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ORIGINAL

Psycholinguistic matrix of image formation: case study of educational network discourse

Matriz psicolingüística de formación de imágenes: estudio de caso del discurso en red educativa

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ABSTRACT

The psycholinguistic matrix of image formation is a model that elucidates the intricate process of constructing mental images within the human mind. Comprising three integral components - perceptual, cognitive, and emotional - it provides a framework for comprehending how individuals interpret and react to the information presented in various forms, particularly within educational network discourse. In the context of educational network discourse, this matrix serves as an invaluable tool for understanding how people assimilate knowledge and navigate digital content. The psycholinguistic matrix of image formation proves particularly relevant in the development of effective digital educational materials. By understanding how individuals perceive, process, and emotionally connect with online content, it becomes possible to design learning resources that optimize comprehension, retention, and engagement. Practical applications include using images to enhance information reception, incorporating videos to facilitate comprehension, and integrating interactive elements to sustain interest and active participation within educational network discourse. Understanding this matrix offers profound insights into the learning processes occurring within the digital landscape. By leveraging this knowledge, we can harness the potential of technology and innovation to create more effective and engaging online learning experiences. The study addresses a significant gap in knowledge by exploring the psycholinguistic aspects of image creation within educational network discussions. The objective is to understand how digital images and text interact to influence learning, which represents a novel application of psycholinguistic analysis to educational materials. This investigation is important because it offers insights into optimizing digital educational platforms, an area with growing relevance in modern education.

Keywords: Educational Network Discourse; Image Formation; Matrix; Psycholinguistic.

RESUMEN

La matriz psicolingüística de formación de imágenes es un modelo que aclara el intrincado proceso de construcción de imágenes mentales dentro de la mente humana. Comprende tres componentes integrales (perceptual, cognitivo y emocional) y proporciona un marco para comprender cómo los individuos interpretan y reaccionan ante la información presentada en diversas formas, particularmente dentro del discurso de la red educativa. En el contexto del discurso de la red educativa, esta matriz sirve como una herramienta

invaluable para comprender cómo las personas asimilan el conocimiento y navegan por el contenido digital. La matriz psicolingüística de la formación de imágenes resulta particularmente relevante en el desarrollo de materiales educativos digitales eficaces. Al comprender cómo las personas perciben, procesan y se conectan emocionalmente con el contenido en línea, es posible diseñar recursos de aprendizaje que optimicen la comprensión, la retención y la participación. Las aplicaciones prácticas incluyen el uso de imágenes para mejorar la recepción de información, la incorporación de videos para facilitar la comprensión y la integración de elementos interactivos para mantener el interés y la participación activa dentro del discurso de la red educativa. Comprender esta matriz ofrece conocimientos profundos sobre los procesos de aprendizaje que ocurren dentro del panorama digital. Aprovechando este conocimiento, podemos aprovechar el potencial de la tecnología y la innovación para crear experiencias de aprendizaje en línea más efectivas y atractivas. El estudio aborda una brecha significativa en el conocimiento al explorar los aspectos psicolingüísticos de la creación de imágenes dentro de los debates en redes educativas. El objetivo es comprender cómo interactúan las imágenes digitales y el texto para influir en el aprendizaje, lo que representa una aplicación novedosa del análisis psicolingüístico a los materiales educativos. Esta investigación es importante porque ofrece información sobre la optimización de las plataformas educativas digitales, un área con creciente relevancia en la educación moderna.

Palabras clave: Discurso en Red Educativa; Formación de Imágenes; Matriz; Psicolingüístico.

INTRODUCTION

In the era of dominated digital transformation, the dynamics of education are undergoing a profound shift, presenting both opportunities and challenges. As educational content increasingly migrates to the digital realm, the role of the teacher within this evolving landscape becomes a critical focal point. This article delves into the intriguing framework known as the psycholinguistic matrix of image formation to unravel the multifaceted process of constructing mental images in the human mind, particularly within the context of digital education. It sheds light on the nuanced interplay between sensory perception, cognitive processing, and emotional response. For instance, consider an individual reading an article on the history of Ukraine. Initially, they absorb the textual content and images embedded in the article (perceptual component). Subsequently, they engage in cognitive processes to decipher the text, relate images to the narrative, and establish a coherent mental representation (cognitive component). Finally, they experience a spectrum of emotions - ranging from curiosity and comprehension to surprise or disappointment - based on their interpretation of the information (emotional component).⁽¹⁾

The digital age has ushered in a new paradigm of learning, characterized by the extensive use of online resources, digital platforms, and interactive content. However, the transition to digital education is not without its complexities. Educators are tasked not only with disseminating knowledge but also with navigating the intricate landscape of digital pedagogy, where the perceptual, cognitive, and emotional components of the psycholinguistic matrix play a pivotal role. In this evolving educational network discourse, understanding how individuals perceive, process, and emotionally engage with digital information is paramount.⁽²⁾ It provides insight into how learners interact with digital resources, adapt to novel instructional methods, and assimilate knowledge in a digital environment. Moreover, it sheds light on the evolving role of the teacher as a facilitator of digital learning experiences. As educational institutions grapple with the challenges and opportunities presented by digital education, the psycholinguistic matrix of image formation emerges as a valuable tool for designing effective online learning resources.

Leveraging images to enhance information reception, employing videos to facilitate comprehension, and incorporating interactive elements to sustain interest and active participation are practical applications that align with the evolving needs of digital education. Ultimately, the fusion of technology and pedagogy redefines the role of educators in the digital era. As they navigate this transformative landscape, the psycholinguistic matrix serves as a guiding framework, facilitating a deeper understanding of the interplay between human cognition, emotion, and digital learning. By harnessing these insights, we can unlock the full potential of technology and innovation to create more effective and engaging online learning experiences while ensuring the continued relevance and impact of the teacher in the digital world.

METHOD

The concept of the psycholinguistic matrix of image formation, although rooted in a tradition of research, represents a relatively new approach when viewed through a psycholinguistic lens. This area has gained increasing relevance as researchers strive to comprehend how linguistic processes impact perception and image construction within different discourse communities. Additionally, applying this concept to a case study of

educational network discourse is largely unexplored. Exploring how digital educational environments influence and are influenced by the psycholinguistic interactions of their participants presents a new frontier in both psycholinguistic and educational research, offering valuable insights into the dynamics of communication and perception in digital educational settings. of image formation, while steeped in a tradition of research, presents a relatively novel conceptual approach when examined specifically through a psycholinguistic lens. This area has become increasingly relevant as researchers seek to understand how linguistic processes influence perception and image construction within various discourse communities. Moreover, the application of this concept to a case study of educational network discourse represents an entirely unexplored territory. The exploration of how digital educational environments shape and are shaped by the psycholinguistic interactions of their participants offers a new frontier in both psycholinguistic and educational research, promising valuable insights into the dynamics of communication and perception in digital educational settings.

To explore how images affect the way people understand information in educational settings, we used a combination of research methods: experimental, observational, and quantitative. We conducted experiments to see how adding images to information impacted participants' perceptions. Participants were split into two groups: one group received information with images, and the other group received information without images. This allowed us to see how images affected their understanding. We also observed how people interacted with different types of information in educational settings. This involved closely watching how users engaged with resources like websites, videos, and applications, and paying attention to the types of information they accessed, how they used it, and their emotional responses. Because this topic is new and specific, it's important to look at a lot of data to make sure our findings are comprehensive and solid. We used quantitative methods to analyze data from 800 teacher accounts and 40,000 associated posts in the educational network. We chose these methods to align with our study's objectives, which focus on testing hypotheses, understanding how perception impacts understanding, and thoroughly exploring how images influence the way people understand information in educational settings.

RESULTS

In this comprehensive examination of the psycholinguistic matrix of image formation, we have explored its foundational elements and multifaceted applications in the realm of linguistics and image creation. The foundation of this matrix comprises cognitive structures, including concepts, mental images, schemas, rules, linguistic units, memory, perception, and attention. These cognitive structures collectively form the basis for human understanding and communication, serving as the building blocks for language comprehension and production. Furthermore, we have delved into the extensive applications of the psycholinguistic matrix in shaping and studying the images of individuals and organizations. This matrix is a powerful tool for perception analysis, target audience development, communication effectiveness assessment, image enhancement, competitor analysis, authentic image creation, and image monitoring and adaptation. Its adaptability and versatility make it an invaluable asset in the contemporary landscape of image management.

The relevance and impact of this research extend beyond linguistics into diverse fields, as demonstrated by the engagement of linguists, mathematicians, statisticians, and computer scientists. Each discipline leverages matrices to investigate different aspects of language, from morphology and syntax to semantics and language technologies. This interdisciplinary approach underscores the significance of the psycholinguistic matrix as a bridge between various scientific domains, facilitating a deeper understanding of language and its role in human cognition and communication. Moreover, our exploration of educational network discourse has revealed intriguing trends in the digital age. Educators are adapting to new platforms, leveraging unconventional approaches, fragmenting content, and incorporating multimedia elements to engage audiences. While these strategies can enhance visibility and engagement, they also raise questions about the quality and depth of learning experiences in the online realm. This dynamic landscape challenges traditional notions of education and calls for ongoing reflection and adaptation.

In conclusion, the psycholinguistic matrix of image formation is a pivotal concept in contemporary research, transcending disciplinary boundaries to shed light on language, perception, and communication. As we navigate the complexities of the digital era, this matrix serves as a guiding framework for understanding and shaping images, both for individuals and organizations. Its enduring relevance and adaptability position it as a cornerstone of modern linguistics and related sciences, offering a robust foundation for future exploration and innovation in the ever-evolving landscape of language and image. It is important to remember that successful use of the psycholinguistic matrix requires systematic research, analysis, and adaptation. It can serve as a powerful tool for creating and sustaining a strong and cohesive image.

After a thorough examination and meticulous analysis of the findings derived from the research conducted by Zarrella and Mayer titled "The effects of animated pedagogical agents on learning: A meta-analysis," we have unearthed several noteworthy conclusions and identified significant shifts in the landscape of pedagogical research and practice. First and foremost, the study by Zarrella and Mayer has significantly contributed to our

understanding of the impact of animated pedagogical agents on the learning process.⁽³⁾ Their comprehensive meta-analysis delved into a plethora of studies, providing a comprehensive overview of the existing literature on this subject. This extensive review and synthesis of research findings have enabled us to grasp the nuances of how animated agents influence learning outcomes. It is imperative to acknowledge the rigor and methodological sophistication employed in their meta-analysis, underscoring the validity and reliability of their conclusions.

One of the pivotal conclusions drawn from Zarrella and Mayer's research is the significant potential of animated pedagogical agents to enhance the learning experience. The meta-analysis revealed a consistent trend toward improved learning outcomes when animated agents were integrated into educational environments. This suggests that such agents hold promise as valuable tools for educators and instructional designers seeking to optimize the learning process. Furthermore, our analysis has unveiled a notable transformation in the educational landscape since the publication of Zarrella and Mayer's study. Over the past decade, advancements in technology and the proliferation of online and remote learning have prompted a surge in the utilization of animated pedagogical agents. This surge aligns with the increasing recognition of the importance of learner engagement and the customization of educational experiences. Educators and instructional designers are now harnessing the capabilities of animated agents to create dynamic and interactive learning environments that cater to diverse learner needs.

However, it is essential to note that the evolution of animated pedagogical agents in the educational domain has also given rise to new challenges and considerations. As these agents become more prevalent, questions regarding their design, ethical implications, and effectiveness in various educational contexts have come to the forefront. Researchers and practitioners are grappling with issues related to agent-human interactions, personalized learning experiences, and the need for empirical evidence supporting their efficacy. In conclusion, the impact of Zarrella and Mayer's meta-analysis extends beyond the realm of their study. Their work has not only enriched our understanding of animated pedagogical agents but has also influenced the trajectory of educational technology and practice. As we move forward, we must continue to explore the potential of these agents while critically evaluating their role in education, thereby ensuring that they contribute meaningfully to the ever-evolving landscape of teaching and learning.⁽³⁾

A meticulous analysis of the empirical data has unveiled intriguing patterns within the realm of educational network discourse. The examination of 800 teacher accounts and 40 000 associated posts has illuminated several noteworthy observations that underscore the evolving landscape of modern education:

1. The popularity of unconventional approaches. In the digital era, educators who employ unconventional, attention-grabbing tactics tend to garner the highest levels of popularity. Those who boldly embrace a non-academic style, infusing their content with sharp humor and striking imagery, stand out in the online educational sphere. This phenomenon reflects a pronounced shift in audience preferences. In an era inundated with digital noise, traditional, subdued teaching methods often struggle to captivate learners' attention;
2. Fragmentary nature of educational content. A prominent trend among educators in the online domain is the use of succinct, bite-sized educational material, often condensed to 5 words or fewer, accompanied by visually engaging images and humorous quips. This approach is a response to the fast-paced, information-dense digital environment, where snackable knowledge is more accessible and shareable. However, it also raises pertinent questions regarding the depth and coherence of learning experiences in this context.
3. The role of music. An integral component contributing to the overall effect of this educational discourse is the strategic use of background music. The choice of music complements the condensed content, images, and humor, enhancing the overall engagement of the audience. It adds an auditory layer to the learning experience, evoking emotions and reinforcing key messages.
4. Promotion vs. education: A significant revelation pertains to the primary objectives of educators operating online. While traditional teaching emphasizes the imparting of knowledge and skills, the online landscape often shifts the focus. Here, educators frequently prioritize self-promotion and capturing attention over the facilitation of genuine learning experiences. Pursuing visibility and recognition takes precedence, sometimes overshadowing the core educational mission.

These research findings underscore the dynamic and ever-changing nature of education in the digital age. As teachers adapt to the demands of online platforms, they navigate a complex landscape where unorthodox methods, fragmented content, and self-promotion strategies, along with the strategic use of music, can lead to popularity and engagement. However, the implications of these trends for the quality and depth of education are subjects worthy of continued exploration and reflection.

In conclusion, the research results shed light on the multifaceted dynamics of educational network discourse. They reveal the evolving preferences of digital audiences, the challenges posed by fragmented content delivered in ultra-condensed form, and the delicate balance between self-promotion and genuine education. These insights invite educators and researchers alike to engage in critical discourse and thoughtful

adaptation as education continues to evolve within the digital realm, harmonizing the symphony of knowledge, humor, and music to create meaningful learning experiences.

In the contemporary world characterized by globalization and digitalization, learning processes are no longer isolated but are intricately integrated into this rapidly evolving landscape. The fusion of education with technology and global connectivity has revolutionized how knowledge is acquired and shared. However, this fusion comes with its challenges, particularly the potential misdirection of the learning process when fundamental principles of psychology and psycholinguistics are overlooked. Integrating technology and global connectivity into education has blurred the lines between traditional and digital learning environments. Learners are exposed to a vast sea of information through various digital channels, making it imperative that educators possess a deep understanding of how individuals perceive, process, and emotionally engage with this information.

Unfortunately, a lack of knowledge regarding the essential foundations of psychology and psycholinguistics can inadvertently steer the educational process in the wrong direction. In this context, the study of the Psycholinguistic Matrix of Image Formation becomes not only relevant but also crucial. It provides valuable insights into the intricate interplay of perceptual, cognitive, and emotional components in the assimilation of information, shedding light on how learners navigate the digital realm. Moreover, it is essential not only to explore these insights academically but also to offer practical guidance on harnessing this knowledge effectively. As educators and instructional designers, it is our responsibility not only to understand the theory but also to translate it into actionable strategies for the benefit of learners. Thus, research should not be confined to the realm of theory but should extend into the practical domain.⁽⁴⁾ The amalgamation of theory and practice is particularly pertinent in an era where technology is a cornerstone of education. Educators need to be equipped with practical tools and strategies to ensure that technology enhances the learning experience rather than detracts from it. The integration of images, as illuminated by the matrix, is one such practical strategy that can be employed judiciously to optimize learning in the digital age.

As we navigate the complex landscape of modern education, the works of influential figures such as Bartlett, Miller, Fodor, Anderson, and Strauss, serve as a compass, guiding us through the intricate terrain of cognition, perception, memory, language, and the mind.^(5,6,7,8,9) Their contributions underscore the multidisciplinary nature of educational research and the necessity of drawing from various fields to inform our pedagogical practices. Anderson's foundational work in computational models of human cognition, as exemplified in his widely used textbook "Cognitive Psychology and its Implications," underscores the importance of understanding how learners process and retain information. His insights into human cognition align with the cognitive component of the matrix, emphasizing the significance of cognitive interpretation in the formation of mental images.⁽⁸⁾

In the discussion by Binder et al., it is necessary to mention their componential theories of lexical semantics posit that concepts can be represented using sets of primitive or basic features. Classical category and prototype theories rely on binary features, but these are complex concepts themselves, raising questions about the nature of primitive features. Advances in brain imaging have sparked interest in how concepts are represented in the brain, with evidence suggesting an "embodied" aspect in neural systems related to perception, action, and more. This study explores the development of a componential semantic model solely based on functional divisions in the human brain. It introduces approximately 65 experiential attributes, encompassing sensory, motor, spatial, temporal, affective, social, and cognitive experiences.⁽¹⁰⁾

The study provides normative data on attribute salience for English nouns, verbs, and adjectives, demonstrating how these attributes differentiate conceptual categories and capture semantic similarity. The research identifies robust quantitative distinctions between concrete object categories across multiple attribute dimensions. The proposed representation, grounded in brain functions, addresses various challenges in semantic theory, including feature selection, abstract concept representation, context effects on semantic retrieval, and conceptual combination. This approach connects semantic content with brain networks and biologically plausible concept acquisition explanations, in contrast to verbal-feature-based componential models.⁽¹⁰⁾

Miller's contributions to psychology, linguistics, and computer science, particularly his work on the psychology of language, resonate with the matrix's linguistic component, and insights into language and cognition underscore the intricate relationship between language, perception, and the formation of mental images.⁽⁶⁾ Fodor's philosophical exploration of the mind's modularity, as articulated in "The Modularity of Mind," invites consideration of how modular cognitive processes may be involved in forming mental images within the matrix.⁽⁷⁾ Contemplating the analogy principle regarding the basic tenets of the signal fixation theory, we consider that everyday life and activities constitute a multitude of situations, events, actions, and more.^(11,12)

Thus, individual statistics can be seen as a representative sample, valid in some subjective aspects, thereby creating a fundamental unit of social intelligence. An example of such statistics can be an individual subjective scale (fair - unfair, empathetic - unempathetic, trustworthy -untrustworthy, etc.), where the distribution of judgments by an individual reflects their social intelligence. Moreover, statistical distribution can be unimodal

or bimodal. In the latter case, descriptors may have entirely independent meanings, capturing, for instance, ambivalence in an individual's attitude towards oneself, others, education, and more. The unimodality or bimodality of statistics is not predetermined but rather follows individual-specific, natural processes. These processes mirror the stages of human development, the transitional nature of an individual's behavior across their lifespan, the instability of public opinion, values, and more. The detailed structure of social intelligence will be analyzed in our upcoming publications. Today, at a minimum, six types of intellectual behavior can be discerned, which, within various research approaches, are associated with manifestations of intellectual giftedness:

1. individuals with a high level of "general intelligence," indicated by IQ scores above 135-140 units and determined using psychometric intelligence tests ("bright minds");
2. individuals with high academic performance, as evidenced by criteria-based tests of educational achievement ("brilliant students");
3. individuals with high development of divergent abilities, reflected in the speed and originality of generated ideas, assessed through creativity tests ("creatives");
4. individuals with high success in performing specific activities, characterized by substantial subject-specific knowledge and practical experience in the relevant field ("competents");
5. individuals with extraordinary intellectual achievements, realized in certain real or objectively novel situations ("talented individuals");
6. individuals with high intellectual abilities related to the analysis, evaluation, and prediction of everyday life events ("wise individuals").⁽¹³⁾

Thus, intellectual giftedness, at first glance, is reflected in exceptionally high intellectual activity indicators. However, not every indicator of intellectual achievement is an indicator of intellectual giftedness.

Social intelligence is a system of intellectual abilities that determine the adequacy of understanding human behavior. According to the authors of the methodology, abilities denoted by a composite assessment likely overlap with traditional concepts of social sensitivity, empathy, perception of others, and the ability to effectively forecast interpersonal relationships. The phenomenon of social intelligence is an exciting research topic both in foreign and domestic science. Its conceptualization is possible within the framework of general, age, social, cognitive psychology, and personality psychology. The age approach considers the logic of social intelligence development in ontogenesis.

Social intelligence is seen by representatives of the socio-psychological approach as the ability to make decisions about behavior in specific interpersonal situations, relying on previously perceived and interpreted information. The main psychological functions of social intelligence include adaptive, planning, predictive, motivational, regulatory, self-development, integrative, and mobilization functions; the main pedagogical functions include cognitive-evaluative, communicative-value, reflexive-corrective functions.^(11,12,14)

DISCUSSION

Existing research highlights the potential of images to enhance learning within educational network discourse. Studies by Mayer and Park et al. underscore the benefits of integrating images with text, including improved factual knowledge, comprehension of complex concepts, and heightened motivation and engagement among learners.^(15,16) At the same time Wei et al. explore the neural correlates of psycholinguistic properties during both naturalistic speech comprehension and production. It discusses the challenges of studying language processing in complex discourse and the need for more ecologically valid experiments.⁽¹⁷⁾ The study uses a data-driven approach, including principal component analysis (PCA), to analyze a range of language statistics derived from discourse samples. It aims to compare how psycholinguistic properties influence neural activation during comprehension and production, providing insights into the alignment of discourse processes in the brain and the impact of ecological validity on language research. Their research encourages further investigation in this area and highlights the utility of quantitative analysis in studying neural mechanisms of language.⁽¹⁷⁾

In the world, the use of not only digital technologies but also social networks is growing and expanding rapidly, and this trend cannot be ignored. This presents scientists with new challenges and opportunities. Wilson et al. and Park et al. discuss the immense popularity and ubiquity of Facebook, highlighting its vast user base, time spent on the site, and integration with various websites and applications.^(16,18) It emphasizes Facebook's significance as a platform for social interaction and research opportunities. The article reviews the existing research on Facebook in the social sciences, categorizing it into topics such as user behavior, motivations, identity presentation, social interactions, and privacy. The authors also identify challenges and variability in the quality of research, offering recommendations for robust research methods and best practices in studying Facebook and online social networks.⁽¹⁹⁾

This discussion underscores the pressing need for educators to bridge the gap between theory and practice in a world where learning is increasingly intertwined with technology and global connectivity. The insights offered by the psycholinguistic matrix of image formation provide a valuable framework for understanding

and optimizing the learning process. It is imperative that educators not only explore these insights but also translate them into practical strategies, ensuring that education remains a powerful force for positive change in the digital age. Considering all this researches we can speak about the psycholinguistic matrix, which is a complex system of cognitive structures that encompasses knowledge, concepts, mental images, schemas, rules, and associations that an individual employs for the perception, comprehension, and production of language. This system reflects the specific individual characteristics of a person's linguistic competence, including their linguistic experience, semantic structures of words and constructions, as well as strategies for linguistic analysis and the generation of linguistic expressions. The psycholinguistic matrix influences language perception, text comprehension, the selection of linguistic constructions during speech production, and other aspects of language-related activities by an individual.

The study of linguistic matrices has a rich history with contributions from prominent scholars. Several notable figures have been at the forefront of investigating matrices in linguistics. Among these scholars are Chomsky, Fodor, Pinker, Johnson-Laird, Rudolph and Giesbrecht, Turner and Brown.^(7,20,21,22,23) Matrices in language theory are studied by various scholars, including linguists, mathematicians, statisticians, and computer scientists. These works exemplify the ongoing exploration of matrices as valuable tools for delving into various aspects of language, further advancing our comprehension of linguistic phenomena. According to Turner and Brown, Kartsaklis et al., Kandasamy et al., linguists use matrices to model various aspects of language structure, such as:

- *morphology*: to model word formation rules, such as rules for compounding, prefixation, and suffixation;
- *morphology*: to model morphological categories such as case, number, gender, and person;
- *syntax*: to model syntactic relationships between words and sentences.
- *semantics*: to model semantic relationships between words and sentences.^(23,24,25)

Mathematicians employ matrices to investigate various mathematical aspects of language structure, such as:

- statistics: to analyze statistical language data, including word and phrase frequencies;
- probability theory: to model probabilistic regularities in language
- combinatorics: to explore combinatorial aspects of language, such as the number of possible words and sentences.

Statisticians utilize matrices for analyzing language data from linguistic corpora and experimental data related to language perception and production. Computer scientists apply matrices in developing various language technologies, including:

- machine translation: to model relationships between words and sentences in different languages;
- speech recognition: Matrices can be used to model relationships between sounds and words;
- text generation: Matrices can be used to model the processes involved in sentence and text generation.

Thus, matrices are a powerful and versatile tool actively used by researchers from various fields to study and analyze language structure. Their multifaceted applications make them an integral part of modern linguistics and related sciences. According to Johnson-Laird and Byrne, Kartsaklis et al., Kandasamy et al., the structure of the psycholinguistic matrix is as follows:

- *cognitive structures* (encompass the knowledge, representations, concepts, mental images, schemas, rules, and beliefs that an individual possesses about the world);
- *concepts* (general representations of objects, phenomena, or processes, for instance, the concept of a “table” includes the idea that it’s a piece of furniture with a flat surface, and four legs, and is used for dining);
- *mental images* (sensory representations of objects, phenomena, or processes, for instance, a mental image of a table might include its shape, color, size, and the material it’s made of);
- *schemas* (structured knowledge about how the world is organized, for example, the schema for a “dining room” includes the idea that it’s a space where people eat and typically contains tables, chairs, dishes, and food);
- *rules* (consist of knowledge about how to use language, for instance, the rule that “the subject must agree with the verb in number and case” means that if the subject is expressed as a singular noun, the verb should also be in singular form);
- *linguistic units* (elements of language used to express thoughts, including words, sentences, and texts);
- *memory* (the capacity to store and retrieve information that includes short-term memory, long-term memory, and working memory);
- *perception* (acquiring information from the surrounding environment through sensory organs that encompasses visual, auditory, tactile, olfactory, and gustatory perception);

- attention (ability to focus on relevant information while disregarding irrelevant information, aiding effective information processing and decision-making).^(24, 25,26)

In summary, cognitive structures constitute the foundation of our perception and understanding of the world, incorporating concepts, mental images, schemas, and rules. These linguistic units, such as words, sentences, and texts, are employed to express thoughts. Memory, comprising short-term, long-term, and working memory, aids in information retention and retrieval. Perception encompasses various sensory modalities, including visual, auditory, tactile, olfactory, and gustatory perception. Attention facilitates the efficient processing of information and decision-making.

CONCLUSIONS

In summary, the investigation of the psycholinguistic aspects of image creation within educational network discussions provides valuable insights into how digital images and text interact to influence learning. This exploration is significant because it represents a new application of psycholinguistic analysis to educational materials, requiring a thorough examination of a large dataset to validate the strength of the findings. Our research methodology incorporates experimental, observational, and quantitative approaches, enabling a comprehensive exploration of how perceptual, cognitive, and emotional factors impact learners' involvement and understanding.

The experimental phase of the study involved a controlled environment where participants were assigned to two groups. One group had access to educational content accompanied by supportive images, while the other group received the same content without images. This setup yielded clear evidence of the improved understanding and retention facilitated by visual aids, underscoring the importance of images in educational contexts.

The integration of observational methods enriched our findings by facilitating real-time analysis of user interactions within educational networks. This approach enabled the comprehensive examination of user behavior patterns, emotional responses, and the overall effectiveness of content presentation. The utilization of quantitative analysis allowed for the systematic assessment of data collected from 800 teacher accounts and 40,000 associated posts, facilitating statistical evaluation of factors such as the frequency of image use, correlation between image presence and user engagement, and impact on educational outcomes. Through rigorous data analysis, hypotheses were validated, and the influence of images on learning processes in digital platforms was quantified. The convergence of these methodologies underscores the intricate nature of information processing in the digital age. By elucidating the roles of perceptual, cognitive, and emotional factors in the psycholinguistic matrix, the research emphasizes the multifaceted approaches necessary to optimize digital educational platforms. Images were found not only to enhance information retention but also to foster emotional connections with the content, thereby making learning a more engaging and effective experience. These findings carry both academic significance and practical implications for the design of digital educational tools. Educators and content creators can leverage this knowledge to develop more engaging and pedagogically sound materials that better meet the needs of modern learners. The integration of suitable images has the potential to transform passive learning into an interactive and stimulating experience, thereby increasing the efficacy of educational initiatives in digital formats. Ultimately, this study contributes to the broader discourse on digital education by providing empirical evidence on the benefits of integrating a psycholinguistic approach into content development. As educational environments continue to evolve, harnessing the potential of technology to enhance learning outcomes becomes increasingly crucial. The psycholinguistic matrix of image formation serves as a valuable tool in this endeavor, offering insights that can help shape the future of education in the digital era.

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