1932) study because it investigated participants’ ability to memorize culturally foreign narratives and compared this to their memory of narratives containing culturally familiar themes. The participants’ ability to remember details from the culturally familiar narratives acted as a baseline. Another difference between this study and Bartlett’s study was that his study simply asked his participants to freely recall the culturally foreign narrative after a period of time whereas, this study incorporated tests that were specifically intended to measure RIF and false recognition. Thus, in addition to examining the influence of cultural schemata on memorization of literary material, this study also examined influence of cultural schemata on forgetting effects. Lastly, this study looked at individuals with varying cultural backgrounds as opposed to simply looking at individuals from the same cultural background. This provided a comparison of not only the within-subjects factor of cultural narrative set but also a between-subjects factor of cultural background.
The study had the intention of illustrating the importance of cultural context on learning new literary material and storing the information in memory. The Cultural Schema Theory (Nishida, 1999) states that one uses familiar and previously acquired knowledge when entering a familiar situation in their culture. Thus, when entering a new situation or learning new material that is of a foreign culture, there is no such familiar knowledge (i.e., Schema) to rely on. Immigrants and foreign exchange students often experience this cognitive hindrance when learning culture-specific material in their new environment. Therefore, if cultural schemata influence one’s ability to remember literary material, applying cultural context in educational course material with respect to the cultures of large immigrant groups should help these individuals adjust in new educational and cultural environments.

**Hypotheses:**

1) Consistent with the idea that participants should have better overall memory and experience less forgetting effects for the narratives that they are more culturally familiar with, it was expected that the Canadian group would have less RIF, lower rates of false recognition and better overall memory for the Canadian cultural narrative set compared to the Chinese cultural narrative set.

2) It was also expected that the immigrant group would have less RIF, lower rates of false recognition and better overall memory for the Canadian cultural narrative set compared to the Chinese cultural narrative set. This was based off of the assumption that these individuals would have some knowledge of Canadian culture after living in the country for a limited period of time and no knowledge of Chinese culture as a result of never living in the country for any period of time. Participants were asked prior to the start of the study whether or not they had visited or lived in China.
3) The Canadian group was expected to have better performances on the memory tests for the Canadian narratives compared to the immigrant group. This was based on the assumption that participants from the Canadian group had greater amounts of exposure to Canadian culture and started at a younger age than participants from the immigrant group. A study conducted by Cheung, Chudek, and Heine (2010) suggested that the age at which an individual is introduced to a culture has a great impact on how familiar they are with the culture. Thus it was predicted that the Canadian group would have less RI, lower rates of false recognition and better overall memory for the Canadian cultural narrative set compared to the immigrant group.

4) It was expected that the Chinese group would have less RI, lower rates of false recognition and better overall memory for the Chinese cultural narrative set compared to the Canadian cultural narrative set. This was based on the assumption that they had greater familiarity with the culture of their homeland in which they were exposed to for a longer period of time compared to Canadian culture, which for many of them, must still feel like a novel one.

Method

Participants

Participants were recruited through the University of Regina Psychology Department Participant Pool. In an effort to gather more Chinese born participants, some were recruited from the broader university community through flyers, web-based, and other media advertisements (see Appendix B). Students who are recruited through the Participant Pool received a course credit for their participation. Those who were recruited outside of the Participant Pool were offered $5 as compensation for their participation. Participants were provided with a consent
form and a demographic information form to complete before participating in the study (see Appendix C and Appendix D).

Participants were categorized under two cultural groups. The first group was the Canadian group \((n = 93)\), which consisted of those born in Canada and those who immigrated to Canada at the age of 10 years or younger. The second group, which will be identified as the immigrant group \((n = 28)\), consisted of those who immigrated to Canada after the age of 10 years but excluded any who were born in China. A third group \((n = 7)\), which consisted exclusively of Chinese born participants who immigrated to Canada after the age of 10 were not included in the analysis of the results due to a low sample size.

The age chosen to divide immigrant participants was chosen arbitrarily prior to the collection of data. Participants who immigrated at a younger age had most likely been assimilated to and aware of modern Canadian culture and its traditions. According to Cheung et al. (2010), the longer a person is exposed to a culture, the better they identify it, but only if the exposure begins at an early age. The current study assumed that the optimal age to begin acculturation of a novel culture occurs prior to the age of 11 years, although it is undetermined if any formal research on this issue has been completed prior to the study. Chinese born participants who immigrated to Canada at the age of 10 years or younger were excluded from the study. Those who were born in Canada and of Chinese ethnicity were also excluded from the study. These individuals were excluded because they met the criteria for more than one cultural group. Thus, their inclusion would have required their data to be included into multiple cultural groups, which would have nullified their results and created complications in regards to being a part of multiple groups.
Materials

Culturally influenced narratives. Four culturally influenced narratives were used to test the participants’ susceptibility to RIF and false recognition as well as their overall ability to memorize details from culturally influenced literature. Two of the narratives were influenced by Canadian culture and the other two influenced by Chinese culture. To prevent associative interference between narratives, each narrative contained unique topics. Each narrative was around the same word length with the shortest being 749 words and the longest 886 words. All of them were presented to participants in English. One of the Canadian narratives was entitled, *The Legacy of Terry Fox’s Dream* (CBC News, 2010). It was a biography regarding the iconic Canadian figure, Terry Fox, as well as the progression of the Terry Fox Run, which is an annual fundraiser for cancer research. The other Canadian influenced story was entitled, *Hockey and Family: A Personal Reflection* (Ferguson, 1999). This was a fictional narrative about a hockey mother who struggles to find her place among the other hockey parents when her son switches teams.

The Chinese narratives consisted of one that was a compilation of details about the Chinese holiday known as the Qingming Festival, also known as the Tomb-Sweeping Festival (New China, 2016; Sasha, 2017) and the other a folktale called *The Cowherd and the Weaving Maid* (Ma & Ma, 1980). Similar to Mexico’s Day of the Dead, the Qingming Festival is a holiday in which residents of China pay respects to the dead. Families visit the graves of their relatives and traditionally burn what is known as joss money in order to allow the deceased to continue living in a comfortable existence in the afterlife. The holiday is inspired by the folktale of Chong’er, an ancient prince of the Jin Empire. The story of the Cowherd and the Weaving Maid is about the celestial maid of a goddess who falls in love with a mortal cowherd. It is a folktale...
that inspired another Chinese holiday known as the Festival of the Seventh Evening. The four narratives are presented in Appendix E.

**Word-stem cued concept retrieval task.** A word-stem cued concept retrieval task was created to test for RIF as well as the participants’ overall ability to remember concepts from each story. In the task, participants were asked to retrieve a total of 40 concepts from the narratives, 10 concepts from each narrative. These concepts were cued by word-stems, which were presented in the sentence that they were taken from. For instance, if the sentence in the narrative was, Steve lived in Winnipeg, the concept Winnipeg would be presented as, Steve lived in W____p____, in the retrieval task. Most concepts were cued with two letters. However, concepts that were either main characters or fundamental to the theme of the story such as the word hockey were cued with one letter. The complete word-stem cued concept retrieval task is presented in Appendix F.

**True or false task.** A *true or false* formatted test was used to measure the participants’ ability to recognize details from the stories as well as their susceptibility to falsely recognize novel details that were not a part of the stories. The test consisted of 12 true statements and 20 false statements, six true statements and 10 false statements for each cultural narrative set (i.e., Canadian and Chinese). The task was intended to be an alternative to the DRM paradigm (Deese, 1959; Roediger & McDermott, 1995) in that the true statements were analogous to the old items from the paradigm and false statements analogous to the new items, which also acted as critical lures. All of the false statements acted as critical lures since they were relevant to their respective narratives and were intended to lure the participants into falsely believing that they were true. The false statements could be characterized in one of two ways: they could be slight alterations of true statements (e.g., if the character played left wing, an alteration would be stating that he played right wing) or they could be completely novel statements (e.g., stating that the Weaving Maid spent her days cleaning when this information was not provided in the story). True
statements were details directly taken from the narratives. The complete true or false task is presented in Appendix G.

**Procedure**

The experiment conducted for the study was designed to have a similar procedure to that of the retrieval practice paradigm (Anderson et al., 1994). Similar to the paradigm, the experiment consisted of a study, retrieval practice, distractor task and testing phase. However, the testing phase not only contained a task testing for RIF but also one testing for false recognition (i.e., true or false task). For the purpose of conserving time spent conducting the experiments, each experiment was conducted with two participants at a time. Each participant sat on opposing ends of a table that had a cardboard barrier placed in the middle, which isolated them from each other. The experiments were conducted in two blocks. In each block, participants would complete the requirements for two of the four narratives. In order to prevent interference between narratives of the same cultural influence, participants were tested on one Canadian influenced and one Chinese influenced narrative per block. They were randomly assigned a number combination prior to the experiment that indicated which narratives they would complete in each block. This was done in order to account for ordering effects with respect to the narratives. For instance, if the participant had the combination, 1342, they would complete the first and third narratives in the first block and the fourth and second narratives in the second block. Narratives one and two represented the Canadian influenced narratives and narratives three and four represented the Chinese influenced narratives. Paired participants had no bearing on their partner’s order of narratives completed.

Participants began each block by reading the two narratives assigned to that block. They were given 10 minutes to read both narratives. Participants were asked to read the to-be-practiced narrative first in order to maintain consistency among participants. They were then given 30
seconds to practice retrieving half of the to-be-retrieved concepts from one of the two narratives (i.e., five of the 10 to-be-retrieved concepts from that narrative). The concepts were presented to them on flashcards with the word-stem cued sentences (i.e., similar to how it was presented in the word-stem cued concept retrieval task) on one side and the fully spelled concept on the other. Participants were asked to first look at the word-stem cued sentence, then attempt to recall the concept and lastly, look at the fully spelled answer after. This ensured that they were practicing the retrieval of the concepts from memory as opposed to directly studying the answers. The repeated practice effect occurs only if memory retrieval is actually implemented (Saunders, Fernandes, & Kosnes, 2009); simply presenting the information is insufficient for inducing the inhibition of unpractised concepts (Ciranni & Shimamura, 1999).

Along with the previously mentioned number combinations, participants were also assigned a random letter combination that indicated which concepts from the two practiced narratives would be practiced. As shown in Appendix F, which contains the word-stem cued concept retrieval task, each concept has an assigned letter. The number combination assigned to the participants also indicated which of the two narratives was to be practiced in each respective block. The first and third number in the combination indicated the to-be-practiced narratives. For instance, if the participant were assigned the combination 1342, the participant would practice concepts from the first narrative in the first block and practice concepts from the fourth narrative in the second block. If participants were assigned to practice a Canadian influenced narrative in the first block, they would have been assigned to practice a Chinese influenced narrative in the second and vice versa.

Next, the participants were given 5 minutes to complete a distractor task. The task consisted of 2 x 3 digit multiplication problems and is presented in Appendix H. Participants were then given 3 minutes to complete the word-stem cued concept retrieval task. For each block,
they were only given the word-stem cued sentences that were from the two narratives read in that respective block. Finally, the participants were given 90 seconds to complete the true or false task. Again, they were only given the true or false statements that were concerning the two narratives read in that respective block. The times given for each of the experimental phases were predetermined through piloted testing of the experiment.

**Measures**

**RIF.** The magnitude of the RIF for each cultural narrative set was measured by comparing the retrieval rate of the non-practiced concepts from the practiced narrative (i.e., RP-concepts) with the non-practiced concepts from the non-practiced narrative (i.e., NRP concepts). According to Anderson et al., (2014) the retrieval practice of the concepts that were presented on the flash cards (i.e., RP+ concepts) should suppress the ability to recall the non-practiced concepts from the same story. For instance, suppose the participant studies concepts from the hockey themed narrative. Then, the magnitude of the RIF for the Canadian narratives was measured by comparing the retrieval rate of the non-practiced concepts from the hockey narrative to the retrieval rate of the concepts from the Terry Fox narrative, all of which were practiced. The retrieval rate of the RP-concepts was calculated out of 5 and the retrieval rate of the NRP concepts was calculated out of 10.

**False recognition.** The rates of false recognition were represented by the percentage of false statements from the true or false task that was incorrectly identified as true (i.e., FACLs). For example, if the participant stated that four out of the 10 false statements pertaining to narratives from the Chinese cultural narrative set were true, then their rate of false recognition for that cultural narrative set would be 40%. The rates of false recognition for each cultural narrative set were calculated out of 10. Each cultural narrative set had a greater number of false statements
compared to true statements in the true or false task because it increased the likelihood that participants from all cultural groups would elicit false recognition.

**Overall performance.** The participants’ overall ability to memorize details from the cultural narrative sets was measured in two ways. One was the percentage of the total number of correctly retrieved concepts from the word-stem cued concept retrieval task (i.e., all of the RP+, RP- and NRP concepts that were correctly retrieved). Since each narrative has 10 to-be-remembered concepts, the rate for each cultural narrative set was calculated out of 20. The other measure was the rate of statements in the true or false task that were correctly identified as either true or false. This was calculated out of 12 since each cultural narrative set had a total of 12 statements in the true or false task.

**Results**

A 2 (participant cultural background: Canadian vs. general immigrant excluding Chinese) by 2 (stimulus set: RP-, NRP) by 2 (cultural narrative set: Canadian vs. Chinese narratives) factorial mixed model analysis of variance (ANOVA) was employed to determine, if any of the factors had a main effect, if there was an interaction between the factors, and to create a foundation for further hypotheses testing. The factorial design matrix is outlined in Table 1. The dependent measure was the rate of retrieval from the word-stem cued retrieval task. It was demonstrated that there was a statistically significant within-subject main effect for cultural narrative set, $F(1, 120) = 114.64, p < 0.05$, no statistically significant within-subject main effect for stimulus set, $F(1, 120) = 1.92, p > 0.05$, and a statistically significant between-subject main effect for cultural background, $F(1, 120) = 48.18, p < 0.05$. There was a statistically significant interaction of cultural background by cultural narrative set, $F(1, 120) = 13.59, p < 0.05$, and a statistically significant interaction of cultural background by cultural narrative set by stimulus set, $F(1, 120) = 6.839, p < 0.05$. The interaction of cultural background by cultural narrative set as
well as their main effect on the retrieval task scores is illustrated in Figure 1. No statistically significant interaction was discovered for cultural background by stimulus set, $F(1, 120) = 0.02$, $p > 0.05$. 
Table 1

*Outline of the 2x2x2 factorial ANOVA design*

<table>
<thead>
<tr>
<th>Stimulus Set</th>
<th>Cultural Narrative Set</th>
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<tbody>
<tr>
<td></td>
<td>Cultural Narrative Set</td>
</tr>
<tr>
<td></td>
<td>Canadian</td>
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<td>Chinese</td>
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<tr>
<td>RP-</td>
<td>Canadian Immigrant</td>
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<td></td>
<td>Canadian Immigrant</td>
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<tr>
<td>NP</td>
<td>Canadian Immigrant</td>
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<tr>
<td></td>
<td>Chinese Immigrant</td>
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</tbody>
</table>

*Note.* Cultural narrative set and stimulus set were the within-subject factors and cultural group was the between-subject factor.
Figure 1: The mean percentage values with 95% confidence intervals for the number of concepts retrieved within each cultural group during the word-stem cued concept retrieval task.
According to the first and second hypotheses with respect to RIF, subjects should have greater RIF effects for the Chinese cultural narrative set compared to its Canadian counterpart. Paired-samples t-tests were used to compare RP-performance with NP performance within cultural groups and between cultural narrative sets. The participants’ performance in terms of RIF on the Canadian narrative set will be discussed first. The mean score for RP-performance within the Canadian group was \( M = 0.87 \) (\( SD = 0.17 \)). The mean score for NP performance within the same group was \( M = 0.82 \) (\( SD = 0.20 \)). There was no statistically significant difference between the means, \( t(92) = 1.95, p > 0.05 \). The mean score for RP-performance within the immigrant group was \( M = 0.47 \) (\( SD = 0.35 \)); the mean score for NP performance within the same group was \( M = 0.51 \) (\( SD = 0.51 \)). There was no statistically significant difference between the means, \( t(28) = 0.76, p > 0.05 \).

Next, the participants’ performances on the Chinese narrative set will be discussed. The mean score for RP-performance within the Canadian group was \( M = 0.48 \) (\( SD = 0.28 \)); the mean score for NP performance within the same group was \( M = 0.58 \) (\( SD = 0.25 \)). There was a statistically significant difference between the means, \( t(93) = 3.92, p < 0.05 \). Thus, the Canadian group experienced RIF when recalling concepts from the Chinese narrative set. The Canadian group’s experience of RIF for the Chinese cultural narrative set as well as the absence of RIF effects for the Canadian cultural set is illustrated in Figure 2. The mean score for RP-performance within the immigrant group was \( M = 0.33 \) (\( SD = 0.30 \)); the mean score for NP performance within the same group was \( M = 0.34 \) (\( SD = 0.24 \)). There was not a statistically significant difference between the means, \( t(28) = 0.08, p > 0.05 \).
Figure 2: The mean percentage of correctly retrieved concepts with 95% confidence intervals for the Canadian group with respect to stimulus set.
According to the first and second hypotheses with respect to false recognition, subjects should have higher rates of false recognition for the Chinese narrative set than the Canadian narrative set. Paired sample t-tests were conducted to determine if each cultural group had a statistically significant difference in false recognition rates between the cultural narrative sets. The results of the Canadian group will be discussed first. The mean for the percentage of false recognitions within the Canadian narrative set was $M = 0.19$ ($SD = 0.14$); the mean for the Chinese narrative set was $M = 0.52$ ($SD = 0.15$). There was a statistically significant difference between the means, $t(93) = 16.79, p < 0.05$. In terms of how the immigrant group performed, the mean for the Canadian narrative set was $M = 0.43$ ($SD = 0.19$); the mean for the Chinese narrative set was $M = 0.56$ ($SD = 0.04$). There was a statistically significant difference between the means, $t(28) = 2.37, p < 0.05$. The false recognition rates for both groups with respect to the cultural narrative sets are illustrated in Figure 3.
Figure 3: Mean false recognition percentages with 95% confidence intervals for both cultural groups.
According to the first and second hypotheses, with respect to overall performance, the participants should have better overall performance for the Canadian narrative set compared to the Chinese narrative set. For the Canadian group, the mean for the percentage of correctly recalled Canadian word-stem cued terms was $M = 0.87$ ($SD = 0.12$); the mean for the percentage of correctly recalled Chinese word-stem cued terms was $M = 0.63$ ($SD = 0.20$). There was a statistically significant difference between the means, $t(92) = 12.64, p < 0.05$. The mean percentage for the true or false test of the Canadian narrative set was $M = 0.82$ ($SD = 0.12$); the mean percentage for the Chinese narrative set was $M = 0.60$ ($SD = 0.14$). There was a statistically significant difference between the means, $t(92) = 12.51, p < 0.05$. For the immigrant group, the mean for the percentage of correctly recalled Canadian word-stem cued terms was $M = 0.58$ ($SD = 0.24$); the mean for the Chinese word-stem cued terms was $M = 0.47$ ($SD = 0.21$). There was a statistically significant difference between the means, $t(28) = 4.30, p < 0.05$. In terms of overall performance on the true or false task, the mean for the Canadian narrative set was $M = 0.65$ ($SD = 0.15$); the mean for the Chinese narrative set was $M = 0.54$ ($SD = 0.17$). The difference between the means was statistically significant, $t(28) = 2.67, p < 0.05$. The cultural groups’ overall performance on the retrieval task as well as the true and false task is illustrated in Figure 4.
Figure 4: Mean percentage of concepts retrieved on the word-stem cued concept retrieval task and mean percentage of statements correctly identified on the true or false task with 95% confidence intervals.
The third hypothesis states that the Canadian group should perform better in all three categories (i.e., RIF effect, false recognition and overall performance) than the immigrant group with respect to the Canadian narrative set. As stated previously, neither group displayed statistically significant differences between RP- and NRP performance means with respect to the Canadian narrative set. There was a statistically significant difference between the means of the Canadian group, $M = 0.19 \ (SD = 0.14)$ and the immigrant group, $M = 0.43 \ (SD = 0.19)$ with respect to false recognition percentage, $t(121) = 7.36, p < 0.05$ (see Figure 3). There was also a statistically significant difference between the means of the Canadian group, $M = 0.87 \ (SD = 0.12)$ and the immigrant group, $M = 0.58 \ (SD = 0.24)$ with respect to the percentage of correctly recalled Canadian word-stem cued terms, $t(120) = 8.69, p < 0.05$. Lastly, there was a statistically significant difference between the means of the Canadian group, $M = 0.82 \ (SD = 0.12)$ and the immigrant group, $M = 0.65 \ (SD = 0.15)$ with respect to overall performance on the true or false task, $t(121) = 6.57, p < 0.05$ (see Figure 4).

**Discussion**

The mixed factorial ANOVA showed that cultural background and cultural narrative set had main effects on the participants’ performance on the retrieval task. This meant that there was a difference between the performances of the cultural groups and differences between how participants performed in general on the Canadian cultural narrative set compared to the Chinese narrative set. The difference in cultural group performance was expected because the Canadian group was culturally familiar with the Canadian narrative set whereas, the immigrant group was less culturally familiar with the Canadian narrative set. Therefore, the Canadian group would most likely do better on the Canadian narrative set than the immigrant group. In addition, since neither group were culturally familiar with the Chinese narratives, it was expected that both groups would do poorly when tested on that particular narrative set. In regards to the entire
sample’s performance between the two narrative sets, the difference between the performances on the narrative sets was also expected because both the Canadian and immigrant participants were assumed to have more cultural familiarity with the Canadian narrative set than the Chinese narrative set and thus, perform better on the Canadian narrative set.

There was no main effect for stimulus set since the mixed factorial ANOVA test used data from both cultural groups. RIF is dependent on the individual’s comprehension of the material. In order for inhibition of a target memory through the retrieval practice of related memories to occur, one must be aware of the relationship between the memories. In order for participants to be aware of the relationship, they needed to understand the meanings of the concepts that were to-be-retrieved. Without understanding, the relationship between the concepts would not have been present in the minds of these individuals. Through general observation of the participants, it was clear that many of the immigrant participants did not have a full grasp of the English language. It may not have been possible for many individuals in the immigrant group as well as immigrants who were included in the Canadian group to experience RIF due to their poor grasp of the English language. Thus, their performances would have skewed the results of the stimulus set analysis.

The findings showed that there was not a statistically significant interaction between cultural background and stimulus set. For the results to show an interaction between cultural background and stimulus set, the cultural groups had to differ in regards to whether or not they experienced RIF for each cultural narrative set. Neither cultural group experienced RIF for the Canadian narrative set. Thus, there was not a complete difference between the two groups with respect to stimulus set and no interaction between cultural background and stimulus set. The existence of a statistically significant interaction between cultural background and cultural narrative set was not surprising. This is because it was predicted that the Canadian group would
have higher rates of retrieval for the Canadian narrative set compared to the immigrant group. The presence of an interaction between all three variables (i.e., cultural background by cultural narrative set by stimulus set) meant that there must have been specific statistically significant interactions between the levels of these variables.

The results confirmed the first hypothesis, which stated that the Canadian group would have less RIF, lower rates of false recognition, and better overall memory for the Canadian narrative set compared to the Chinese narrative set. The conclusion that the Canadian group had better overall memory for the Canadian narrative set compared to the Chinese narrative set was made because they had higher rates of concept retrieval on the word-stem cued concept retrieval task and more correctly identified true or false statements from the true or false task for the Canadian narrative set compared to the Chinese narrative set. Since the group only had RIF for the Chinese narrative set, the claim that they had more RIF for that set compared to the Canadian narrative set could be made. Due to their strong cultural familiarity with Canadian culture, the Canadian group was able to overcome retrieval inhibition of the RP-concepts from the Canadian narrative set. Conversely, due to their lack of cultural familiarity with Chinese culture, they were unable to overcome such forgetting effects when asked to retrieve the RP-concepts from the Chinese narrative set. Since the group was more culturally familiar with the Canadian narratives, they were better able to integrate the material. This was a modification of the retrieval practice effect in that through integration, the effect was reduced or even eliminated. Another potential explanation is that the Canadian group was able to rely on their cultural schemata in order to overcome forgetting effects induced by retrieval practice.

The findings only partially confirmed the second hypothesis. As predicted, the immigrant group had better overall memory for the Canadian narrative set compared to the Chinese narrative set. They had higher rates of concept retrieval on the word-stem cued concept retrieval
task and more statements correctly identified on the true or false task for the Canadian narrative set compared to the Chinese narrative set. The group also had lower rates of false recognition for the Canadian narrative set compared to the Chinese narrative set. However, the results comparing RIF between the two cultural narrative sets for this group were statistically insignificant. This could be due to two reasons: RIF for these individuals may not have been possible due to their generally poor comprehension of the English language, or the sample size for the group was not high enough to reach the required statistical power. The group had lower rates of retrieval for the RP- concepts compared to the NRP concepts within both cultural narrative sets. However the $p$ value in the analyzed paired samples t-test for the Canadian narrative set, $p = 0.45$, and the $p$ value for Chinese narrative set, $p = 0.94$ were not close to approaching statistical significance. Thus, a conclusion regarding why statistical significance was not reached cannot be made until more data is gathered for the group.

It was confirmed that the Canadian group had lower rates of false recognition and better overall memory than the immigrant group with respect to the Canadian narrative set. The Canadian group had higher rates of concept retrieval on the word-stem cued concept retrieval task and more statements correctly identified on the true or false task than the immigrant group. However, since neither group had statistically significant results to indicate that they experienced RIF for the Canadian narrative set, it cannot be concluded that one group experienced greater RIF than the other with respect to that narrative set. Again, it was likely that the immigrant group did not experience RIF due to their lack of understanding of the English language.

Regarding the Chinese group, there was not a statistically significant difference between the means for the retrieval of the RP- concepts $M = 0.29$ ($SD = 0.32$) and the retrieval of the NRP concepts $M = 0.32$ ($SD = 0.13$) with respect to the Canadian narrative set, $t(6) = 0.29, p > 0.05$. There was also not a statistically significant difference between the means for the retrieval of the
RP-concepts $M = 0.49$ ($SD = 0.27$) and the retrieval of the NRP concepts $M = 0.44$ ($SD = 0.19$) with respect to the Chinese narrative set, $t(6) = 0.30, p > 0.05$. According to these results, the Chinese group did not experience RIF for either cultural narrative set. The difference between the means for the rates of false recognition with respect to the Canadian narrative set $M = 0.44$ ($SD = 0.21$) and the Chinese narrative set $M = 0.26$ ($SD = 0.18$) was not statistically significant, $t(6) = 1.03, p > 0.05$. The difference between the means for the number of concepts retrieved in the word-stem cued concept retrieval task with respect to the Canadian narrative set $M = 0.45$ ($SD = 0.14$) and the Chinese narrative set $M = 0.54$ ($SD = 0.11$) was not statistically significant, $t(6) = 1.82, p > 0.05$. The difference between the means for the statements that were correctly identified in the true or false task with respect to the Canadian narrative set $M = 0.60$ ($SD = 0.18$) and the Chinese narrative set $M = 0.69$ ($SD = 0.08$) was not statistically significant, $t(6) = 1.31, p > 0.05$.

It was abundantly clear that none of the results for the Chinese group were statistically significant because not enough statistical power was attained due to the small sample size. This means that the results are highly unreliable and should be viewed with a grain of salt. However, the results were trending towards supporting the fourth hypothesis which states that the group would do better overall and experience less forgetting effects for the Chinese narrative set compared to the Canadian. This was most likely due to the group having greater cultural familiarity with their native culture compared to the culture in which they currently live in. Should the results confirm the hypothesis after more Chinese participants are gathered in the future, it would strongly support the idea that cultural context should be incorporated into educational curriculums for those from foreign cultures.

The hypotheses were based on the main idea that participants would have better overall memory and experience less forgetting effects for the cultural narrative set that was more culturally familiar to them compared to the one that was less culturally familiar. This idea was
derived from the Cultural Schema Theory (Nishida, 1999). The findings of this study were consistent with the main idea. The Canadian group performed better when tested on the Canadian narrative set compared to when tested on the Chinese narrative set because they were less culturally familiar with the latter narrative set. The immigrant group had better overall performances when they were tested on the Canadian narrative set compared to when they were tested on the Chinese narrative set because their cultural schemata for Canadian culture were greater than their cultural schemata for Chinese culture. As stated by Cheung et al. (2010), exposure to an environment enhances one’s familiarity with its culture. Since these individuals were likely never exposed to Chinese culture, they had not developed Schemata for the culture. The Canadian group performed better than the immigrant group when tested on the Canadian narrative set because they generally had greater and more extensive exposure to Canadian culture. Hence, their cultural schemata as it pertains to Canadian culture were greater than that of the immigrant group.

**Limitations and future suggestions**

One limitation of the study was that not enough participants were gathered for the immigrant and Chinese groups. Chinese participants were difficult to gather because not many of them take courses in Psychology at the University of Regina. The study was initially intended to be a comparison between Canadian born and Chinese born participants. Thus, there was not an initial intention to search for immigrants that originated from countries outside of China. These individuals were included in the study because the Chinese group’s sample size was significantly smaller and were completely unreliable. In order to fully investigate the influence of cultural schemata on memory and forgetting effects, there needed to be at least two cultural groups for comparison. This ensured that they implications of the study would not be specific to one culture and could be generalized to all situations in which an individual is learning in a new cultural
environment. However, in order to ensure the complete reliability of the findings, more participants need to be gathered for both the immigrant and Chinese groups in the future.

Language comprehension was an uncontrolled extraneous variable, which created a limitation in the study. Participants whose primary language (i.e., the language one speaks in everyday situations) was not English were asked to rate their comprehension of the English language on a scale of one to five with one meaning no comprehension and five meaning understanding that is above average (see Appendix D). The average rating for these individuals was four, which meant that in general, these individual had a general understanding of the English language. The problem with the rating system was that it was a self-rating, which meant that it was dependent on honest replies and biases hindered its reliability. Many participants may have overestimated their ability to comprehend the English language. Also, even though it was assured to the participants that their eligibility to receive the agreed upon compensation (i.e., course credit or the amount of $5) was not dependent on their full completion of the experiment, many may have still believed that by stating their inability to fully comprehend the English language, they would have become ineligible to receive the compensation. Future studies should better control for language incomprehension. Control could be accomplished by comparing two cultures that have the same primary language. Also, the narratives could be presented in the native language of each cultural group. The latter suggestion would only allow for the comparison of cultural groups that are exclusive to one culture and not one that included various cultures (e.g., the immigrant group).

Another limitation was the inability to select narratives that were all influenced by modern culture. Typically, narratives that are culturally influenced relate to the history of that culture. For instance, the Terry Fox narrative was a biography of the iconic Canadian historical figure. Many Canadians may not have been aware of who Terry Fox was and the events of his
life. Also, it cannot be assumed that all Canadians who participated in the study had cultural schemata that included the sport of hockey. It was difficult to find narratives that encapsulated the entirety of modern Canadian and Chinese culture. Another problem was that Chinese culture is inherently dependent on mythology and the supernatural whereas, Canadian culture is not. For instance, the Weaving Maid narrative was about a maid who lived in outer space and served a mystical Goddess of the West. Thus, the fictional nature of these stories may have significantly influenced the results. Future studies on this topic should choose to compare cultures whose foundations are either both dependent on reality or both dependent on mythological beliefs.

**Implications and significance**

The results imply that cultural familiarity enhances one’s ability to memorize literary material as well as reduce their susceptibility to forgetting effects relative to cultural unfamiliarity. The initial theory that the memorization of culturally foreign literary material is error-prone relative to the memorization of material that is culturally familiar was supported by the findings. The participants were able to rely on their cultural schemata to retrieve information from the culturally familiar narratives that was inaccessible due to forgetting effects. They had no such cultural schemata to rely on for the culturally foreign narratives. Thus, they were unable to overcome the forgetting effects that were induced. The implications would suggest that immigrants struggle in their new educational environments because the material that is presented to them is not culturally familiar.

As previously stated, this study was created with the intention of advocating for the incorporation of cultural context into educational course material. Since the Canadian Confederation in 1867, over 17 million people have immigrated to Canada (Statistics Canada, 2016). In 2011, it was estimated that 20.6% of the Canadian population was foreign-born, the largest proportion since the 1931 Census (Statistics Canada, 2013). Since the 1990’s, Canada
receives an average of 235,000 immigrants per year (Statistics Canada, 2016). With the growing number of foreign-born students attending Canadian universities, creating custom courses that utilize these individuals’ cultures may be a great way to optimize their academic success. This study becomes more relevant with the worldwide increasing rates of immigration.

The cultures of immigrants can be used to aid their learning by presenting material within the context of their cultures. For instance, suppose a Nutrition course has many Chinese students. Foods specific to Chinese culture can be provided as examples for the food groups to aid their understanding of the groups. Chinese culture was chosen to compare with Canadian culture in the study because out of the 1,600 international students at the University of Regina, 490 are from China, making them the largest international group (Huck, 2017). 14% of the student body at the University of Regina consists of international students (Huck, 2017). In addition, due to the crisis in Syria, the Trudeau administration had planned to accommodate 40,000 Syrian refugees in 2017 (Tunney, 2017). All forms of cultural accommodation for these individuals arriving from the war-torn country should be a priority; this would include aiding their education at all levels, not just post-secondary.

However, evidence has suggested that students arriving to a new country at a young age adapt, learn the new language, and integrate into the society more successfully than their peers who arrive at an older age (Anisef, Brown, Phyhtian, Sweet, & Walters, 2010; Hospital for Sick Kids, 2005; PISA, 2012). Thus, the focus on cultural context incorporation should primarily be implemented in high schools and post-secondary education systems. Since it is impossible to accommodate for every potential culture of immigrants, integration of cultural context should focus on the cultures of countries whose immigration rates are high (e.g., Syrians, Chinese, and Indians). In regards to post-secondary education where students primarily focus on one field of study, specific cultures should be integrated into specific fields of study depending on the number
of immigrants from each culture who take that particular field of study. For instance, suppose that the number of Chinese immigrants in Canada that are taking biology post-secondary courses is disproportionate to the number of them taking courses in other fields of study. Then, Chinese culture should be incorporated into course material for biology courses.
References


doi:10.1080/1467598032000044647


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Hawaii Press.


Appendix A

Research Ethics Board Certificate of Approval

PRINCIPAL INVESTIGATOR
Dr. Tom Phenix

DEPARTMENT
Psychology

TITLE: The Effect of Cultural Background on Memory and Retrieval-Induced Forgetting

APPROVED ON: November 28, 2017

RENEWAL DATE: November 28, 2018

APPROVAL OF:
Application for Behavioural Research Ethics Review, Consent Form, Demographic Survey, Educational Debriefing Form, Stem Recall Test List.

Full Board Meeting [] Delegated Review [X]

The University of Regina Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol, consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: http://www.uregina.ca/research/for-faculty-staff/ethics-compliance/human/forms1/ethics-forms.html.

Laurie Clune, PhD
Chair, Research Ethics Board

Please send all correspondence to:
Research Office
University of Regina
Research and Innovation Centre 109
Regina, SK S4S 0A2
Telephone: (306) 585-4775 Fax: (306) 585-4893
research.ethics@uregina.ca
Appendix B

Recruitment Flyer (Targeting Chinese Participants)

CHINESE PARTICIPANTS NEEDED FOR PSYCHOLOGICAL STUDY

• Participants will receive $5 for their participation
• Participants MUST:
  o Be born in China
  o Immigrated to Canada after the age of 10 years
  o Be able to read and understand English
  o Be able to participate BEFORE March 16th, 2018
• The study will take less than 1 hour
• For more information or to schedule a time, please contact us at:
  o tinnie21@hotmail.com OR
  o 306-541-4749
Appendix C

Consent Form

**Participant Consent Form**

**Project Title:** The Effect of Cultural Background on Memory and Retrieval-Induced Forgetting

**Researcher(s):**
Tony Ta  
Undergraduate Student  
Department of Psychology  
University of Regina  
tinnie21@hotmail.com  
(306) 541-4749

**Supervisor:**
Dr. Tom Phenix, Ph.D.  
Research Associate, Associate Professor and  
Assistant Dean of Campion College  
Department of Psychology  
University of Regina  
tom.phenix@uregina.ca  
(306) 359-1220

**Purpose(s) and Objective(s) of the Research:**
- The purpose of this project is to investigate the influence of cultural background on recall rates and potential forgetting effects (specifically retrieval-induced forgetting) for culture-specific critical concepts within narratives.
- The data collected in the study will be used for an honours thesis paper as well as a year-end presentation.

**Procedures:**
- The experiment will take approximately 1 hour to complete.
- You will be assigned an ID number to ensure the confidentiality of your responses.
- You will be given a demographic form to complete which will ask you to provide background information about yourself such as your place of birth, gender, and date of immigration into North America (if applicable). All questions within this form are optional.
- You will then be given 10 minutes to read 2 short pieces of literature.
- Afterwards, you will be given 5 minutes to study critical concepts from one of the stories to which you will later be asked to recall.
- As stated, you will then be asked to recall critical concepts from each of the stories by completing what is known as a stem-test. Fragments of the words you must recall will be provided and you will be asked to complete the word fragmentation. You will be given 10 minutes to complete this recall phase.
- This process of reading, concept studying and concept recall will be completed twice (once for each of the 2 sets of 2 stories).
- You may discontinue the task or withdraw from the study at any time (you will still be given your course credit).
• Please feel free to ask the researcher any questions regarding the procedures and goals of the study or your role.

Potential Risks:
• There are no known or anticipated risks to you by participating in this research
• In the case of any negative reaction as a result of your participation, feel free to contact us at tinnie21@hotmail.com or (306) 541-4749.
• You will be debriefed on the study at the end of your participation period.

Potential Benefits:
• Your participation will assist in furthering the understanding of how culture and schema influence human memory and forgetting
• Results may help provide direction for how educational material is presented in academic institutions.

Compensation:
• Consistent with the Psychology Department Pool of Research Participants regulations, you will receive course credit for your participation
• Even if you choose to withdraw, you will be granted your course credit.

Confidentiality:
• Although the data from this research project will be presented at a year-end symposium and possibly published at a future date, the data will be reported in aggregate form. Thus, it will not be possible to identify any particular individual who participated in the project.
• Consent forms will be stored separately from the demographic forms and recall tests, so that it will not be possible to associate a name with any given set of responses.
• Please do not put your name or any other identifying information on the demographic form and recall test forms.
• The information you provide in the study such as your demographic responses will be viewed only by the primary researcher and the supervisor.
• Storage of Data:
  o Only the researcher and supervisor will have access to the data.
  o All original data (hard copies) will be securely kept.
  o Electronic data will be kept in password-protected databases and on password protected computers.
  o Data will be stored for 7 years following publication and then all data will be shredded and deleted

Right to Withdraw:
• Your participation is voluntary and you can answer only those questions that you are comfortable with. You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort.
• Whether you choose to participate or not will have no effect on your position [e.g. employment, class standing, access to services] or how you will be treated.
• Should you wish to withdraw, please notify the researcher and he will immediately end the experiment and all data will be permanently deleted.
• If you are participating in this study between the dates of November 2017 to April 2nd 2018, your right to withdraw data from the study will apply until April 5th 2018. After this date, it is possible that some results have been analyzed, written up and/or presented and it may not be possible to withdraw your data”. 
Follow up:
- To obtain results from the study, please contact the researcher or supervisor at:
  - Phone: (306) 541-4749; Email: tinnie21@hotmail.com
  - Phone: (306) 359-1220; Email: tom.phenix@uregina.ca

Questions or Concerns: (see section 12)
- Contact the researcher(s) using the information at the top of page 1;
- This project has been approved on ethical grounds by the UofR Research Ethics Board on (insert date). Any questions regarding your rights as a participant may be addressed to the committee at (306-585-4775 or research.ethics@uregina.ca). Out of town participants may call collect. OR
- This research project has been approved on ethical grounds by the UofS Research Ethics Board on (insert date). Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office (Toll Free: 866-966-2975).

Consent

Your signature below indicates that you have read and understand the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project. A copy of this Consent Form has been given to me for my records.

______________________________      _______________________
Name of Participant             Signature                  Date

______________________________      _______________________
Researcher’s Signature          Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.

(Optional)
If you wish to view the general results of this study (not your individual results) after it is completed, please provide your email.

__________________________________
Email Address
Appendix D

Demographic Survey

Please answer these questions in a truthful manner. Feel free to ask the researcher for help if needed. Alert the researcher once you have completed the survey. Please DO NOT include your name on this form.

1. What is your age? ____________________

2. What gender do you most identify as?
   a. Male
   b. Female
   c. Other
   d. Prefer Not To Say

3. Please specify your ethnicity:
   a. Caucasian
   b. Hispanic or Latino
   c. African American
   d. Native American
   e. Asian
   f. Other: ____________________

4. What is your place of birth?
   a. Canada
   b. United States of America
   c. China
   d. Other: ____________________

5. If you were born outside of Canada/United States, how long have you lived in the country and what was your age when you arrived? ____________________

6. Is English your first/primary language?
   a. Yes
   b. No

7. If English is not your first language, please rate your general comprehension (understanding) of the language.
   1 - None (Does not speak and understand English)
   2 - Minimal ( Barely speaks and understands English)
   3 - Limited (Understands basic English concepts)
   4 - Average (Has general understanding of the English language and can fluently speak it)
   5 - Above Average (Understanding is beyond that of most native English speakers)

8. Please rate your ability to read. (In the English language)
   1 - Poor
   2 - Below Average
   3 - Average
   4 - Above Average
Culturally Influenced Narratives

The Legacy of Terry Fox’s Dream

Terry Fox was "a very ordinary young man," according to his mother, Betty Fox.

But the ordinary young man became a national hero when he embarked on his Marathon of Hope — a cross-country run to raise money for cancer research. His goal was to persuade every Canadian to donate one dollar for cancer research.

Fox cut short his run when the cancer he thought he had fought off three years earlier returned. While the dream to run across the country died, Fox's dream to raise money and awareness thrived with the birth of the annual Terry Fox Run.

Ordinary beginnings

Terry Fox was born in 1958 in Winnipeg. A few years later his family moved to Port Coquitlam, B.C.

As a kid, he was always enthusiastic about sports, even when he was the worst player on his Grade 8 basketball team. A teacher encouraged him to go out for cross-country running, a sport in which he had little interest. But Fox was determined to be better and please his coach.

In his final year at Port Coquitlam secondary school, he shared the athlete of the year award with his friend, Doug Alward. After that, he went on to study physical education at Simon Fraser University.

In 1977, when a pain in Terry's knee got so bad he could barely stand, he went to the hospital, where he was diagnosed as having osteogenic sarcoma, a form of bone cancer. His right leg was amputated about six inches above his knee.

He hated the time he spent in hospital and pushed himself to learn to walk again. His determination had him out playing golf only six weeks after the operation. Later, basketball returned to his life when he was invited to play wheelchair basketball with Rick Hansen.

But Terry never forgot his experience in the hospital. He was angry at how little money was spent on cancer research in Canada. He turned his anger into a mission — he would launch a run across the country to raise both awareness and money in his fight against cancer.

Marathon of Hope: Fox's journey across Canada

When he began training, he kept his dream a secret. He told his family he was training for the Vancouver Marathon. The beginning was tough. He spent most of his time falling down and picking himself off the floor. He kept going, though, and after more than a year, and over 4,800 kilometres of running, he announced his plans to his family.
On April 12, 1980, Terry Fox dipped his artificial foot in the Atlantic Ocean off St. John's and began his Marathon of Hope.

He ran about 42 kilometres each day no matter the weather — freezing rain, high winds, even snow. Skeptics thought he would never make it past New Brunswick, but he proved them wrong and Terry Fox became a household name.

He passed through Sudbury, Ont., in August, the halfway point on his journey west. But on Sept. 1, chest pains and breathing problems forced him to stop running. He was just past Thunder Bay. After 143 days and 5,373 kilometres, he announced he would have to postpone the rest of the run, saying, "I'm gonna do my very best. I'll fight, I promise I won't give up."

Fox was sent to a hospital in B.C., where doctors discovered the source of his chest pains: cancer had spread to his lungs. While the Marathon of Hope was stalled, donations kept coming. A total of $24.17 million was raised, surpassing Fox's initial goal.

While he was in hospital, he received a letter from one of the many people he had inspired along the way. Isadore Sharp, president of the Four Seasons Hotel, wrote Fox offering to help him continue his dream through an annual fundraiser. It would be called the Terry Fox Run.

Fox agreed, but insisted on some ground rules: The event would be non-competitive — no winners, no awards, just the goal of raising money for cancer research. And there would be no corporate sponsorship.

Terry Fox Run

Fox died on June 28, 1981, but not before becoming the youngest person ever to be awarded the Order of Canada.

Two-and-a-half months after his death, the first Terry Fox Run was held on Sept. 13, 1981. More than 300,000 Canadians took part in the event at 760 sites across the country. The run raised $3.5 million.

On Sept. 19, 2010, the 30th annual Terry Fox Run will be held. So far, the event has raised $553 million for cancer research. And it has gone global. In 2008 alone, more than two million people in 28 countries took part in Terry Fox runs. Those locations included Afghanistan, Viet Nam, Saudi Arabia, Oman, Malaysia, France, Belgium and the United States.

The Terry Fox Foundation was set up in May 1988 to manage the run and approve grant applications for cancer research. Money raised through Terry Fox runs has gone to more than 1,100 research projects in Canada. The foundation says some of the results include:

- Advances in imaging technology used worldwide.
- Increased life expectancy for men with advanced stage prostate cancer.
- The discovery of a new mutation that may lead to new treatments for lymphoma.
- Advances in early screening techniques that could potentially improve survival rates from lung cancer.
Hockey and Family: A Personal Reflection
Clare Ferguson

Hockey for many Canadians is akin to breathing. When friends sometimes say to me “It just a game, for heaven’s sake” I wonder how we could have grown up in the same country. Just a game? They have missed the whole point. Hockey is life. There is nothing like it for bringing people from all walks of life together, rooted in one purpose – to cheer on the team. I say one purpose but on reflection that does not seem to be true. Certainly in our family each of us has a different reason for loving the game and all the hype that surrounds it.

Hockey has been a part of my life for as long as I can remember. Some of my earliest memories are of watching hockey in the 60’s with my dad on our old black and white TV. I cheered for the Leafs but my dad, a fan of technique and finesse rooted for the Habs. Dave Keon and Tim Horton were household names. I remember skating outside in our backyard rink, downtown on the pond, and even on our dead end street when it got icy enough. My father grew up in England and learned to skate relatively late so he seemed to realize how important it was for us to learn young such an important part of our culture.

My son is nine and has been skating since he was 3. He is in his third year of organized hockey. Last year, he played all-star; he represented the city and the whole family traveled everywhere, wearing our green, gold and black with pride. The other parents felt like family to us. Thrown together in early October we barely knew each other. A weekend tournament, and 72 hours spent together with barely a break took care of that. From that moment on we were one. Vigilantly we shouted our cheers, the boys (and one girl) on the ice pointedly ignoring us. My son once told me we were irritating so we shut up for two games. The ref was always against us and the other team was always bigger and much more aggressive. Our kids were always the best, no matter what the score. It was a whirlwind year and at the end of the season the thought of breaking for the summer was too wrenching for some of us. We played summer hockey with our friends from the team and eagerly awaited the next season’s all-star tryouts.

Then the unthinkable happened. My son was cut from the team. He was replaced with another goalie who had played at a lower level the year before. He was devastated and I could hardly comfort him, the pain was too raw even for me. My pain lasted much longer than his. He adjusted quite well to his new team but I missed my friends. I missed the green and gold sweaters with the city names on them. I missed the travel, the hours, sometimes days spent at the arena. This year he averaged only 1 or 2 ice times per week. We’re close to the end of the season and I still find I don’t know the other parents as well as I’d like to. Last night however, in a playoff game the other team scored with only a minute to go and I felt again, the pull together of moms and dads. Cheering on the team. “Go, go you can do it! Dig, dig, get the puck! Shoot shoot!” And then it happened with only 10 seconds left in the game. We scored and tied the game. The crowd erupted and I felt Happiness so great I thought my heart would burst. I no longer needed the fancy sweaters or the matching jackets and bags. I could feel the same kinship with a different group of parents. What had moved me was the hockey. At any level, it’s all that counts.
Hockey for my son is just plain fun. At his games he simply stops all the pucks he can and then goes home. He doesn’t carry the anguish of loss or the exhilaration of winning for longer than fifteen minutes after a game. For me, hockey is bonding with my family and with other families. For my husband, hockey is the language and the place where he is most comfortable. It is a world apart from reality where he can feel secure. For many Canadians hockey is a source of huge national pride. Hockey is a microcosm of life and I wouldn’t live mine any other way.

The Qingming Festival (The Tomb-Sweeping Festival)

Thousands of years ago, a prince named Chong’er (重耳 – lit. “double ears”) of the Jin had fled the kingdom and was on the move for 19 years. One particularly hot day, Chong’er found himself tormented by hunger. Luckily for him, one of his loyal followers, Jie Zhitui (介之推) prepared some delicious meat soup for him. Thankful for the sustenance, Chong’er was always curious as to where his friend obtained meat, seeing as how they were in exile and were constantly moving around. To his surprise, Jie had cut off a piece of his own thigh to make the soup; that’s how dedicated he was to serving his Prince. One day, promised Chong’er, he would reward his friend for his selfless deed.

Eventually, Chong’er ascended to the throne as Duke of Jin. At this time, Jie resigned and went to live in the forest with his mother. After returning many favours to people who had helped him in his struggles, the Prince decided it was time to repay Jie. He extended invites to Jie and even went out into the forest in search of him, but to no avail. In a desperate attempt to get Jie out of the forest, the Duke ordered a fire in order to force him out. Unfortunately, this plan didn’t work out so well – Jie and his mother both ended up dying in the fire. Feeling guilty, Chong’er named a mountain after his deceased friend, and he ordered that a period of three days every year be used to remember Jie. During this time, fire was banned (for obvious reasons), and all food was eaten cold. Hence the name, the Cold Food Festival (寒食 – hán shí jié). The county where Jie died in Shanxi Province is still called Jiexiu (介休), meaning “the place where Jie rests forever.”

This practice of remembering the deceased eventually evolved into the Qing Ming Festival. April 4 marks this year’s Qingming Festival in China. Qingming, literally meaning “clear and bright”, is one of the 24 dates that divide the solar year on the traditional Chinese calendar. The day heralds a season of rising temperature and increasing rainfall, high time for ploughing and sowing.

As a festival, Qingming is believed to have a history of about 2,500 years and Chinese people have since developed colourful traditions. The most important tradition of Qingming is to honour ancestors and commemorate deceased family members and relatives, usually at their gravesites. Thus, Qingming is also translated into Tomb-Sweeping Day in English.

According to Chinese folklore, the spirits of deceased ancestors continue to look after the family from the great beyond. It is believed that sacrifices of food and paper money will keep the spirits happy, thus blessing the family with good luck. On Qing Ming, Chinese families will visit the gravesite of ancestors to do some landscaping and spring-cleaning. With the massive increase in
China’s population over the past few decades, private gravesites have given way to public cemeteries, and most people are cremated these days. Families will make an offering of bland, dry food at the tomb of their ancestor; this keeps the other ghosts in the area from being tempted to have a taste for themselves. It’s a different story at home, though, as families will cook up the favourite dish of their deceased ancestor and offer it at an altar in their home.

Another tradition is the burning of joss money (金 jīn 鈔 zhǐ lit. “Gold paper”) at the tomb. With families often burning billions worth of this fake currency, it is believed that this practice allows the deceased to continue living a comfortable existence in the afterlife. However, just as with the fireworks during the Spring Festival, this poses serious fire hazards every year – so much so that Chinese police have been beefing up the security for this festival in recent years. Burning paper money has actually been illegal in Beijing since 1995, and chrysanthemums (with their flame-like petals) have overtaken the capital for the holiday.

While the fake money looks interesting and may seem like a cool souvenir, don’t make the same cultural faux pas as we did one year. We bought some of it on the street and took it back to our friend’s apartment, and his Chinese roommate was shocked and appalled – you’re not meant to bring the money into the house at all, as you should go directly to the grave to burn it. Whoops.

However, Qingming is not all about sad sentiments. Flying kites is enjoyed by many people, young and old, during the Qingming Festival. Swinging is another activity for children. A special food for the festival is called qingtuan, or sweet green rice balls made from glutinous rice soaked in and coloured by green plant juice and stuffed. In addition, people believe that eating a boiled egg on Qingming will bring good health for the year. Some people also draw paintings on the boiled eggs before eating them. Another folk custom is to knock boiled eggs against each other for fun.

The Cowherd and the Weaving Maid
(Níuláng Zhīnǚ 牛郎□女)

Dramatis Personae
Weaving Maid = a servant in service of the Queen Mother of the West
Cowherd = a mortal cowherd, with whom celestial servants ought not to fall in love

The beautiful and charming Weaving Maid (Zhīnǚ □女) was a servant in the palace of the Queen Mother of the West (Xī Wángmǔ 西王母), where she spent her days weaving.

Meanwhile on earth an amazingly handsome and hardworking Cowherd (Níuláng 牛郎) was miserably lonely. (Cows, it develops, do not make inspiring companions.) His parents had died when he was young, and he lived with his older brother and his brother’s wife, who were both very lazy and treated him as a servant.

It is not clear how the Cowherd came to the attention of the Weaving Maid. Some people say that she and her six sisters came to earth to bath in a refreshing stream, where the Cowherd saw them, was transfixed by their beauty, and picked up the clothes one of them had left on the
bank. When the sisters spotted him, six of them hurried to put on their clothes, turned into doves, and flew back to the realm of the Celestial Mother of the West. But, the Weaving Maid’s clothes were in his hand, and she had to beg to get them back. No-one knows quite how the negotiation proceeded, but by the end the Weaving Maid had fallen completely in love with the Cowherd. So rather than turn to a dove and fly back to the Celestial Mother, she remained in the world of mortals and married the Cowherd, and they even had two children.

The Queen Mother of the West seems not to have noticed initially, but when the affair came to her attention, she ordered her troops to abduct the Weaving Maid and escort her back to her celestial loom. The poor Cowherd tried to pursue them, but he had to carry the children, and in any case even a very determined mortal is unlikely to catch up with a force of celestial lictors. However the Queen Mother did not want to take chances. Drawing a hairpin from her hair, she blew on it and instantly it turned into a heavenly river, the one we know today as the Milky Way, and it flowed forth between the Weaving Maid and the pursuing Cowherd.

Thus the earthly Cowherd and the heavenly Weaving Maid were separated forever, and their children cried piteously to the Queen Mother to reunite them with their mother. The Weaving Maid’s six sisters joined in the plea. Some people say that all nature was so moved by the tragedy, that a flock of magpies (què 鹊) miraculously appeared to form a bridge over the heavenly river, and that this sign of cosmic attention caused the Queen Mother of the West to relent. Others say that she relented because she was merciful, and called the magpies herself.

The Queen Mother allowed the lovers (and their children) to be reunited for one night every year, on the 7th night of the 7th lunar month. On that day each year, a flock of magical magpies suddenly appears and forms a bridge over the Milky Way, and the Weaving Maid and the Cowherd meet in the middle.

On the seventh day of the seventh lunar month, called the "festival of the seventh evening" (qīxījié 七夕□), girls hold weaving competitions in commemoration of the Weaving Maid, and formerly they offered sacrifices to the Weaving Maid, hoping to receive from her cleverness in doing beautiful needlework. They would sacrifice fruits, which would be put out overnight. It was a very good omen if spiders came and spun webs over the fruit by morning. For that reason, the day was sometimes called the “Cleverness-Begging Festival” (qǐqiǎo jié 乞巧□). Or so it is said.

(Some people say that the Weaving Maid was a daughter or granddaughter of the Jade Emperor. Once she met the Cowherd, they say, she gave up sewing, which particularly irritated the Jade Emperor, and caused him to break up the union. But that probably confounds tale of this celestial maid falling in love with a mortal, with another one in which the seventh daughter of the lord of heaven marries the sixth filial exemplar, a man named DǑNG Yǒng, whose story is told elsewhere in this collection.)
Appendix F

Word-Stem Cued Concept Retrieval Task

The Legacy of Terry Fox's Dream

a) Terry Fox was "a very ordinary young man," according to his mother, B_____y Fox.

b) But this ordinary young man became a national hero when he embarked on his M_____t____ of H__p__.

c) His goal was to persuade every Canadian to donate o__e d_______r.

d) Terry Fox was born in 1958 in W______p___ . A few years, later his family moved to Port Coquitlam, B.C.

e) In his final year at Port Coquitlam secondary school, he shared the athlete of the year award with his friend, Doug Alward. After that, he went on to study physical education at S____m___ Fraser University.

f) In 1977, when a pain in Terry's knee got so bad he could barely stand, he went to the hospital, where he was diagnosed as having osteogenic sarcoma, a form of b___e c___c__.

g) He was invited to play wh________ b_______ b______ with Rick Hansen.

h) On April 12, 1980, Terry Fox dipped his artificial foot in the At________ O_____n off St. John's and began his [run].

i) Fox died on June 28, 1981, but not before becoming the youngest person ever to be awarded the O__d____ of Ca______.

j) The Terry Fox Foundation was set up in May 1988 to manage the run and approve grant applications for c______ r r__s_______.


The Cowherd and the Weaving Maid

(Niúláng Zhīnǚ 牛郎□女)

a) The beautiful and charming W________ M______ was a servant in the palace.

b) Q_______ M________ of the West
CULTURAL SCHEMATA AND RETRIEVAL-INDUCED FORGETTING

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c) Meanwhile on earth, an amazingly handsome and hardworking c_________ was miserably lonely.

d) When the sisters spotted him, six of them hurried to put on their clothes, turned into d_______s

e) She remained in the w________ d of m____r_____ and married the [man], and they even had two children.

f) The [ruler of the west] allowed the lovers (and their children) to be reunited for one night every year, on the 7th night of the 7th l____n____ m____n____.

g) On the seventh day of the seventh month, called the "festival of the seventh evening” girls hold w________g co______________.

h) They would sacrifice f_______t, which would be put out overnight.

i) It was a very good o____n if sp________ came and spun webs over the [food] by morning. For that reason, the day was sometimes called the “Cleverness-Begging Festival”

j) Some people say that the [servant] was a daughter or granddaughter of the Ja____ E__p______.

Answers: a) Weaving Maid, b) Queen Mother, c) Cowherd, d) Doves, e) World of Mortals, f) Lunar month, g) Weaving Competitions, h) Fruits, i) Omen spiders, h) Jade emperor

The Qingming Festival (The Tomb-Sweeping Festival)

a) April 4 marks this year’s Qingming Festival in China. Qingming, literally meaning “clear and b_______t”, is one of the 24 dates that divide the solar year on the traditional Chinese calendar.

b) The day heralds a season of rising temperature and increasing rainfall, high time for ploughing and s__w_____.

c) The most important tradition of Qingming is to honour ancestors and commemorate deceased family members and relatives, usually at their gravesites. Thus, Qingming is also translated into T__m__ -S________g Day in English.

d) Thousands of years ago, a prince of the J__n had fled the kingdom and was on the move for 19 years.

e) One particularly hot day, C_______’e__ found himself tormented by hunger. Luckily for him, one of his loyal followers, Jie Zhitui prepared some delicious meat soup for him.
f) According to Chinese folklore, the sp________ of deceased ancestors continue to look after the family from the great beyond.

g) Another tradition is the burning of j____s m____n___ (金纸 – jīn zhǐ – lit. “Gold paper”) at the tomb

h) However, Qingming is not all about sad sentiments. F____ k____t___ is an activity enjoyed by many people, young and old, during the Qingming Festival. Swinging is another activity for children.

i) A special food for the festival is called qingtuan, or sweet green r____ ba____ made from glutinous rice soaked in and coloured by green plant juice and stuffed.

j) In addition, people believe that eating a b_____d e___ on Qingming will bring good health for the year.

Answers: a) Bright, b) Sowing, c) Tomb-Sweeping, d) Jin, e) Chong’er, f) Spirits, g) Joss Money, h) Flying kites, i) Rice Balls, j) Boiled Egg

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Hockey and Family: A Personal Reflection
Clare Ferguson

a) H_______ for many Ca_________ is akin to breathing

b) When friends sometimes say to me “It’s just a g__m__ , for heaven’s sake” I wonder how we could have grown up in the same country.

c) I cheered for the Le_____ but my d____, a fan of technique and finesse rooted for the Habs

d) My father grew up in England and learned to s____e relatively late so he seemed to realize how important it was for us to learn young [as it is] such an important part of our culture

e) Dave Keon and T__m H__r____ were household names

f) I remember skating outside in our backyard r____k , downtown on the pond and even on our dead end street when it got icy enough.

g) Cheering on the team. “Go, go you can do it! Dig dig get the p__c__ ! Shoot shoot!”

h) Then the unthinkable happened. My son was cut from the team. He was replaced with another go______ who had played at a lower level the year before.
i) He adjusted quite well to his new team but I missed my friends. I missed the green and gold sweaters with the city names on them. I missed the travel, the hours, sometimes days spent at the ar_____.

j) For many Canadians hockey is a source of huge n_____ pr_____ . Hockey is a microcosm of life and I wouldn’t live mine any other way.

Answers: a) Hockey, Canadians, b) Game, c) Leafs, dad, d) Skate, e) Tim Horton, f) Rink, g) Puck, h) Goalie, i) Arena, j) National Pride
Appendix G:

True or False Task

**Hockey and Family: A Personal Reflection**  
Clare Ferguson

1. The author relates hockey to life.

2. Not everyone in the author’s family enjoys hockey.

3. The author and her father often went to games to watch hockey.

4. The author learned to skate at a late age.

5. The author’s son played left wing.

6. The author’s son switched teams.

7. The author was moved by hockey

8. The author agrees with the phrase “it is just a game”

**Answers:** 1) True, 2) False, 3) False, 4) False, 5) False, 6) True, 7) True, 8) False

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**The Legacy of Terry Fox’s Dream**

1. The Marathon of Hope was a cross-country run to help Terry Fox.

2. Terry had his right leg amputated.

3. Terry completed his run across the country.

4. He was a basketball star.

5. Terry was disappointed with the amount of funding spent for Cancer Research at the time.

6. Terry initially (at first) kept his dream of running across the country a secret.

7. Everyone believed that Terry could complete the run.

8. Terry wanted support from corporate sponsorships to keep the Terry Fox run alive for many years.

**Answers:** 1) False, 2) True, 3) False, 4) False, 5) True, 6) True, 7) False, 8) False
The Cowherd and the Weaving Maid
(Niúláng Zhīnǚ 牛郎織女)

1. The maid spent her days cleaning the house
2. When the bathing sisters saw the Cowherd, they ran away
3. The story was about a Chinese maid who fell in love with a cowherd
4. The Queen Mother blew a hairpin to stop the Cowherd’s pursuit
5. A flock of magpies formed a bridge over the Milky Way
6. Once every year, the maid returns to Earth to meet the cowherd
7. One the seventh day of the seventh lunar month, sacrifices are offered to the weaving maid to receive her beauty
8. It is rumoured that the maid was the daughter/granddaughter of the king of China

Answers: 1) False, 2) False, 3) False, 4) True, 5) True, 6) False, 7) False, 8) False

The Qingming Festival (The Tomb-Sweeping Festival)

1. Chong’er means big ears
2. Chong’er indirectly killed Jie Zhitui
3. The meat from soup feed to Chong’er was from Jie Zhitui’s thighs
4. In commemoration of Chong’er, all food was eaten cold
5. The Qingming festival is believe to have been celebrated for thousands of years
6. The number of gravesites in China has increased
7. During the Qingming festival, favourite dishes are traditionally offered at the tomb of ancestors in China
8. Swinging is an activity enjoyed by children during the Qingming festival.

Answers: 1) False, 2) True, 3) True, 4) False, 5) True, 6) False, 7) False, 8) True
Appendix H

Distractor Task

Find the product.

1. 868 \times 62
2. 995 \times 55
3. 329 \times 17

4. 749 \times 11
5. 188 \times 31
6. 671 \times 51

7. 317 \times 86
8. 807 \times 54
9. 376 \times 70
Find the product.

1. \[269 \times 87\] 
2. \[913 \times 39\] 
3. \[691 \times 97\] 

4. \[478 \times 35\] 
5. \[227 \times 36\] 
6. \[432 \times 79\] 

7. \[849 \times 11\] 
8. \[554 \times 77\] 
9. \[198 \times 37\]