A Study on Factoids from Perspective of Embodied Cognition

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Abstract

Factoids—false but seemingly true information—are widely disseminated in communication, particularly through poems. Despite their ubiquity, their cognitive processing remains understudied. Giving that typical factoids are often presented in the poems. This study attempts to explore how factoids are invented and how factoids relate to representational act and mental states from perspective of embodied cognition through a qualitative content analysis of typical poem lines. The findings of the study show that inventing a factoid is indeed a representational act, involving integrating the selection, construction, transformation, and intentional communication of imaginative information. Representational acts bridge the gap between the internal constructs of our minds and the external world. These findings have implications for education, critical thinking.

Keywords: factoid, embodied cognition, mental states, representational act

1. Introduction

Factoids have been quite an important problem both in the field of philosophy of language and in the field of embodied cognitive linguistics. In terms of content, factoids correlate with lies, rumours, or artistic fiction.They either completely imitate facts or are expressed with the help of evidence of the unreliability of information. Factoids have become a hallmark of contemporary information culture. Yet their cognitive and communicative power remains largely unexplored. Through the lens of embodied cognition, proposing that their effectiveness lies not merely in the evaluation of their truth value according to traditional truth-conditional semantics (Tarski, 1944; Davidson, 1967), from which perspective the assessment of a sentence to be true or not is grounded on its correspondence to objective reality. According to cognitive science, human's cognition is inherently embodied (Lakoff & Johnson, 1999; Zwaan, 2002; Barsalou et al., 2008). This study investigates the process of factoids through the lens of embodied cognition. We hypothesize that inventing and understanding factoids involves embodied cognition. Factoids are representational act of creators' mental states. Thus, this study attempts to answer two research questions:

1) What is the process of inventing factoids from perspective of embodied cognition?

2) How are factoids invented based on senses related to representational act and mental states?

The first question attempts to reveal the state of inventing factoids from perspective of embodied cognition and the second question attempts to reveal the way how are factoids invented based on senses related to representational act and mental states. This study will adopt qualitative content analysis to answer these two questions.This research may offer implications for education and misinformation studies. The following sections depict the definition of factoids and its cognitive characteristics and describe the theoretical framework, case study, main findings and implications of the study.

2. Literature Review

2.1 The Definition of Factoids and its Cognitive Characteristics

Factoids have become a hallmark of contemporary information culture. Previous research on factoids has explored their role in shaping perception, memory, and communication(Boase, 2006; Anthony, 2008; Riaz, Shehzad & Umar, 2019). From cognitive perspective, factoids can influence how individuals process and retain information, particularly when they are presented in a way that aligns with mental states or schemas. This emphasizes the role of sensory and physical experiences in shaping cognitive processes. In media contexts, factoids are frequently

employed to enhance the persuasiveness of messages, especially in political discourse and advertising. Factoids are often treated as if they are facts, even when they are not, which can contribute to the spread of misinformation and the erosion of public trust in media. This highlights the importance of understanding how factoids are invented and understood in specific contexts.

Factoid as a term is first coined by Norman Mailer in 1973. According to Norman Mailer, the term "factoid" refers to a statement or piece of information that appears to be true or accurate but is actually false or lacks proper evidence (Norman Mailer, 1973). In traditional truth-conditional semantics (Tarski, 1944; Davidson, 1967), the assessment of a sentence to be true or not is grounded on its correspondence to objective reality. Thus, according to traditional truth-conditional semantics, a factoid is not true due to its shortage of correspondence to objective reality and thus it has no truth value. Though a factoid has no truth value, it has cognitive value from perspective of embodied cognition. Embodied cognition argues that human thinking is deeply connected to our physical experiences (Lakoff & Johnson, 1999). Prior studies (Buccino, 2008; Citron, 2012; Gough et al., 2013; Wang et al., 2019) have probed the interaction between language and action. The prior studies support the embodied theory that language creation and comprehension is fundamentally rooted in bodily activity as it relates to the cognitive neural system. However, these studies focused predominantly on facts or concrete meanings, overlooking factoids. A factoid reveals how mental state is externalized by representational act in the inventing process and shows that language isn't merely about truth but also about how our minds and bodies are involved in creating meaning. We don't merely invent and process language as abstract symbols. We create and comprehend language meaning through our senses.

The hypothesis is that inventing factoids involves representational act which is the externalization of the creators' mental states, which will be demonstrated through the typical poem lines as qualitative analysis.Embodied cognition held that language comprehension was grounded in bodily activity in terms of the cognitive neural system, and that the study of language processing should be based on the relationship between mind and body.

2.2 The Body-Mind Problem

Cognition is a body-mind problem. This intricate problem between the body and mind has been a topic of great interest and debate throughout history(Campbell, 1970; Descartes, 1984; Fodor, 1997/2000; Gallagher, 2017; Dries, 2018). And it has been a subject of fascination and exploration across various fields of study, including philosophy, psychology, neuroscience, and medicine. In philosophy, there are two main philosophical positions that address the mind-body relationship: dualism, adualism.

The early exploration of the body-mind relationship can be traced back to philosopher Plato. Plato discussed the complex relationship between the body and the mind. In his philosophical dialogues, Plato presented a dualistic view that separated the physical body from the immaterial mind or soul (Robinson, 2020). Plato's dualistic philosophy posits the existence of the physical world and the world of forms. According to Plato, the physical world is a realm of change, imperfection, and transience. On the other hand, the world of forms represents an eternal and unchanging reality (Annas, 1981), where perfect and immutable entities exist.

In Plato's view, the physical body is merely a temporary vessel that houses the immortal soul or mind. Plato likened the body to a prison for the soul, keeping it bound to the material realm and preventing it from fully realizing its true nature. For Plato, the body is subject to the senses and the desires of the material world, which he considered deceptive and transient. The body's appetites and passions, according to Plato, can cloud the rational faculties of the mind and lead individuals astray from the pursuit of philosophical wisdom (Lederman, 2009). Plato emphasized the superiority of the mind or soul over the physical body. He believed that true knowledge and understanding could only be attained through the exercise of reason and intellectual contemplation. Plato argued that the mind or soul is immortal and preexisted before its incarnation in a physical body. It possesses innate knowledge, acquired through previous experiences in the world of Forms, and the task of philosophy is to awaken and recollect this knowledge through a process of intellectual inquiry (Scott, 1995). Plato's dualistic view of the mind and body has faced criticism and alternative interpretations throughout the history of philosophy. One notable critique is the challenge of explaining the interaction between the immaterial mind and the physical body. How can the mind influence or be influenced by the body if they exist in separate realms?

In contrast to Plato's dualism, Aristotle advocated for a more integrated view, seeing the mind as an inherent aspect of the living body. This perspective is known as hylomorphism and emphasizes the inseparability of the mind and body, viewing them as interconnected and mutually dependent (Varela & Rosch, 2016).

In addition, René Descartes advocated for a form of dualism known as Cartesian dualism, which asserts that the mind and body are separate and distinct entities(Nietzsche, 2006). Descartes' dualism stems from his methodological

doubt, a systematic approach to skepticism in which he sought to doubt all knowledge that could be doubted. Through this process, Descartes arrived at the famous maxim, "Cogito, ergo sum." or "I think, therefore I am." which became a foundational element of his philosophy. Descartes argued that while he could doubt the existence of his body, he could not doubt the existence of his mind, as the very act of doubting demonstrated his thinking existence. According to Descartes, the mind or soul is a non-physical, thinking substance, while the body is a physical, extended substance. Descartes' dualistic perspective has had a lasting impact on philosophical and scientific discourse. However, Descartes' dualism has faced challenges from scientific and philosophical perspectives that seek to reconcile the unity of human experience and the interdependence of mental and physical processes.

Friedrich Nietzsche developed a unique perspective on the body-mind problem that challenged traditional dualistic notions.

> "body am I through and through, and nothing besides; and soul is just a word for something on the body. The body is a great reason, a multiplicity with one sense, a war and a peace, one herd and one shepherd. Your small reason, what you call 'mind' is also a tool of your body, my brother, a small work- and plaything of your great reason. 'I' you say and are proud of this word. But what is greater is that in which you do not want to believe – your body and its great reason."
>
> (Nietzsche, 2006/1883:146)

Unlike other dualistic philosophers who posited a strict separation between the mind and body, Nietzsche approached the body-mind relationship from a more holistic and adualistic standpoint. Nietzsche rejected the idea of a clear-cut division between the mind and body, emphasizing instead their interconnection and interdependence. He believed that the human being is a unified whole, and any attempt to isolate and prioritize the mind over the body or vice versa was misguided. He suggested that our experiences and understanding of the world are deeply influenced by our bodily sensations, instincts, and drives.Nietzsche believed that our bodily experiences, including pleasure, pain, and desire, play a crucial role in our cognitive processes and the formation of our values and beliefs. Nietzsche's perspective emphasizes the subjective and interpretative nature of human experience. It reminds us that our perceptions, values, and beliefs are shaped by our unique perspectives and bodily existence. He dismissed the notion of pure rationality, arguing that even abstract thought is shaped by instincts and bodily states. This perspective anticipated modern embodied cognition theories (Lakoff & Johnson, 1980), which similarly reject Cartesian separatism in favor of dynamic mind-body integration (Gallagher, 2005).

With the emergence of cognitive science, it emphasizes the deep interconnection between the mind and body. And it is a revolt against the traditional view of the relationship between body and mind. "Proponents of embodied cognitive science view this as a serious mistake. Sometimes the nature of the dependence of cognition on the body is quite unexpected and suggests new ways of conceptualizing and exploring the mechanics of cognitive processing." (Wilson & Foglia, 2015) According to Lakoff and Johnson, embodied cognitive science appeals to the idea that cognition deeply depends on aspects of the agent's body. Without the involvement of the body in both sensing and acting, thoughts would be empty, and mental affairs would not exhibit the characteristics and properties they do (Lakoff & Johnson, 1999). Embodied cognition recognizes that cognition is not solely a product of the brain but is deeply influenced by the body, sensory perceptions and motor actions. It emphasizes the role of bodily experiences, sensorimotor interactions, and the environment in shaping our cognitive processes. According to embodied cognition, the mind and body are inseparable, and they mutually shape and influence each other. The view of the embodied cognition is on the side of Nietzsche.

The relationship between the human mind and body is complex and multifaceted. Different philosophical perspectives offer contrasting views on this relationship. Dualism posits a separation between the mind and body while adualism asserts their fundamental unity. "In general, dominant views in the philosophy of mind and cognitive science have considered the body as peripheral to understanding the nature of mind and cognition." (Wilson & Foglia, 2015) The field of embodied cognition highlights the inseparable connection between the mind and body, emphasizing the role of embodied experiences in shaping cognition.

2.3 Mental States and Representational Acts

Human communication is a complex process that involves the use of symbols and signs to convey meaning. It is also a profound process of cognition. According to cognitive science, cognition involves an agent's every aspect in life. "Almost everything you do, and everything you feel or say, depends on your cognition — what you know, what you remember, and what you think." (Reisberge, 2019: 3) The term "cognition" is the mental act or process by which knowledge is acquired, including perception, intuition, and reasoning and it refers to "all processes by which the

sensory input is transformed, reduced, elaborated, stored, recovered, and used. It is concerned with these processes even when they operate in the absence of relevant stimulation, as in images and hallucinations. . .. given such a sweeping definition, it is apparent that cognition is involved in everything a human being might possibly do; that every psychological phenomenon is a cognitive phenomenon" (Neisser, 1976: 4). Cognition provides the cognitive infrastructure for language processing while language shapes cognitive processes and structures in turn.

Within this framework, representational acts play a significant role in our everyday interactions. Representational acts refer to the use of symbols, gestures, language or other forms of communication to represent objects, concepts, ideas or emotions. At its core, human communication is a symbolic process. Representational acts involve the use of symbols or signs that stand for or represent something else. The primary function of representational acts is to convey meaning. The power of representational acts lies in their ability to transcend the immediate physical reality and convey abstract meanings and ideas. Language is perhaps the most common and intricate form of representational acts. Words, phrases and grammar systems are used to represent and communicate thoughts, ideas and emotions. The flexibility and complexity of language allow for precise and nuanced expression, enabling us to convey abstract concepts, share stories, engage in debates and foster social connections. Representational acts have a profound impact on human communication and understanding. Representational acts also invite interpretation and meaning making. Perception is the gateway to cognition, as it involves the initial gathering and interpretation of sensory information from the environment.

From embodied cognitive perspective, what does it take to understand a sentence as being true? "Understanding a sentence as being true in a given situation requires having an understanding of the sentence and having an understanding of the situation."(Lakoff & Johnson, 1980:169) Embodied cognition emphasizes the interaction between mind and body, and the mind reflects the mentality, including mental states and mental acts. The body mirrors the physicality, including physical states and physical acts. The mentality and physicality are dependent upon each other. Mental states are "representational facts, and all representational facts are mental acts about informational functions." (Hanna, 2015:1) He suggests that representation involves a triadic relationship between the representation itself, the thing being represented and the audience or interpreter.

According to Hanna, representation consists of three essential elements including the representation, the object and the interpretant (Hanna, 2015). The representation refers to the sign or symbol used to represent the object while the object represents the thing or concept being portrayed. The interpretant is the meaning or understanding that the audience derives from the representation. One key aspect of Hanna's theory is its recognition of the dynamic and contextual nature of representation. It acknowledges that meaning is not fixed but is constructed and negotiated within specific communicative contexts. The interpretation of a representation can vary depending on cultural, social and individual factors, as well as the context in which it is presented. The context, purpose, and intended audience of the representation all play a role in shaping its meaning. Hanna's Representational Theory offers a valuable framework for understanding the nature of representation in communication. And it offers convincing explanation about the cognitive process of factoids.

3. A Case Study of Factoids from Perspective of Embodied Cognition

In the field of cognitive science, the traditional view has often focused on the brain as the primary locus of cognition, separating the mind from the body. However, the concept of embodied cognition challenges this perspective by emphasizing the inseparable relationship between the mind and the body in shaping our cognitive processes. Embodied cognition posits that cognitive processes are not solely confined to the brain but are grounded in bodily experiences and sensorimotor interactions with the environment. It suggests that our cognition is deeply influenced by our physical bodies, sensory perception, motor actions, and the situatedness of our experiences (Wilson, 2002; Wilson & Foglia, 2015).

One of the foundational principles of embodied cognition is the idea of embodied simulation. This concept proposes that our cognitive processes involve the internal simulation of sensorimotor experiences, allowing us to understand and interact with the world around us. Embodied cognition offers valuable insights into the relationship between perception and cognition. Traditional views have often treated perception as a passive process of passively receiving information from the environment. However, embodied cognition emphasizes that perception is an active and embodied process, where our bodily experiences and sensorimotor interactions shape our perceptual interpretations. Embodied cognition suggests our cognitive processes are deeply intertwined with our bodily experiences. Rather than viewing the mind as separate from the body, embodied cognition argues that our mental processes are shaped by our physical interactions with the world around us. This perspective is crucial in understanding the invention and perception of factoids.

3.1 A Factoid of Auditory Sensation

(1) 我听见了花开的声音.

'I hear the sound of flowers blooming.'

----Facing the Sea with Spring Blossoms (Haizi, 2018)

我听见了花开的声音('I hear the sound of flowers blooming.') is a factoid sentence of auditory sensation and it involves the internal simulation of sensorimotor experiences. According to mental simulation theory (Barsalou, 2008), processing this statement activates cross-modal sensory representations. The verb "听见" ('hear') engages the auditory cortex while"花开"('flowers blooming') simultaneously recruits visual and olfactory neural networks , creating a sensorimotor blend that exemplifies conceptual metaphor in action. This representational act constructs meaning through embodied engagement, leveraging mirror neuron systems that encode action-perception couplings (Rizzolatti & Sinigaglia, 2008) and the positive affective valence associated with flowers to enhance plausibility.While violating truth-conditional semantics (Tarski, 1944) through its biologically unverifiable claim, the sentence achieves experiential coherence by activating embodied schemas, structures "blooming" as a perceptible process, while cultural embodiment makes the metaphorical "sound" legible as an existential marker of transience in Chinese poetic tradition. This explains that the factoid's persuasive power emerges from pre-reflective bodily resonance (Merleau-Ponty, 1945) rather than propositional truth, as the mind experientially accepts the utterance through sensorimotor simulation rather than rational verification, demonstrating the embodied cognitive process of factoids.

3.2 A Factoid of Visual Sensation

(2) 我看见时间在墙上剥落.

'I see time peeling off the wall.'

----The Roses of Time (Beidao, 2005)

This is a factoid sentence of visual sensation, and it exemplifies the comprehension of impossible sensory experiences through mental simulation and representational acts. According to theories of grounded cognition, processing this statement engages multiple sensorimotor systems simultaneously. The visual verb "看见" ('see') activates occipital cortex regions associated with visual perception (Pulvermüller, 2005), while the unconventional direct object "时间" ('time') forces a conceptual blend between abstract temporal perception and concrete physical decay. This mental state construction relies on cross-domain mapping (Fauconnier, 1997). The representational act achieves its plausibility through embodied mechanisms which include the recruitment of tactile-kinesthetic memories of observing actual wall degradation (Gibbs, 2006); and then exploits the verticality metaphor where "time passing" is spatially mapped onto the vertical surface; and at last it leverages mirror neuron activation (Rizzolatti & Sinigaglia, 2008) that simulates the action of peeling. While violating basic truth conditions of visual perception, the sentence's experiential coherence emerges from its engagement with deep-seated embodied schemas. This explains the reason why such factoids resist logical negation is because their persuasive power stems not from propositional truth but from pre-reflective sensorimotor resonance, as the mental simulation of "seeing time" activates richer embodied representations than the abstract concept of temporal flow alone. The factoid thus demonstrates how language can create "embodied hyperreality" (Eco, 1976) by grafting abstract concepts onto visceral sensory experiences through representational acts that feel true before they are evaluated as true.

3.3 A Factoid of Olfactory Sensation

(3) 整个教室都闻得到她的聪明.

'Her intelligence could be smelled throughout the classroom.'

----My Altay (Li Juan, 2010)

The factoid statement "整个教室都闻得到她的聪明" ('Her intelligence could be smelled throughout the classroom.') triggers a complex multisensory mental state that blends olfactory perception with abstract cognitive evaluation. The verb "闻得到" ('could be smelled') activates neural substrates associated with olfactory processing in the piriform cortex (Gottfried, 2006), while the abstract noun "聪明" ('intelligence') typically engages prefrontal regions involved in social cognition. This representational act achieves its paradoxical plausibility through embodied mechanisms which include the exploitation of the sweet-smelling metaphor that conventionally links positive traits with pleasant fragrances; and then the recruitment of embodied experiences of emotionally charged olfactory memories (Herz, 2011) where scents become markers of personal presence; and then it utilizes the container image

schema (Johnson, 1987) to frame the classroom as a bounded space saturated with this metaphorical scent. While violating basic truth conditions of olfactory perception since intelligence lacks molecular properties to stimulate smell receptors, the sentence's experiential coherence emerges from its engagement with deep-seated cross-modal associations and the embodiment of social evaluation as environmental permeation (Boroditsky & Prinz, 2008). This explains why such factoids resist logical negation is because their persuasive power stems not from propositional truth but from pre-reflective sensorimotor resonance, as the mental simulation of "smelling intelligence" activates richer somatic markers (Damasio, 1994) than the abstract concept of intelligence alone. The factoid sentence grafts abstract social judgments onto visceral sensory experiences through representational acts that feel phenomenologically real before they are evaluated as logically impossible.

3.4 A Factoid of Gustatory Sensation

（4）他的话语带着铁锈的腥.

'His words tasted like rusty metal.'

----The Seventh Day (Yuhua, 2013)

他的话语带着铁锈的腥味('His words tasted like rusty metal') is a factoid of gustatory sensation and it engages a complex interplay of gustatory, linguistic, and emotional neural networks. The gustatory metaphor "铁锈的腥味" ('tasted like rusty metal') activates the insular cortex and orbitofrontal regions associated with taste perception，while simultaneously triggering affective responses linked to metallic tastes. This sentence exploits the conceptual metaphor that language is food, which conventionally maps speech properties onto flavor dimensions and then it recruits embodied memories of metallic tastes that carry strong emotional associations (Herz, 2011); and it utilizes the FORCE schema (Johnson, 1987) to frame words as invasive substances physically contacting the listener. While violating basic truth conditions of taste perception since speech lacks chemical properties to stimulate taste receptors (Spence, 2022), the sentence's experiential coherence emerges from deep-seated cross-modal associations which is the embodiment of unpleasant communication as physical contamination (Sherman & Clore, 2009) and the conceptual blending (Fauconnier & Turner, 2002) of linguistic and gustatory domains. This explains why such factoids resist logical negation: their persuasive power stems not from propositional truth but from pre-reflective sensorimotor resonance (Gallagher, 2005), as the mental simulation of "tasting words" activates more visceral somatic markers (Damasio, 1994) than abstract descriptions of unpleasant speech.

3.5 A Factoid of Tactile Sensation

(5) 我触摸到了光的质.

'I touched the texture of light.'

----A generation (Gu Chen, 1986)

This is a factoid statement of tactile sensation, and it generates a paradoxical mental state that merges tactile perception with visual phenomena, engaging the somatosensory cortex (Keysers et al., 2010) while simultaneously activating visual association areas. It exploits the texture-quality metaphor that conventionally maps tactile properties onto visual experiences and recruits author's memories of touching various surfaces and projects these onto the abstract concept of light and frame light as a tangible entity that can resist or yield to touch. The sentence's experiential coherence emerges from deep-seated cross-modal associations which is the embodiment of visual intensity as physical resistance and the conceptual blending of tactile and visual domains. The reason why such factoids resist logical negation is that their persuasive power stems not from propositional truth but from pre-reflective sensorimotor resonance (Gallagher, 2005), as the mental state of "touching light" activates richer kinesthetic imagery (Jeannerod, 2001) than abstract descriptions of light properties. The sentence's effectiveness particularly relies on image schema (Johnson, 1987), allowing readers to simulate various textures of light through embodied tactile memories, demonstrating how abstract concepts become meaningful through bodily experience and how mental state is revealed through representational act in the process of inventing factoids.

Table 1. Embodied Cognition Explanation of Five Sensations in Typical Poetic Factoid

Sensory Type	Typical Poetic Factoid	Embodied Cognition Explanation
Auditory Sensation	I hear the sound of flowers blooming.	This factoid exemplifies the auditory representation act. The phrase "sound of flowers blooming" activates cross-modal sensory representations. The verb "听见" ('hear') engages the auditory cortex while" 花 开 "('flowers blooming') simultaneously recruits visual and olfactory neural networks , creating a sensorimotor blend.
Visual Sensation	I see time peeling off the wall.	This factoid engages multiple sensorimotor systems simultaneously. The visual verb "看见" ('see') activates occipital cortex regions associated with visual perception, while the unconventional direct object "时间" ('time') forces a conceptual blend between abstract temporal perception and concrete physical decay.
Olfactory Sensation	Her intelligence could be smelled throughout the classroom.	This factoid triggers a complex multisensory mental state that blends olfactory perception with abstract cognitive evaluation. The verb "闻得到" ('could be smelled') activates neural substrates associated with olfactory processing in the piriform cortexwhile the abstract noun "聪明" ('intelligence') typically engages prefrontal regions involved in social cognition.
Gustatory Sensation	His words tasted like rusty metal.	This factoid engages a complex interplay of gustatory, linguistic, and emotional neural networks. The gustatory metaphor "铁锈的腥味" ('tasted like rusty metal') activates the insular cortex and orbitofrontal regions associated with taste perception，while simultaneously triggering affective responses linked to metallic tastes.
Tactile Sensation	I touched the texture of light.	This factoid generates a paradoxical mental state that merges tactile perception with visual phenomena, engaging the somatosensory cortex while simultaneously activating visual association areas. It exploits the texture-quality metaphor that conventionally maps tactile properties onto visual experiences and recruits author's memories of touching various surfaces and projects these onto the abstract concept of light and frame light as a tangible entity that can resist or yield to touch.

The analysis of factoids of five sensations in table 1 demonstrates that the process of constructing linguistic factoids begins with our sensorimotor experiences. Our bodies interact with the environment through our senses including vision, hearing, smell, taste and touch. These sensory inputs provide the foundation for the construction of linguistic factoids. A visual experience, such as witnessing an unusual event or seeing an intriguing object, can serve as the starting point for a linguistic factoid. Linguistic factoids emerge through the process of conceptual integration, where various concepts, ideas, and fragments of information are blended together to create something new. This cognitive process draws upon our embodied experiences and our understanding of the world. Our sensory perceptions, memories, emotions, and cultural knowledge intertwine, allowing us to construct linguistic factoids that are plausible and engaging.

The process of inventing a factoid begins with the selection and construction of information. The factoid creator chooses specific details, fragments, or ideas from their mental states or external sources. This selection process involves biases, personal preferences, and the desire to create an engaging narrative. Once the initial information is selected, it is transformed into a symbolic form that can be communicated to others. Language, visual cues, or other representational systems are employed to encapsulate the essence of the factoid. This transformation process allows the factoid creator to convey their imaginative construct to an audience.

4. Conclusion

4.1 Main Findings

As an unique phenomenon in the language, a factoid is viewed to have no truth value according to the criteria in the philosophy of language . Whereas in embodied cognitive, factoid has its cognitive value since inventing a factoid is indeed a representational act, involving the selection, construction, transformation, and intentional communication of

imaginative information. Representational acts bridge the gap between the internal constructs of our minds and the external world, enabling us to convey our ideas and narratives to others. The analysis of factoids of five sensations above demonstrates that the process of constructing linguistic factoids begins with our sensorimotor experiences. Our bodies interact with the environment through our senses including vision, hearing, smell, taste and touch. These sensory inputs provide the foundation for the construction of linguistic factoids. The factoid is an indicative of different representational acts being performed both at the conceptual and non-conceptual levels.

4.2 Implications

The existence or occurrence of linguistic factoid has theoretical implication on the one hand that the human body is not peripheral to the understanding of the human mind, and on the other hand that mental representation has its ontological role in embodied cognition. This study demonstrates that though linguistic factoids have no realistic truth value in physicality or have no truth value according to the criteria in the philosophy of language but have cognitive value in mentality since creating factoids involves the process of cognition of human being and it is a convincing evidence that human being's cognition involves both the mental state and the physical body. It is of great theoretical importance since the study establishes embodied simulation as the primary mechanism of factoid acceptance and reconciles phenomenological immediacy with conceptual impossibility in language processing.

In the meantime, this study has practical significance since it is of benefit to critical thinking and it offers valuable insights for educators, content designers, and communicators. By leveraging high-embodiment factoids, teachers can enhance learning and memory retention. In addition, the insights from this study can contribute to the broader efforts of combating misinformation and enhancing digital literacy. In an era where false information spreads rapidly through digital platforms, the ability to critically evaluate and to remember factual content is more important than ever. By designing educational materials that are not only informative but also embodied and contextually relevant, educators can help students develop the skills needed to discern truth from falsehood . Furthermore, the integration of fact-checking tools and critical thinking exercises into the curriculum can empower students to navigate the complexities of the digital world with confidence and competence.

4.3 Limitations and Suggestions for Further Research

Though this study has reached creative findings and contributions, there are unavoidable limitations. First, the subjective nature of embodiment ratings may introduce bias into the analysis, as the interpretation of how linguistic content is embodied can vary depending on the researcher's theoretical framework or cultural background . Second, the cultural specificity of factoids is a significant limitation, as the study may not fully capture the diverse ways in which factual information is processed and represented across different cultural contexts . Additionally, the current research lacks neurophysiological data, which limits the ability to provide empirical evidence for the cognitive mechanisms underlying the relationship between factoids and embodied cognition.

To address these limitations, future research could explore several promising directions. One possibility is to conduct experimental testing to examine the causal relationships between linguistic content and embodied cognition, using controlled environments to isolate variables and observe their effects. Cross-cultural comparisons would also be valuable, as they could help identify whether the findings are generalizable across different cultural settings or if they are specific to the context in which the study was conducted . Furthermore, incorporating neuroimaging techniques such as fMRI or EEG could provide a more direct insight into the neural correlates of factoid processing and embodiment.

In summary, by addressing the subjective nature of embodiment ratings, expanding the scope to include diverse cultural contexts, and integrating neurophysiological methods, future studies can enhance the robustness and applicability of the theoretical framework developed in this research.

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Dr. Ying Chen were responsible for study design, drafting the manuscript and revising it.

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