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FACTORS INFLUENCING COGNITIVE GENDER ASSIGNMENT: GRAMMATICAL NEUTRALITY AND ARAB COUNTRY NAMES

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ABSTRACT

This study examines socio-cognitive factors that influence how individuals assign gender to semantically neutral entities. Specifically, it investigates the role of gender, level of education, and national identity/attitude in shaping the assignment of masculine or feminine pronouns to Arab country names, which lack inherent grammatical gender in Standard Arabic. A two-part questionnaire was administered to Jordanian participants, stratified by gender and education level, in addition to a multinational Arab sample. The findings reveal statistically meaningful patterns. Male participants demonstrated a strong tendency to assign masculine pronouns, whereas female participants showed a preference for feminine assignments. Higher levels of education intensified these tendencies, indicating greater consistency in cognitive categorization. Furthermore, nationality emerged as a key predictor of in-group bias, with participants consistently attributing positive gendered representations to their own countries, although the specific gender assigned varied across cultural contexts. These results suggest that extra-linguistic factors play a systematic role in shaping cognitive representations, highlighting the influence of social identity, cultural values, and experiential knowledge on human thought.

KEYWORDS: Gender, Education Level, Nationality, Attitude, Cognitive Categorization.

1. INTRODUCTION

The factors that shape human thought have long been a central concern in both linguistics and psychology. While the strong interpretation of the Sapir-Whorf hypothesis—suggesting that language determines thought—has been largely challenged, the interaction between language, cognition, and social identity remains a significant area of research. One important dimension of this interaction is grammatical gender, a linguistic system that categorizes nouns into classes such as masculine, feminine, or neuter, often influencing how speakers conceptualize and describe referents.

Previous research has demonstrated that grammatical gender can affect perception and memory. For example, Phillips and Boroditsky (2003) found those speakers' native language influences how they recall and describe objects, even when using a gender-neutral language such as English. However, relatively few studies have explored situations in which the linguistic stimulus itself lacks grammatical gender. This raises an important question: how do individuals assign gender in the absence of linguistic constraints?

The present study addresses this gap by examining how individuals assign gender to the names of Arab countries, which are grammatically neutral in Standard Arabic. Rather than focusing exclusively on linguistic structure, this research emphasizes extra-linguistic influences, including gender, level of education, and national identity/attitude.

Accordingly, the study is guided by the following research questions:

What extra-linguistic factors (gender, education, and nationality/attitude) influence the gendered categorization of grammatically neutral country names?

How do these factors manifest in participants' reasoning and justifications?

2. LITERATURE REVIEW

Research on grammatical gender has examined its role in shaping cognitive representations of objects and concepts. Early studies often treated grammatical gender as an arbitrary linguistic feature, with no inherent semantic meaning (Caramazza & Miozzo, 1997; Vigliocco et al., 1997). For example, objects such as "tree" and "branch" may be assigned different genders across languages without any clear semantic basis.

However, alternative perspectives argue that grammatical gender can carry meaningful associations. Fodor (1959) suggested that gender

classifications may reflect perceived properties of objects, influencing how individuals conceptualize them. In this view, speakers may associate masculine or feminine characteristics with objects depending on their grammatical classification.

Empirical studies support this interaction between language and cognition. Jakobson (1966) demonstrated that Russian speakers tend to personify days of the week according to their grammatical gender. Similarly, Sera et al. (1994) found that Spanish speakers classified objects in ways consistent with grammatical gender. Phillips and Boroditsky (2003) further showed that grammatical gender influences memory and perception across languages, even when tasks are performed in English.

Beyond linguistic structure, cognitive processes are also shaped by social and psychological factors. Decision-making research indicates that variables such as gender and age influence cognitive processing styles (Lizarraga et al., 2007). Additionally, attitudes—comprising affective, behavioral, and cognitive components—play a critical role in shaping perception (Spielman, 2017).

A particularly relevant concept is in-group favoritism, defined as the tendency to view one's own social group more positively (Doty, 1998). This suggests that individuals may project favorable characteristics onto entities associated with their identity, including their nation.

The present study builds on this body of research by shifting the focus from grammatical gender as a linguistic feature to the role of extra-linguistic factors in shaping cognitive categorization. Specifically, it investigates how individuals assign gender to entities that lack grammatical gender, thereby isolating the influence of social identity and personal experience.

3. METHODOLOGY

3.1. Participants

The study includes two main groups of participants.

The first group consists of Jordanian participants categorized according to gender (male, female) and level of education:

Illiterate

Literate (Tawjihi or less)

Literate (first degree or higher)

This group was divided into six subgroups:

10 illiterate females

10 illiterate males

50 literate (Tawjihi or less) males

50 literate (Tawjihi or less) females

50 literate (first degree or higher) males
50 literate (first degree or higher) females

The second group consists of participants from different Arab nationalities, including:

Algerian (n = 10)
Moroccan (n = 10)
Iraqi (n = 10)
Yemeni (n = 10)
Sudanese (n = 10)
Egyptian (n = 10)

3.2. Data Collection Instrument

A structured questionnaire was developed and divided into two sections.

The first section targeted Jordanian participants and included a multiple-choice task requiring them to assign either a masculine or feminine pronoun to selected country names. Participants were also asked to justify their choices.

The second section targeted the multinational group and focused on participants' own countries. Respondents selected a pronoun and provided explanations based on their perceptions and attitudes.

All materials were administered in Arabic to ensure clarity and consistency.

3.3. Materials

The study examined seven Arab country names: Jordan, Yemen, Morocco, Algeria, Iraq, Sudan, and Egypt. These were selected based on two criteria:

They are Arab countries. Their names lack inherent grammatical gender in Standard Arabic.

Syria was excluded due to historical association with a feminine marker in Arabic.

3.4. Procedure

Participants completed the questionnaire individually. Illiterate participants were assisted by the researcher, who recorded their responses. All participants were asked to select pronouns and provide explanations for their choices.

3.5. Data Analysis

The study employed both quantitative and qualitative analysis. Frequencies and percentages were calculated to identify patterns in pronoun selection across variables. Qualitative responses were analyzed to interpret the reasoning behind participants' choices.

4. RESULTS

4.1. Gender Variable

The results indicate a clear relationship between

participants' gender and their assignment of pronouns to country names. Male participants consistently showed a preference for masculine pronouns across all countries. For example, masculine selections reached high frequencies for countries such as Jordan (73.6%), Iraq (77.3%), and Morocco (71.8%).

In contrast, female participants demonstrated a strong preference for feminine pronouns. Feminine selections were particularly prominent for Algeria (87.3%), Egypt (89.1%), and Iraq (78.2%).

Qualitative responses further support these findings. Male participants frequently associated countries with attributes culturally linked to masculinity, such as strength, power, conflict, and authority. For instance, Iraq was described as a "country of war," and Sudan as a "country of strong men."

Female participants, on the other hand, tended to associate countries with nurturing, beauty, and cultural richness. Jordan, for example, was described as a "caring mother," while Egypt was associated with art, music, and emotional expression.

These results demonstrate that gender significantly influences cognitive categorization, with participants projecting culturally constructed gender traits onto neutral entities.

4.2. Level of Education

The findings reveal that level of education plays a reinforcing role in gender-based categorization. Participants with higher levels of education (first degree or more) exhibited stronger and more consistent tendencies in assigning gendered pronouns compared to less educated and illiterate groups.

For example, highly educated male participants showed stronger masculine preferences across countries (e.g., 80% for Jordan, 76% for Yemen), while highly educated female participants demonstrated stronger feminine preferences (e.g., 82% for Iraq). In contrast, illiterate participants displayed more balanced or less consistent distributions.

These results suggest that education enhances individuals' ability to form stable conceptual patterns and articulate reasoning. Qualitative responses from highly educated participants were more elaborate, often reflecting cultural, historical, or symbolic interpretations, whereas less educated participants provided simpler or more immediate associations.

4.3. Nationality and Attitude

Nationality emerged as a strong predictor of gender assignment, particularly in relation to participants' own countries. The findings indicate a clear pattern of in-group favoritism, where participants attributed positive qualities to their own nations regardless of the assigned gender.

For example:

Moroccan participants overwhelmingly assigned masculine gender to Morocco, associating it with development, strength, and civilization.

Yemeni participants predominantly assigned feminine gender, linking it to prosperity and cultural richness (e.g., "Happy Yemen").

Sudanese participants largely chose masculine pronouns, emphasizing strength and resilience.

Despite variation in gender assignment (masculine vs. feminine), the underlying pattern was consistent: participants framed their own countries positively. This reflects the influence of affective and cognitive components of attitude were emotional attachment and identity shape perception.

5. DISCUSSION

The findings of this study provide strong evidence that extra-linguistic factors significantly influence how individuals assign gender to grammatically neutral entities. These results extend previous research on grammatical gender by demonstrating that, even in the absence of linguistic constraints, systematic patterns emerge based on social and cognitive variables.

First, the gender variable highlights the role of socialization in shaping cognitive representations. Male participants' preference for masculine assignments and female participants' preference for feminine assignments reflect internalized cultural norms regarding gender roles. These findings align with Holmes (1995), who argues that men and women develop different communicative and interpretive patterns due to differing social experiences.

Second, the level of education appears to strengthen these patterns rather than neutralize them. This suggests that education does not simply promote objectivity but may also reinforce structured ways of thinking shaped by cultural and social frameworks. Educated participants

demonstrated greater consistency and depth in their responses, indicating a more developed cognitive schema.

Third, the role of nationality and attitude underscores the importance of identity in cognitive processing. The strong presence of in-group favoritism supports Doty's (1998) findings that individuals tend to view their own groups positively. Interestingly, the specific gender assigned to a country was less important than the positive attributes associated with it, suggesting that gender functions as a symbolic tool for expressing evaluation rather than a fixed category.

Overall, the study demonstrates that human thought is not solely governed by linguistic structures but is deeply influenced by social identity, cultural norms, and personal experience. In contexts where language provides no explicit guidance, individuals rely on these extra-linguistic factors to construct meaning.

6. CONCLUSION

This study explored how individuals assign gender to grammatically neutral country names and identified three key influencing factors: gender, level of education, and nationality/attitude.

The findings indicate that:

Gender plays a central role, with males favoring masculine assignments and females favoring feminine ones.

Higher levels of education reinforce these tendencies and contribute to more consistent and elaborated reasoning.

Nationality and attitude strongly influence perception, with participants consistently expressing positive representations of their own countries.

These results highlight the complex interplay between cognition, language, and social identity. They suggest that gender assignment is not merely a linguistic phenomenon but also a reflection of cultural values and psychological processes.

Future research should investigate additional variables such as age, socio-economic status, and cross-cultural comparisons beyond the Arab world to further understand how individuals construct meaning in the absence of linguistic constraints.

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