

Cross-Cultural Analysis of Implicit Motives in TAT Written Narratives: A Motive Disposition Theory and LIWC-22 Approach

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Abstract

Objectives: This study aimed to identify cross-cultural differences in narrative construction among Hungarian and Jordanian bilingual university students within an English as a Foreign Language (EFL) context.

Methods: A total of 100 participants (50 Hungarians and 50 Jordanians), all Bachelor's students majoring in English-related fields (aged 18–25), wrote narratives in English in response to four Thematic Apperception Test (TAT) picture cards. The narratives were analyzed quantitatively with a focus on the motivational drivers of achievement, power, and affiliation. Motive Disposition Theory (MDT), the Linguistic Inquiry and Word Count tool (LIWC-22), and statistical tests (Descriptive, MANOVA, and ANOVA) in SPSS were used to assess motivational and linguistic-psychological differences.

Results: The study results showed that affiliation motives were significantly different between the Jordanian and Hungarian participants with a small statistical difference observed. Achievement motives showed minimal cultural variation, and power motives revealed no differences between the two groups. A card-by-card analysis highlighted that themes involving family and gender roles were the most culturally differentiated, especially in narratives related to mother-child dynamics. Picture cards with emotionally charged scenarios involving personal struggles elicited more universally shared responses.

Conclusions: In sum, this research underscores the profound impact of cultural background on narrative construction, offering implications for cross-cultural psychology, applied linguistics methodologies, and bilingual education practices.

Keywords: Implicit motives; EFL narratives; LIWC-22; Thematic Apperception Test (TAT); Cross-cultural; Motive Disposition Theory (MDT)

تحليل للدوافع الضمنية بين ثقافات مختلفة في السرد المكتوب رداً على اختبار إدراك الموضوع (TAT): دراسة باستخدام نظرية الدافعية وأداة اللغة LIWC-22

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ملخص

الأهداف: تهدف هذه الدراسة إلى استكشاف الفروقات الثقافية في بناء السرد القصصي لدى طلاب جامعيين ثنائيي اللغة من المجر والأردن ضمن سياق الإنجليزية كلغة أجنبية (EFL).

المنهجية: شارك في الدراسة 100 طالب (50 من المجر و50 من الأردن)، جميعهم طلاب بكالوريوس في تخصصات ذات صلة باللغة الإنجليزية (تراوح أعمارهم بين 18 و25 عاماً)، حيث كتبوا سرديات باللغة الإنجليزية استجابةً لأربع بطاقات من اختبار إدراك الموضوعات ((TAT) · Thematic Apperception Test). تم تحليل السرديات كمياً مع التركيز على الدوافع التحفيزية للإنجاز (Achievement)، والسلطة (Power)، والانتماء (Affiliation). استخدمت نظرية الدوافع المتأصلة (MDT) (Motive Disposition Theory) وأداة تحليل اللغة LIWC-22، بالإضافة إلى الاختبارات الإحصائية الوصفية، (ANOVA)، و (MANOVA) باستخدام برنامج SPSS لتقييم الفروق التحفيزية واللغوية-النفسية.

النتائج: تشير النتائج إلى وجود فروق دالة إحصائية في دوافع الانتماء (Affiliation) بين المشاركين الأردنيين والهنگاريين مع وجود حجم تأثير صغير، في حين أظهرت دوافع الإنجاز (Achievement) تفاوتاً ثقافياً طفيفاً، ولم تكشف دوافع السلطة (Power) عن أي اختلافات بين المجموعتين. أظهر التحليل التفصيلي لكل بطاقة أن الموضوعات المرتبطة بالديناميات الأسرية والأدوار الجندرية كانت الأكثر اختلافاً من الناحية الثقافية، لا سيما في السرديات المتعلقة بعلاقات الأم والطفل. أما البطاقات التي جسدت مشاهد عاطفية مشحونة بالصراعات الشخصية، فقد استثارت ردوداً أكثر عالمية ومشاركة بين المشاركين من هاتين الثقافتين.

الخلاصة: في الختام، تسلط هذه الدراسة الضوء على التأثير العميق للثقافة على بناء السرد، مما يتيح آثاراً على علم نفس الثقافات، ومنهجيات علم اللغات التطبيقي، وممارسات التعليم ثنائي اللغة.

الكلمات الدالة: الدوافع الضمنية، السرد في الإنجليزية كلغة أجنبية، LIWC-22، اختبار إدراك الموضوعات (TAT)، نظرية الدوافع المتأصلة (MDT)، ثقافات متعددة.

1. Introduction

Cognitive Linguistics emerged in the 1980s (Lakoff, 1987; Langacker, 1987) as an interdisciplinary approach drawing from psychology, linguistics, anthropology, and philosophy to investigate the relationship between language, cognition, and culture. Central to this field is the view that while certain cognitive processes may be universal, they are also shaped by linguistic experience and cultural context. As Lucy (1992) argues, cognitive processes are modulated by the specific languages individuals speak and the sociocultural environments in which they develop. This results in cross-cultural variation in how people perceive, categorize, and remember events (Nisbett et al., 2001; Gutchess & Rajaram, 2023).

Historically, the study of language, culture, and cognition has been dispersed across distinct academic disciplines. However, growing efforts to bridge cognitive linguistics and linguistic anthropology have opened new pathways for understanding how cultural frameworks shape thought through language (Blount, 1995; Beller et al., 2012; Bender & Beller, 2013). Language, in this view, functions not only as a communicative tool but also as a cognitive system shaped by social and cultural patterns (Keesing, 1992). This interdisciplinary perspective underscores the importance of examining language as both a mental construct and a reflection of cultural meaning.

This study is informed by the theory of linguistic relativity, particularly Slobin's (1996) thinking-for-speaking hypothesis, which posits that language directs speakers' attention to culturally and grammatically salient features of experience. This theoretical framework suggests that speakers of different languages develop distinct cognitive habits for organizing and expressing experience, patterns that become deeply embedded through repeated use and cultural reinforcement.

For bilingual individuals, this theoretical framework presents particular complexity, as they must navigate between two conceptual systems while often retaining entrenched L1 cognitive patterns even when operating in an L2 (Lucy, 1992; Athanasopoulos, 2006). Empirical studies in L2 acquisition demonstrate that L1-based patterns persist across multiple domains, including motion events, definiteness, and grammatical aspect, even at advanced levels of L2 proficiency (Cadierno, 2008; von Stutterheim & Carroll, 2006; Han & Odlin, 2006).

These findings reinforce the theoretical position that L2 expressions are shaped not only by linguistic knowledge but also by culturally rooted ways of structuring experience. However, emerging research in bilingual lexical and conceptual representation challenges simplistic notions of rigid separation between L1 and L2 systems, suggesting instead that bilingual cognition involves complex, dynamic interactions between linguistic and cultural systems (Pavlenko, 2002, 2008; Jarvis & Pavlenko, 2007).

Cultural and experiential factors further complicate this picture; Appel and Muysken (1987) argue that meaning systems are culturally shaped regardless of the acquisition context, while Navracsics (2002) emphasises the role of the manner of acquisition in determining lexical access. Pavlenko (2002, 2008) presents a dynamic view, arguing that bilingual conceptual representations are fluid, context-dependent, and influenced by linguistic, cultural, and social variables. The Distributed Feature Model (De Groot, 1992, 1995) also supports this complexity, revealing that integration between L1 and L2 varies depending on lexical concreteness and cognate status. Furthermore, crosslinguistic influence (CLI) is now understood as bidirectional, with L2 affecting L1 conceptual processing, not just the reverse (Jarvis & Pavlenko, 2007). CLI manifests in semantic and conceptual transfer, where L1 categories dominate L2 expression or vice versa, as seen in studies by Pavlenko (1997) and Sachs & Coley (2006), which show that bilingual categorization patterns shift based on task and context.

These insights are particularly relevant to the current study, which explores how bilingual Hungarian and Jordanian students construct narratives in English, potentially revealing traces of both L1-based thinking-for-speaking patterns and dynamic, emergent bilingual conceptual structures.

1.1. Motive Disposition Theory (MDT)

While cognitive linguistics explains how language shapes thought processes, MDT provides a mechanism for understanding how cultural values become internalized as motivational orientations that guide behavior across contexts, including narrative construction in second language settings.

MDT, developed by David McClelland in the 1960s, identifies three core motivators that drive human behavior: (i) achievement, (ii) affiliation, and (iii) power (McClelland, 1965). These motivators are not universal but are shaped by an

individual's life experiences and cultural environment. According to MDT, each person has a dominant motivator, which influences their behavior in response to specific incentives. The theory builds on the concept that these core motives are learned through early experiences and are strongly shaped by cultural norms and socialization practices (McClelland et al., 1989). Each motivational driver may manifest through two orientations: hope (approach) or fear (avoidance) (Schüler et al., 2019; Chasiotis et al., 2014).

1. **Achievement:** Individuals driven by the achievement motive seek to accomplish challenging goals, take calculated risks, and prefer regular feedback on their progress (McClelland et al., 1989). They are often drawn to tasks that offer clear standards for excellence, such as personal performance comparisons (Schultheiss et al., 2008). Within this motive, individuals may be driven by either a hope for success (e.g., the desire to excel and achieve recognition) or a fear of failure (e.g., the desire to avoid mistakes or underperformance) (Chasiotis et al., 2014). This dual orientation explains why two individuals motivated by achievement might respond differently to the same challenge: some are driven by the excitement of success, while others are motivated by a need to avoid failure.
2. **Affiliation:** Those with a strong affiliation motive are primarily motivated by the desire to form meaningful social bonds and to be accepted by others (McClelland, 1985). They prefer collaborative environments and tend to avoid risky situations that could jeopardize social harmony. The hope for closeness (approach motivation) drives them to seek intimacy and positive relationships, while the fear of rejection (avoidance motivation) leads them to avoid social exclusion and conflict (Schultheiss & Brunstein, 2010). In collectivist cultures, affiliation is culturally reinforced, and narratives may reflect a fear of social disapproval or a hope for family acceptance (Hofer et al., 2017).
3. **Power:** Individuals with a dominant power motive seek to influence others and thrive in situations where they can assert control and gain recognition (McClelland, 1985). They are often motivated by the desire to hold positions of authority and gain respect from others. This motive can be pursued with a hope for influence (e.g., the desire to lead or shape outcomes) or a fear of weakness (e.g., the desire to avoid appearing powerless or submissive) (Schultheiss & Brunstein, 2010). In the Hungarian culture, where individual agency and assertiveness are highly valued, narratives often reflect a hope for power through stories of personal success and leadership.

These orientations help explain how culturally shaped motivations influence the construction of narratives. The theory also provides a framework for understanding individual differences in how people respond to situations. For instance, individuals differ in the types of incentives and situations they find rewarding, which are tied to their dominant motives (Schultheiss et al., 2008). This study adopts MDT as a central framework for exploring how Hungarian and Jordanian bilinguals construct narratives and express motivational drivers, examining how cultural contexts shape the prominence of these motives.

In McClelland's original work (McClelland et al., 1989), the distinction between implicit (unconscious) and explicit (conscious) motives is a foundational concept. Implicit motives predict long-term behavioral trends, while explicit motives are associated with immediate, deliberate responses. This distinction helps explain why implicit motives are more stable over time and how they predict behavior in task-intrinsic settings (e.g., motivation for achievement in a self-directed task). The explicit motives, on the other hand, are more influenced by social factors and the immediate environment.

Schultheiss and Köllner (2021), Schultheiss et al. (2008), and Schultheiss and Brunstein (2010) build on McClelland's work by exploring the distinction between implicit and explicit motives. They investigate how implicit motives, assessed through projective techniques like the Thematic Apperception Test (TAT), differ from explicit motives measured via self-report questionnaires. TAT was first developed by Henry Murray and Christiana Morgan in the 1930s as a projective psychological test designed to assess an individual's underlying motivations, desires, and concerns. The test involves presenting participants with a series of semi-ambiguous images and asking them to construct stories based on the images (Morgan & Murray, 1935). This open-ended nature of the TAT allows for a wide range of interpretations, making it an ideal tool for exploring the implicit motives and cultural schemas that influence narrative construction (McClelland, 1985).

Building on this foundation, Owa (2024) highlights the value of the TAT not only as a projective tool for motivational tendencies but also as a powerful method for accessing individuals' deeper psychological states. Through narrative construction in response to ambiguous visual stimuli, participants project their inner thoughts, emotions, and unresolved

concerns. This process enables researchers to uncover recurring themes—such as preoccupation with loss, success, or social relationships—that might not surface through direct questioning. For instance, describing an image of people holding hands while focusing on financial hardship may indicate underlying economic concerns. Similarly, consistent emergence of sad or conflict-driven storylines can point to internalized emotional struggles. Owa (2024) also emphasizes the TAT's adaptability across cultural contexts, which enhances its relevance in cross-cultural research. By decoding culturally embedded symbols, researchers can gain insight into culturally nuanced conceptualizations of self, relationships, and goals. As such, the TAT is particularly well-suited for investigating implicit cognitive and affective structures, including studies of narrative construction, cultural schemas, and bilingual cognition.

1.2. Narrative Construction and Implicit Motives through TAT across Cultures

Winter (1994) assessed implicit needs for power, achievement, and affiliation in 323 U.S. college students using a Picture Story Exercise (PSE; McClelland et al., 1989), which consisted of six TAT picture cards. The study applied Winter's (1994) content coding system to analyze the elicited motive imagery. The study found significant variations in motive expression across picture cues, closely resembling findings from Schultheiss and Brunstein's (2001) study on German students. Notably, U.S. students demonstrated higher implicit achievement motivation, but lower implicit power motivation and activity inhibition compared to their German counterparts. These findings align with broader cultural analyses highlighting the strong presence of the Protestant work ethic in the U.S., which emphasizes achievement (McClelland, 1961, 1975; Ferguson et al., 2008).

Additionally, Winter's (1994) study revealed ethnic differences in motivational tendencies within the U.S. sample. Asian American participants exhibited higher affiliation motive scores than White participants, which aligns with collectivist values commonly associated with Asian cultures (Triandis, 2001). African American participants, on the other hand, demonstrated higher achievement motivation than both Asian Americans and Whites, a finding that may be linked to self-selection effects in higher education (Crosby et al., 2003). These cross-cultural and intra-cultural differences underscore the significance of sociocultural contexts in shaping motivational tendencies.

Furthermore, Winter's (1994) findings suggest that implicit motivational patterns differ notably from explicit self-reports, as PSE motive scores showed little overlap with questionnaire-based measures such as the Behavioral Inhibition System–Behavioral Activation System scales (Carver & White, 1994). This discrepancy highlights the limitations of explicit assessments in capturing unconscious motivational drivers, underscoring the importance of implicit methods such as the PSE in studying motivation (Schultheiss et al., 2004).

TAT has also been employed extensively in cross-cultural research, providing insights into how different cultural groups interpret the same visual stimuli. For instance, Lonner (1985) emphasized that the storytelling aspect of the TAT is universally applicable across cultures, making it a useful tool for studying diverse groups. Ching et al. (1995) employed the TAT in a longitudinal study to explore family role perceptions among Japanese American families, revealing persistent themes of hierarchy, gender norms, and interpersonal acceptance that differed from those observed in European American families.

Research on bilingual and multicultural individuals has demonstrated that TAT can reveal variations in narrative construction based on the language employed during administration. Perez-Palen (2022) found that bilingual individuals often create different narratives depending on whether they are using their native or second language, a phenomenon first explored by Ervin (1964). The language used during the TAT can affect the defense mechanisms employed, with participants expressing different themes, emotions, and motivations in their native versus acquired languages. Katsavdakis et al. (2001) confirmed these findings by examining bilingual psychiatric patients and noting that patients expressed different perceptions of relationships, gender roles, and emotional conflicts depending on the language in which TAT was administered. Such research highlights the importance of considering linguistic and cultural factors in psychological testing.

A study conducted by Sudarsana and Suarni (2020) explored the use of TAT to assess students' self-endurance through narrative analysis. The research involved high school and vocational students, examining their ability to manage problems, identify root causes, and demonstrate resilience. The study provided insights into students' coping strategies and how they perceived and responded to obstacles, particularly in the context of the COVID-19 pandemic. The findings highlighted the

potential of TAT as a valuable tool for understanding students' resilience, offering implications for educational institutions in fostering character development.

Research by Phares (1961) investigated the impact of anxiety on narrative interpretation among college students. The study revealed that students with high anxiety levels were more likely to perceive TAT cards as threatening compared to their less anxious peers. This finding suggests that anxiety plays a significant role in shaping individuals' narrative constructions when presented with ambiguous stimuli.

In a related investigation, Coelho et al. (1969) explored coping mechanisms in college students using a modified TAT approach. The researchers hypothesized that pre-college TAT assessments of competence would be linked to coping behaviors during the students' first year of college. The results confirmed this hypothesis, demonstrating that students' TAT narratives could predict their likelihood of continuing or dropping out of college. This study highlights the TAT's effectiveness in examining psychological resilience and adaptation.

The research on TAT was expanded by Todorova et al. (2008) through their examination of narratives from immigrant children. Their investigation explored the relationship between achievement and affiliative themes, shedding light on the adaptation process in a new cultural setting. The study's outcomes revealed that cultural background played a significant role in shaping the content and themes of the narratives. Specifically, Chinese children tended to focus on community relationships, while Latino children emphasized family dynamics. These discoveries underscore the TAT's importance in investigating the psychological and social challenges encountered by immigrant populations. The importance of conducting additional research on TAT with diverse populations was underscored by Dana (2000), particularly in relation to understanding the influence of language on personality formation and manifestation.

The intersection of cultural cognition, bilingual language processing, and implicit motivation presents a unique opportunity to understand how deeply embedded cultural frameworks influence psychological expression in second language contexts. While extensive research has examined cultural differences in motivation and bilingual cognitive processing separately, limited attention has been given to how these domains interact in narrative construction tasks. Specifically, no studies have directly compared implicit motive expression between Hungarian and Jordanian bilingual students using projective narrative techniques.

By comparing Hungarian and Jordanian university students—two distinct cultural groups writing in an English as a Foreign Language (EFL) context—this study seeks to examine not only cross-cultural narrative patterns but also the effectiveness of using LIWC-22 and MDT as tools for investigating how cultural background influences the expression of implicit motives in English-language narratives among bilingual university students. The choice of Hungarian and Jordanian participants is theoretically motivated by their contrasting cultural orientations: Hungarian culture, rooted in Central European individualistic traditions, emphasizes personal achievement, autonomy, and direct communication, while Jordanian culture, embedded in Arab collectivistic values, prioritizes social harmony, family relationships, and community interdependence (Hofstede, 2001; Triandis, 2001).

1.3. Research goals

The present study addresses two primary research questions:

- **RQ 1:** Do Hungarian and Jordanian bilingual students differ significantly in their expression of implicit achievement, power, and affiliation motives when constructing narratives in English using TAT picture stimuli?
- **RQ 2:** How do linguistic complexity, pronoun usage, cognitive processing patterns and broader cultural influences on language use, including word frequency, language style, and emotional tone in bilinguals' L2 narratives reflect cultural differences in narrative construction?

2. Methods

2.1. Participants

This study involved 100 bilingual university students, evenly divided between two groups: 50 Hungarian and 50 Jordanian participants. All participants demonstrated advanced proficiency in written English (CEFR levels B2–C1) as measured by the Text Inspector software, which analyzed their narrative samples, ensuring a neutral linguistic environment without any group

holding a linguistic advantage. Participants were recruited from various universities in each country and were enrolled in bachelor's programs in English Studies, English Literature, or Linguistics. The mean age across both groups was 21 years, with an age range of 18 to 25 years. The gender distribution differed slightly between groups, with 37 females and 13 males among the Hungarians, and 42 females and 8 males among the Jordanians. This gender distribution may have influenced results and is acknowledged as a potential limitation. Participation was voluntary, and informed consent was obtained from all participants following a detailed briefing about the study's objectives. All participants were bilingual, with a certain proportion being trilingual. Among the Hungarian participants, 43 were bilingual (speaking both Hungarian and English), while 7 were trilingual, often incorporating German as a third language. Similarly, among the Jordanian participants, 33 were bilingual (speaking both Arabic and English), and 17 were trilingual, frequently including additional languages such as Italian or Turkish.

2.2. Instruments

1- Bilingual Language Profile (BLP): The Bilingual Language Profile (BLP; Gertken et al., 2014) was employed in this study to assess participants' linguistic and cultural characteristics, including language proficiency, usage patterns, language dominance, and attitudes toward English and their native languages. Self-assessment data were collected across academic, social, and personal domains, providing a comprehensive overview of participants' language practices and attitudes.

The BLP was utilized primarily for demographic purposes and to ascertain participants' suitability for inclusion in the study based on their language use and attitudes. While the BLP data were not subjected to detailed analysis in this study, they provided valuable context regarding participants' linguistic backgrounds and aided in selecting a sample that best represented the study's objectives.

While the BLP itself has been validated in previous research, its specific validation across the diverse population in this study was not the focus. Instead, it served to provide broad insights into participants' linguistic profiles and was instrumental in ensuring the study's sample reflected varied language backgrounds and proficiencies.

2- Thematic Apperception Test (TAT):

The study used four specific picture cards from the Thematic Apperception Test (TAT) (see Figure 1). Consistent with established TAT practice, the cards were not selected arbitrarily but were deliberately chosen for their thematic relevance and capacity to elicit culturally and psychologically rich narratives. Murray's original guidelines (1943) and subsequent research (Lilienfeld, Wood, & Garb, 2000; Cramer, 2004) emphasize that the TAT is intentionally flexible: researchers select a subset of cards—typically 5–12—to match the study's aims and participants' cultural or developmental context.

In this study, the four cards were chosen because they depict ambiguous scenarios that encourage participants to project personal experiences, cultural values, and cognitive schemas related to family dynamics, romantic relationships, and social conflict—central themes for this research.

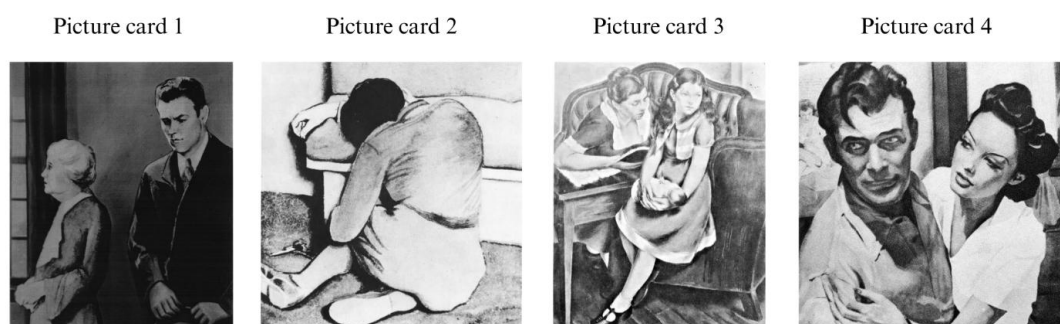


Figure 1. The Four TAT Picture Cards Used in the Study

- **Picture 1: "Mother, Adult Son"** – This image was intended to elicit narratives related to family relationships and intergenerational conflict.
- **Picture 2: "Defeated Woman"** – Designed to explore themes of despair, relationship struggles, and mental health.
- **Picture 3: "Mother, Daughter, Doll"** – This scene, aimed at prompting discussions around childhood, early marriage, and parental control.
- **Picture 4: "Hot Couple"** – Often interpreted as a romantic couple engaged in an intimate or heated conversation, this picture was designed to explore themes such as jealousy, infidelity, and power dynamics.

We created the above crude namings to facilitate consistent reference throughout the study. The names assigned to each picture reflect our interpretation of the portrayed characters, but it does not necessarily align with how the participants viewed them.

2.3. Procedure

Participants were tested individually in a quiet, distraction-free environment. Before the narrative writing task began, participants were asked to complete the (BLP) questionnaire. Following this, each participant was presented with the four TAT cards sequentially and asked to write a narrative for each card in English elaborating (i) what led up to the scene depicted; (ii) what was happening at the moment; and (iii) how the story might unfold. They were also encouraged to focus on the characters' thoughts, feelings, and motivations. Each session lasted from 45 minutes to one hour, with no strict time limits imposed, allowing participants to thoroughly explore their ideas.

2.4. Data analysis

2.4.1. Text inspector

After transcribing the narrative data, we used Text Inspector software (Bax, 2022) to analyze participants' written texts. The software assessed both lexical diversity and CEFR proficiency levels using measures such as the Measure of Textual Lexical Diversity (MTLD) and D-value (VocD). This analysis ensured that all participants met the required proficiency criteria for inclusion in subsequent analyses.

2.4.2. Text preprocessing with LIWC-22

The narratives were preprocessed and analyzed using LIWC-22 software, which quantifies linguistic features associated with psychological constructs (Pennebaker et al., 2015). Key preprocessing steps included:

- **Lemmatization:** Words were converted to their simplest forms to standardize the dataset, a standard practice in natural language processing (Boyd, 2017).
- **Stop words removal:** Common function words and dataset-specific high-frequency words were excluded using both prebuilt and custom stop lists to reduce noise in topic modeling (Chung & Pennebaker, 2008).
- **Document-term matrix creation:** LIWC-22 generated a document-term matrix (DTM) that recorded the presence and frequency of significant words across texts. There are no hard-and-fast rules for choosing which words to include and which to omit from DTM, however, LIWC-22 provides a few options for choosing which words to retain based on the distribution of words in your dataset.
- **Variable extraction:** LIWC-22's thematic categories (e.g., social processes, emotional expression) were used to map linguistic variables to psychological constructs, ensuring consistency in interpreting results (Pennebaker et al, 2022). In LIWC-22, the Categories tab displays available dictionary categories, allowing users to enable or disable specific ones.

Reliability considerations: Therefore, the LIWC-22 results in this study are based on a psychometrically validated tool that ensures scoring consistency across large narrative datasets. Separate analyses were conducted for each picture card to explore specific motivational themes elicited by each visual stimulus. This ensures consistency across both studies while allowing this chapter to focus on the distinct analytical approach used to investigate motivational themes and cultural influences. Because LIWC-22 uses a pre-validated, rule-based dictionary approach, no interrater coding was required. Its internal consistency has been demonstrated using the Kuder–Richardson Formula 20 (KR-20), which is appropriate for

dichotomous (present/absent) word coding. Reported KR-20 values for key LIWC categories range from .62 to .88, indicating good internal reliability (Pennebaker et al., 2007; Pennebaker et al., 2015). In addition, LIWC categories have shown moderate correlations ($r \approx .20-.40$) with human-coded judgments, providing external validity for its automated linguistic analysis (Chung & Pennebaker, 2008).

2.4.3. Statistical analysis in SPSS

The outcome data from DTM and variable extraction were transferred for both exploratory and inferential analyses. Statistical techniques included:

- **Descriptive statistics:** Mean and standard deviation for each motivational driver and LIWC-22 category were computed to summarize trends across cultural groups.
- **Independent samples T-tests:** Significant cross-cultural differences in linguistic patterns were identified through T-tests.
- **Multivariate analysis of variance (MANOVA):** MANOVA assessed the collective impact of cultural background and picture type on motivational drivers (achievement, affiliation, power), accounting for intercorrelations among dependent variables.
- **Between-subjects effects: One way ANOVA** tests examined individual effects of culture and picture type on each motivator.
- **Interpretation of non-significant results:** For variables lacking statistical significance (e.g., religion, future focus), descriptive trends and cultural nuances were qualitatively analyzed.

3. Results

3.1. BLP and text inspector results

Results from the Bilingual Language Profile (BLP) revealed that participants used English predominantly in academic and professional contexts (50–70%), while its use in social (25–35%) and personal settings (5–10%) was limited. Jordanians reported marginally higher overall English usage (40–60%) compared to Hungarians (35–50%).

Analysis of lexical diversity and CEFR levels using Text Inspector showed that the Hungarian group demonstrated higher average lexical sophistication (VocD: 90.50; MTLT: 80.68) compared to the Jordanian group (VocD: 77.97; MTLT: 64.49). According to the CEFR proficiency scale, Hungarian participants predominantly reached the C1 level, while Jordanian participants mostly fell within the B2–C1 range. Importantly, both groups met the study's proficiency criteria of B2–C1. The choice of B2–C1 proficiency criteria aligns with common practices in academic research involving narrative tasks. Research often selects participants within this range to ensure a sufficient command of language complexity and grammatical accuracy necessary for detailed narrative construction (British Council, 2021).

3.2. LIWC-22 categories (General observations)

The linguistic analysis conducted using LIWC-22 revealed several significant differences between Hungarian and Jordanian participants in various psycholinguistic categories. It is important to note that these are not all the categories reported by LIWC-22 but rather those selected for their relevance and interest in the context of this study. These findings highlight differences in linguistic complexity, cognitive processing, and social orientation in their narrative constructions (Table 1).

Table 1. Comparison of linguistic and psychological features and categories in Hungarian and Jordanian narratives (LIWC-22 Analysis and a T-test)

Category and Abbrev.	Hungarians		Jordanians		<i>t</i>	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
Total word count (WC)	132.78	60.18	99.26	49.91	6.06	0.000	22.66	44.39
Word per sentence (WPS)	14.98	4.45	16.36	5.96	-2.61	0.01	-2.41	-0.34
Big Words (7 letters or longer)	14.94	3.78	13.27	4.93	3.8	0.000	0.81	2.53
1st person singular (I)	0.85	2.16	1.46	3.07	-2.31	0.02	-1.14	-0.09
1st person plural (we)	0.29	0.66	0.26	0.7	0.36	0.72	-0.11	0.16

Category and Abbrev.	Hungarians		Jordanians		<i>t</i>	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
2nd person (you)	0.24	0.57	0.61	1.56	-3.16	0.002	-0.6	-0.14
3rd person singular (she/he)	9.33	4.05	11.63	5.32	-4.86	0.000	-3.23	-1.37
3rd person plural (they)	1.56	2.21	1.36	2.58	0.85	0.39	-0.27	0.68
Analytical thinking	43.12	24.75	34.56	24.22	3.5	0.001	3.75	13.37
Clout	87.7	19.07	91.6	17.66	-2.12	0.04	-7.51	-0.28
Authentic	14.85	23	10.74	22.32	1.82	0.07	-0.34	8.57
Emotional tone	34.98	31.8	32.87	32.96	0.65	0.52	-4.31	8.52
Positive tone	3.11	2.15	2.81	2.27	1.37	0.17	-0.13	0.74
Negative tone	2.8	2.11	2.93	2.52	-0.56	0.58	-0.59	0.33
Cognitive processes	13.15	4.69	12.51	4.97	1.34	0.18	-0.3	1.59
Certitude	0.59	1.05	0.32	0.71	3.07	0.002	0.1	0.45
Social processes	22.21	5.67	27.26	6.52	-8.27	0.000	-6.25	-3.85
Family	2.87	2.8	3.98	3.24	-3.65	0.000	-1.7	-0.51
Friends	0.29	0.68	0.25	0.7	0.6	0.55	-0.09	0.18
Female references	8.68	5.4	10.46	6.56	-2.95	0.003	-2.96	-0.59
Male references	4.83	4.51	6.03	5.42	-2.41	0.02	-2.18	-0.22
Lifestyle	2.93	2.73	2.77	2.61	0.59	0.56	-0.37	0.68
Work	1.15	1.8	1.47	2.19	-1.57	0.12	-0.71	0.08
Money	0.34	0.77	0.37	0.81	-0.41	0.69	-0.19	0.12
Religion	0.06	0.27	0.07	0.28	-0.48	0.63	-0.07	0.04
Past focus	7.34	4.37	5.85	4.15	3.51	0.003	0.66	2.33
Present focus	4.57	3.77	6.16	3.99	-4.1	0.000	-2.36	-0.83

Note. Independent samples *t*-tests comparing Hungarian and Jordanian narratives based on LIWC-22 categories. Significant differences ($p < .05$) are bolded.

In terms of linguistic complexity and word use, Hungarian participants produced significantly more words ($M = 132.78$ per story) than their Jordanian counterparts ($M = 99.26$ per story), $p < .001$, suggesting a tendency toward more elaborate narratives. However, Jordanian participants constructed slightly longer sentences ($M = 16.36$) than Hungarians ($M = 14.98$), $p = .01$, indicating a preference for more complex sentence structures. Additionally, Hungarian participants used a significantly higher proportion of long words (seven letters or more) ($M = 14.94$) than Jordanian participants ($M = 13.27$), $p < .001$, which may suggest a greater reliance on advanced vocabulary.

Pronoun usage patterns revealed differences in social orientation and narrative perspective. Jordanian participants used significantly more first-person pronoun (i) compared to the Hungarians who used more third-person singular pronouns (e.g., he, she, her and his) indicating a possible focus on individual characters within their stories. Similarly, Jordanians used significantly more second-person pronouns (e.g., “you”) ($M = 0.61$) than Hungarians ($M = 0.24$) $p = .002$, which may suggest a more direct and engaging narrative style.

Differences were also observed in cognitive and emotional processing. Hungarian participants scored significantly higher on analytical thinking (Metric of logical, formal thinking) ($M = 43$) than Jordanians ($M = 34.56$), $p = .001$, suggesting a more structured and logical approach to storytelling. Additionally, they used significantly more certitude words (really, actually, of course, real) ($M = 0.59$) than Jordanians ($M = 0.32$), $p = .002$. In contrast, Jordanian participants used significantly more words related to social processes (e.g. you, we, he, she) ($M = 27.26$) compared to Hungarians ($M = 22.21$), $p < .001$, reinforcing a collectivist orientation in their narratives.

Cultural influences were particularly evident in thematic focus. Jordanian participants mentioned family (parent, mother, father, baby) significantly more often ($M = 3.98$) than Hungarian participants ($M = 2.87$), $p < .001$, aligning with cultural expectations regarding the centrality of family in Middle Eastern societies. Additionally, Hungarian participants exhibited a significantly stronger focus on past events (was, had, were, been) ($M = 7.34$, $SD = 4.37$) compared to Jordanians ($M = 5.85$), $p = .003$, whereas Jordanian participants showed a greater focus on the present (is, are, I'm, can) ($M = 6.16$) than Hungarians ($M = 4.57$), $p < .001$, suggesting differences in temporal perspectives when constructing narratives.

Although some differences did not reach statistical significance, they still offer valuable insights into linguistic tendencies. For instance, Hungarian participants displayed a slightly higher tendency toward authenticity (Perceived honesty and genuineness) in their narratives, although this difference was not statistically significant. Similarly, no substantial differences were observed in emotional tone, indicating that both groups expressed emotions at similar levels. Furthermore, themes related to work, money, and religion appeared with low frequency in both groups, suggesting that these topics were not central to the narratives produced. Overall, the findings highlight key cross-cultural differences in linguistic and cognitive approaches to storytelling.

3.3. MDT Findings for all picture cards combined between the two groups

To holistically examine how cultural background shapes motivational drivers, the three implicit core motives were analyzed across all four picture cards. Independent samples T-tests and MANOVA were employed to compare Hungarian and Jordanian narratives, with results aggregated to identify overarching patterns.

As shown in Table 2, significant effects were observed for both the intercept and the cultural group, indicating that participants' cultural backgrounds influenced how they expressed these motives in their narratives. The statistical results were as follows: Pillai's Trace = 0.771, $F(3, 396) = 444.255$, $p < 0.001$; Wilks' Lambda = 0.229, $F(3, 396) = 444.255$, $p < 0.001$; and Hotelling's Trace = 3.366, $F(3, 396) = 444.255$, $p < 0.001$. These results suggest that there are significant differences in the combined motives across the narratives, indicating that the intercept plays a role in shaping the overall patterns of responses.

Table 2. Multivariate analysis (MANOVA) – overall group effect for all four picture cards

	Effect	Value	F	Hypothesis df	Error df	P
Intercept	Pillai's Trace	.771	444.255 ^b	3.000	396.000	.000
	Wilks' Lambda	.229	444.255 ^b	3.000	396.000	.000
	Hotelling's Trace	3.366	444.255 ^b	3.000	396.000	.000
Sample	Pillai's Trace	.031	4.170 ^b	3.000	396.000	.006
	Wilks' Lambda	.969	4.170 ^b	3.000	396.000	.006
	Hotelling's Trace	.032	4.170 ^b	3.000	396.000	.006

Note: Pillai's Trace, Wilks' Lambda and Hotelling's Trace are four different multivariate test statistics. A significant overall effect was found for the sample variable ($p = .006$).

Furthermore, the sample (Hungarian vs. Jordanian) showed a significant effect on the three motives, with the following results: Pillai's Trace = 0.031, $F(3, 396) = 4.170$, $p = 0.006$; Wilks' Lambda = 0.969, $F(3, 396) = 4.170$, $p = 0.006$; and Hotelling's Trace = 0.032, $F(3, 396) = 4.170$, $p = 0.006$. According to Cohen's benchmarks for multivariate effect sizes, a Pillai's Trace of 0.031 represents a small effect. While modest, this nevertheless indicates a statistically significant difference between the Hungarian and Jordanian participants.

As also shown in Table 3, the findings revealed that affiliation exhibited a significant difference between Hungarian and Jordanian participants ($p = 0.005$), with a small effect size. In contrast, achievement showed only a marginal difference ($p = 0.060$) and a very small effect size, suggesting limited cultural variation. Power, however, did not differ significantly between the two groups, with an extremely small effect size. These results highlight that cultural influences were most pronounced in how participants expressed affiliation, while differences in achievement and power motives remained minimal.

Table 3. Tests of between-subjects effects for All four picture cards: ANOVA results for motives (Affiliation, Achievement, and Power)

Source		df	F	P	Partial Eta Squared
Corrected Model	affiliation	1	7.925	.005	.020
	achieve	1	3.554	.060	.009
	power	1	.959	.328	.002
Intercept	affiliation	1	805.510	.000	.669
	achieve	1	296.378	.000	.427
	power	1	226.370	.000	.363
Sample	affiliation	1	7.925	.005	.020
	achieve	1	3.554	.060	.009
	power	1	.959	.328	.002

Note: *df* = degrees of freedom; *F* = *F*-test statistic; *p* = *p*-value; Partial Eta Squared = effect size. A significant main effect of the sample was found for affiliation ($F(1, 396) = 7.925, p = .005, \eta^2p = .020$),

The T-test (Table 4) compared mean scores for achievement, power, and affiliation motives in narratives elicited for all picture cards combined. For achievement, there was a marginal difference between the two groups, $t(398) = -1.89, p = 0.060$. The mean score for Hungarian participants ($M = 1.11, SD = 1.24$) was slightly lower than that for Jordanian participants ($M = 1.39, SD = 1.64$). The 95% confidence interval for the mean difference ranged from -0.560 to 0.012, indicating that the difference was not statistically significant at the conventional $p < 0.05$ threshold.

Table 4. T-test – Per Variable comparison for all picture cards between the two groups

Motives	Hungarians		Jordanians		<i>t</i>	<i>p</i>	95% CI	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
Achievement	1.11	1.24	1.39	1.64	-1.89	0.06	-.560	.012
Power	1.09	1.38	1.24	1.71	-0.98	.328	-.457	.153
Affiliation	3.52	2.44	4.29	3.03	-2.815	.005	-1.32	-.234

Note: *M* = Mean; *SD* = Standard Deviation; *t* = T-test statistic; *p* = *p*-value; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit. Significant differences are indicated in bold ($p < .05$).

For power, there was no significant difference between the two groups. The mean score for Hungarian participants was slightly lower than that for Jordanian participants. The 95% confidence interval for the mean difference ranged from -0.457 to 0.153, further confirming that the observed difference was not statistically significant.

For affiliation, the results revealed a significant difference between the two groups, $t(398) = -2.815, p = 0.005$. Hungarian participants ($M = 3.52, SD = 2.44$) had significantly lower affiliation scores compared to Jordanian participants ($M = 4.29, SD = 3.03$). The 95% confidence interval for the mean difference ranged from -1.32 to -0.234, indicating a meaningful difference in how the two groups expressed affiliation in their narratives.

3.4. MDT findings in each of the four picture cards between the two groups

This section of the results presents the analyses of the narratives produced for each picture card. MANOVA results (Table 5) For Picture Card 1 (“Mother, Adult Son”), revealed a statistically significant overall effect of cultural background on the three implicit motives, $Wilks' \Lambda = 0.908, F(3, 96) = 3.239, p = .026$, with a medium effect size ($\eta^2 = .092$). This indicates that the combined motivational responses of achievement, power, and affiliation differed significantly between Hungarian and Jordanian participants when interpreting this family-oriented image.

Table 5. Multivariate Analysis (MANOVA) - Overall Group Effects Across Picture Cards

Picture Card	Effect	Wilks' Lambda	F	df	Error df	p	η^2	Interpretation
Card 1: Mother, Adult Son	Sample	0.908	3.239	3	96	.026*	0.092	Significant effect
Card 2: Defeated Woman	Sample	0.968	1.065	3	96	0.368	0.033	No significant effect
Card 3: Mother, Daughter, Doll	Sample	0.924	2.626	3	96	0.055	0.076	Marginally significant
Card 4: Hot Couple	Sample	0.978	0.721	3	96	0.542	0.022	No significant effect

Note: indicates $p < .05$. η^2 represents partial eta squared effect size. All intercept effects were significant ($p < .001$) across all cards, indicating strong overall model fits.*

In the case of Picture Card 2 ("Defeated Woman"), no significant effect was observed. The analysis yielded *Wilks' Lambda* = 0.968, $F(3, 96) = 1.065$, $p = .368$, with a small effect size ($\eta^2 = .033$). This suggests that participants' overall motivational expressions were similar across cultural groups when responding to this more emotionally ambiguous image.

For Picture Card 3 ("Mother, Daughter, Doll"), the multivariate test approached statistical significance, *Wilks' Lambda* = 0.924, $F(3, 96) = 2.626$, $p = .055$, $\eta^2 = .076$. Although marginal, this result suggests that cultural background may have influenced participants' combined motivational patterns, particularly in contexts involving maternal or childhood themes.

Finally, Picture Card 4 ("Hot Couple") showed no significant cultural effect, *Wilks' Lambda* = 0.978, $F(3, 96) = 0.721$, $p = .542$, $\eta^2 = .022$. This finding suggests minimal variation in overall motivational expression between groups in response to this image, which may reflect shared interpretations or less culturally charged content.

As also shown in Table 6, these independent samples t-test results complement the MANOVA findings by identifying the specific motivational dimensions in which cultural differences emerged. Jordanians scored significantly higher than Hungarians on the achievement motive only in Picture Card 1 ("Mother, Adult Son"). Regarding affiliation, significant differences were found in both Card 1 and Card 3 ("Mother, Daughter, Doll"), with Jordanians again scoring higher. No significant cultural differences were observed for the power motive across any of the four picture cards.

Table 6. Independent Samples T-test Results - Motive Comparisons Across Picture Cards

Picture Card	Motive	Hungarians		Jordanians		t	p	95% CI	
		M	SD	M	SD			LL	UL
Card 1: Mother, Adult Son	Achievement	0.85	1.24	1.4	1.53	-2	.047*	-1.11	-0
	Power	1.3	1.4	1.27	1.61	0.08	0.94	-0.57	0.6
	Affiliation	3.46	2.38	4.6	2.46	-2.4	.021*	-2.1	-1.8
Card 2: Defeated Woman	Achievement	1.09	1.12	1.67	2.19	-1.7	0.1	-1.3	0.1
	Power	0.97	1.28	1.23	2.03	-0.8	0.45	-0.9	0.4
	Affiliation	2.79	2.36	2.82	2.73	-0.1	0.94	-1	1
Card 3: Mother, Daughter, Doll	Achievement	1.25	1.25	1.26	1.25	-0.1	0.95	-0.51	0.5
	Power	1.2	1.63	1.16	1.38	0.13	0.9	-0.56	0.6
	Affiliation	4.61	2.54	6.24	3.29	-2.8	.007*	-2.8	-0.5
Card 4: Hot Couple	Achievement	1.27	1.31	1.21	1.44	0.22	0.83	-0.49	0.6
	Power	0.89	1.16	1.3	1.79	-1.4	0.17	-1.01	0.2
	Affiliation	3.21	2.14	3.5	2.49	-0.6	0.53	-1.21	0.6

Note: M = mean; SD = standard deviation; t = t-test statistic; p = p-value; 95% CI = confidence interval (LL = lower limit, UL = upper limit); NS = not significant. indicates $p < .05$.*

Several consistent patterns also emerged. Jordanians demonstrated higher mean scores in both achievement and affiliation motives across most picture cards, even when those differences did not reach statistical significance. In contrast, power motive expression remained largely similar between the two cultural groups, indicating a shared approach to power-related themes. Notably, the most pronounced cultural contrasts occurred in family-oriented scenarios (Cards 1 and 3), particularly in the domain of affiliation. These findings underscore the culturally embedded nature of relational motivation and support the broader pattern identified through multivariate analysis.

Across both language-use and motivational analyses, clear cross-cultural distinctions emerged. Jordanian participants reported marginally greater overall English use than Hungarians, whereas Hungarians exhibited higher lexical diversity and sophistication and reached higher CEFR levels. LIWC-22 analyses revealed that Hungarians produced longer texts with more complex vocabulary and higher analytical thinking scores, while Jordanians employed more social process words (including first- and second-person pronouns) and placed greater emphasis on family and present-focused language. Motivationally, across all picture cards, affiliation motives differed most markedly between Hungarian and Jordanian participants, with Jordanians expressing stronger relational drives. Achievement motives showed only slight cultural variation, while power motives remained consistent across both groups. Together, these results underscore how cultural background shapes both linguistic form and underlying motivational drivers in bilingual narrative construction.

4. Discussion

The findings of this study confirm that achievement, affiliation, and power function as central motivators shaping human narratives, as posited by McClelland (1961). Integrating Winter's (1994) insights on implicit and explicit motivational systems, this research underscores the value of projective methods, such as the Thematic Apperception Test (TAT), in capturing unconscious motivational drivers that self-report measures often fail to detect. These results are further supported by Schultheiss and colleagues (2004; Schultheiss & Köllner, 2021), who emphasize that implicit motives, unlike explicit ones, predict spontaneous behavior and long-term behavioral trends.

Across the Hungarian and Jordanian participants, cultural background significantly shaped affiliation motives, with Jordanian bilinguals expressing stronger relational themes. This pattern aligns with collectivist frameworks that emphasize group cohesion, familial responsibility, and interdependence (Hofstede, 2001). Jordanian narratives were notably rich in interpersonal connections and the use of first-person pronouns, reflecting a communal orientation rooted in the cultural expectation to maintain social harmony (Kashima & Kashima, 1998). Conversely, Hungarian participants, coming from a more individualistic cultural context, displayed lower affiliation scores, consistent with values of autonomy and self-definition (Chasiotis et al., 2010).

The pronounced emphasis on affiliation among Jordanian participants can be further explained through Motive Disposition Theory (McClelland, 1965). Within collectivist societies, the affiliation motive is deeply reinforced through early socialization, where maintaining relational harmony and avoiding social exclusion are prioritized. Hofer et al. (2017) underscore this dual motivational orientation, *hope for closeness* and *fear of rejection*, which sensitizes individuals to social feedback and interdependence. This theoretical framing helps explain why Jordanian narratives so consistently foreground family, emotional obligation, and group belonging. Hungarian participants, in contrast, were more likely to express affiliation through individually situated relationships, emphasizing self-determined emotional ties rather than communal expectations.

These findings echo those of Winter (1994), who observed ethnic differences in affiliation and achievement motives within a U.S. college sample. His study found that Asian American students exhibited higher affiliation motivation than their White peers, reflecting similar collectivist patterns. This supports the view that affiliation is not uniformly distributed but rather shaped by deeply rooted cultural schemas. Winter's broader comparison across cultures also highlights that motive expression can vary significantly even within shared educational contexts, reinforcing the present study's claim that implicit motives are not culturally neutral.

Achievement motives, meanwhile, showed only marginal cultural variation. Both groups emphasized academic and goal-oriented themes, albeit through distinct lenses. Jordanian participants often framed achievement in terms of family

expectations and social recognition, whereas Hungarian participants expressed it through personal ambition and self-directed growth. This cultural inflection illustrates how the hope-for-success vs. fear-of-failure orientation (Chasiotis et al., 2014) may manifest differently across settings. It also parallels Winter's (1994) observation of higher achievement motivation among African American students, interpreted not as a trait but as a response to cultural and institutional pressures (Crosby et al., 2003). In both contexts, achievement appears as a context-sensitive but broadly shared motivational domain.

Interestingly, power motives did not differ significantly between the two cultural groups. One might expect more overt expressions of power in a highly individualistic setting like Hungary, where agency and assertiveness are culturally emphasized (Schultheiss & Brunstein, 2010). However, the lack of group differences suggests that the hope-for-influence orientation of power may be increasingly shaped by globalized academic and social environments. As participants from both cultures are embedded in higher education and exposed to international norms of leadership, cooperation, and influence, their narrative expressions of power may reflect a shared motivational template. Additionally, the ambiguous and emotionally charged nature of the TAT stimuli likely shifted participants' attention toward relational dynamics, thereby muting dominance cues.

It is also important to interpret these null findings alongside the consistently small effect sizes for the significant results (e.g., for affiliation), which indicate that cultural background interacts with other factors rather than determining motive expression on its own. This pattern aligns with prior research showing that motive differences in TAT narratives are often subtle, with small effects and occasional null results offering meaningful theoretical constraints (Winter, 1994; Schultheiss & Pang, 2007). As Lonner (1985) emphasized, the TAT's utility lies in its capacity to elicit culturally embedded yet variably salient responses, highlighting both shared and divergent motivational patterns within and across cultures.

The bilingual, English-mediated context of this study likely tempered culturally specific expression by imposing both cognitive and affective constraints. Writing in a non-native language can neutralize emotional vocabulary and lead bilinguals to compartmentalize identity and values across languages (Ervin, 1964; Pavlenko, 2008; Dewaele, 2017). As a lingua franca, English often lacks the cultural resonance of participants' L1, encouraging more universal, globally intelligible storytelling—especially in emotionally ambiguous contexts (Katsavdakis et al., 2001; Perez-Palen, 2022). This may help explain why anticipated themes of power and emotional tension were muted, reflecting the instrumental function that English serves in academic settings for both Hungarian and Jordanian narrators.

Finally, this study revealed consistent patterns in pronoun usage, narrative complexity, and cognitive-emotional framing. For example, Jordanian narratives were notably rich in interpersonal connections and showed significantly higher use of first-person singular pronouns ("I") and second-person pronouns ("you"), reflecting a more direct, relational storytelling style that positions the audience as active participants. Surprisingly, this contradicts the usual association of collectivist cultures with reduced first-person singular pronoun use (Kashima & Kashima, 1998; Markus & Kitayama, 1991), suggesting that Jordanian storytellers may strategically employ personal pronouns to enhance social engagement. In contrast, Hungarian participants used significantly more third-person singular pronouns, suggesting an independent self-construal and a more detached, objective narrative perspective. Hungarian participants also scored significantly higher on analytical thinking, a LIWC-22 metric capturing logical, categorical language and structured reasoning, indicating a cultural preference for systematic, rule-based thought. The relatively lower analytical thinking scores among Jordanian participants should not be interpreted as cognitive deficiency but rather as evidence of alternative cognitive styles that emphasize contextual and relational reasoning. These findings align with Chung and Pennebaker's (2008) argument that linguistic markers, especially in emotionally rich narratives, serve as reliable proxies for underlying psychological and cultural dispositions.

LIWC-22 has proven effective for uncovering linguistic markers of psychological processes in large text corpora (Tausczik & Pennebaker, 2010). At the same time, it is important to acknowledge limitations in the use of LIWC-22 for cross-cultural and bilingual narrative data. While LIWC-22 provides robust psychometric measures for English-language texts, studies have shown that its category consistency can vary across languages (Dudău & Sava, 2021) and that bilinguals

often experience reduced affective resonance when using second-language emotion terms (Altarriba, 2003; Opitz & Degner, 2012). This means that LIWC's emotion-related categories may underrepresent the emotional nuance present in L2 narratives. Furthermore, because LIWC's dictionary is based on general word categories, it may not fully capture culturally embedded schemas, idioms, or context-specific connotations that shape how bilinguals frame their stories (Pennebaker et al., 2015). Future research could address these challenges by combining LIWC with qualitative or discourse-based approaches to better reflect the cross-cultural depth of bilingual narrative construction.

5. Conclusion

While affiliation motives are culturally distinct, achievement and power motives show minimal cross-cultural variation, suggesting the presence of more universal motivational tendencies. Cultural schemas strongly influence narratives involving familial roles and gender norms. Linguistic markers, including pronoun usage, emotional tone, cognitive processing patterns, and syntactic complexity, further reflect underlying cultural orientations, reinforcing the idea that motivational expression in L2 is shaped not only by linguistic ability but also by deeply embedded cultural narrative frameworks. Cultural influence extends into the microstructure of bilingual narratives. Bilinguals' narratives in L2 are not mere reflections of linguistic competence but are profoundly shaped by implicit cultural schemas and motivational priorities. The integration of computational linguistic analysis (LIWC-22) with culturally ambiguous visual stimuli (TAT cards) provides a rigorous methodological framework for identifying implicit motivational and linguistic patterns, combining the objectivity and scalability of automated text analysis with the depth and nuance of projective elicitation techniques. These findings affirm that even in a globalized, multilingual world, L1 cultural frameworks continue to influence how individuals conceptualize and express experiences in an L2. This duality—between linguistic proficiency and cultural embeddedness—has important implications for both cross-cultural psychology and bilingual pedagogy. It suggests that bilingual cognition is inherently hybrid, and that effective L2 education must address cultural transfer alongside linguistic development to promote deeper intercultural understanding and authentic communication.

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