BRAIN. Broad Research in Artificial Intelligence and Neuroscience
e-ISSN: 2067-3957 | p-ISSN: 2068-0473
Covered in: Web of Science (ESCI); EBSCO; JERIH PLUS (hkdir.no); IndexCopernicus; Google Scholar; SHERPA/RoMEO; ArticleReach Direct; WorldCat; CrossRef; Peeref; Bridge of Knowledge (mostwiedzy.pl); abcdindex.com; Editage; Ingenta Connect Publication; OALib; scite.ai; Scholar9; Scientific and Technical Information Portal; FID Move; ADVANCED SCIENCES INDEX (European Science Evaluation Center, neredataltics.org); ivySCI; exaly.com; Journal Selector Tool (letpub.com); Citefactor.org; fatcat!; ZDB catalogue; Catalogue SUDOC (abes.fr); OpenAlex; Wikidata; The ISSN Portal; Socolar; KVK-Volltitel (kit.edu)
2025, Volume 16, Special Issue 1 (April 2025), pages: 351-363.
Special Issue 1: *Neuroscience, Artificial Intelligence, and Innovation in Education*
Submitted: January 24th, 2025 | *Accepted for publication:* March 13th, 2025

A Neuroscientific Approach to Developing Language Education Content: Literacy in the Postmodern Information Society

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Abstract: *This article examines how language education content is evolving in response to postmodern perspectives. It explores how the changing needs of an information society, influenced by neuroscience, drive this transformation. The growing informatisation of society and the shift toward neurosocial communication necessitate a reconsideration of literacy and its methodological foundations. The article aims to synthesise emerging literacy trends in an information-driven world that has reexamined normative and institutional-academic forms of culture and language in a postmodern context. It offers a controversial model of language literacy skills structured as an inverted pyramid. The research uses neuropsychological, theoretical-analytical, sociometric, and pedagogical modelling methods. Findings suggest that literacy, as a cultural phenomenon, is expanding beyond traditional definitions to include linguistic creativity. The discussion situates literacy within modernist, postmodernist, and poststructuralist frameworks, arguing that in a neurosociety, literacy becomes situational and secondary. As a result, language literacy skills should be open-ended and structured across three levels: 1) fundamental language and information skills, 2) creative language and information skills, and 3) potential for creativity and transcendence. The article advocates for a flexible, deductive, and personalised approach to language education that integrates linguistic representation across education, daily life, and cultural contexts. It challenges the traditional-modernist, hierarchical model of language literacy development. The article's practical implications include redefining how university programmes in classical institutions structure language education. The international significance of the article lies in aligning with current scientific discourse and informing language education reforms in transitional democracies.*

Keywords: *neurosociety; clip thinking; skill levels; literacy; an inverted pyramid; postmodern effects; traditional-modernist approach; linearity; performativity.*

How to cite: Onyshchenko, N., Depchynska, I., Vykhor, V., Syzonenko, N., Hrebin-Krushelnytska, N., & Zhvava, O. (2025). A neuroscientific approach to developing language education content: Literacy in the postmodern information society. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, *16*(Sup1), 351–363.
https://doi.org/10.70594/brain/16.S1/28

1. Introduction

In the information society, individuals with a postmodern mindset face new neuropsychological and neurosocial challenges that shape language literacy. The main issue is information overload, which leads to clip thinking and the devaluation of texts and meanings once considered inherently valuable (Ukrainets, 2023).

Constant exposure to short, fragmented messages on social media changes cognitive processes. While it enhances quick perception, it weakens analytical thinking. As a result, the ability to focus on text declines, while sensitivity to broader social, cultural, and technological contexts increases. This shift negatively impacts traditional reading, writing, and coherent speech skills. At the same time, growing reliance on external stimuli reduces motivation to develop language skills.

In today's digital society, people interact through various communication channels, gradually reshaping their linguistic perception and self-identity. Postmodernists questioned the concept of "consciousness," arguing that it assumes the existence of a distinct individual who controls and represents reality. However, this idea is a historically constructed concept (Ellis, 1997).

The digital environment amplifies these changes. Social media and online content shape linguistic habits, making literacy increasingly dependent on societal perception. In a postmodern society, where no single linguistic standard exists, literacy education becomes more complex. The influence of different styles, subcultures, and regional variations complicates the process. Students constantly engage with conflicting language norms. As a result, grammatical errors in digital communities not only become common but are often seen as a new standard for communication. While this simplifies interaction, it does not support literacy's development (Barthakur, 2018).

2. Research Relevance

The issue of literacy in the information-driven, postmodern society, often referred to as the neurosociety, has become more complex. This society has undergone technologisation and, in doing so, embraced the postmodern experience in critical, creative, and individual ways. As a result, literacy now appears in new philosophical, communicative, cultural, and methodological contexts. A central contradiction arises between two extremes. On one side, literacy is defined in the traditional sense, based on spelling rules, codification, and conventional norms, especially in the business domain. On the other side, literacy has taken on a new meaning. It now includes cognitive, emotional, and contextual appropriateness in transmitting information. This new form of literacy also involves aligning with current trends and mastering new meanings and codes.

The question of linguistic competence is even broader. In the postmodern era, particularly in the dynamic 21st century, a literate and competent individual must go beyond conventional norms. This includes expanding beyond verbal language to incorporate signs, symbols, and codes into communication. These elements have become essential parts of a unified, universal communication space.

In Ukraine (where the authors of this article are from), the issue of normativity and linguistic purism (purity and refinement) plays a significant role in nation-building and self-definition. Farion (2020) explored these topics from a historical perspective. She concluded that *"the projection of linguistic consciousness from the premodern era to the current postmodernism, despite the long historical span, shares a common mental foundation. This foundation can be framed by today's term "hybridism": the lack of ethno-national self-awareness, both then and now, produces incomplete models of linguistic beliefs and language behaviour"* (Farion, 2020).

For nations undergoing civilisational and even military-political transformations, it is essential to balance two aspects. On one hand, there are vast possibilities offered by the information-driven postmodern culture and technologised neurosociety. On the other, it is important to develop discourse based on linguistic norms and traditional "philological treasures" to preserve and strengthen national self-identity. This creates a methodological conflict between postmodern performativity and improvisation, which stresses the relativity of linguistic norms. At the same

time, there is a need to preserve and transmit linguistic units along with established rules, emphasising the absoluteness of linguistic norms.

The relevance of this article extends to a broad, international context. As postmodernism began to fade during an active cultural phase, scholars started to critically reflect on education and literacy in light of new experiences. Willinsky (1991) outlined 10 principles of postmodern literacy, influenced by historical and cultural factors. These reflections reveal that postmodern expression now dominates academic foundations, as well as the conventional use of words and other autonomous semantic components.

This shift highlights the conflict between dynamic consumer culture and the slower evolution of language in a neurosocial environment. Scott (1993) reached a conclusion that highlights the article's central conflict. It is the conflict between dynamic consumer culture and language. Culture communicates through multiple channels in a neurosocial environment, which influences a less dynamic language. This, Scott (1993) argues, is "the struggle between mass and elite over the forms of literacy, raising questions about the sources of critical hostility toward postmodern culture".

Discussions on literacy and language norms in today's information society often focus on contrasts: elite vs. mass, language vs. communication technology, and high culture vs. consumer culture. In this context, some researchers propose a compromise. They suggest recognising postmodern linguistic expression as an essential tool for learning and practical language use (Scott, 1993). Additionally, they advocate for reducing the gap between general language skills and professional competencies (Kibik et al., 2022). Finally, they recommend developing approaches to education and literacy that consider the changes brought about by globalisation and digital technologies (Nerubasska, Palshkov, & Maksymchuk, 2020).

A key issue remains: how to shape educational and language policy in the era of postmodernism and digital communication (Pennycook, 2006). Many advocates of postmodern approaches are skeptical of top-down language regulation, as they see language as a dynamic phenomenon that evolves naturally. Even before the mass adoption of the Internet, Scott (1993) predicted that linguistic expression and new information technologies would be closely linked. For over 30 years, digital media have integrated text, images, and sound into a single interactive reality. In this context, traditional views on language norms, literacy, and competence must be reconsidered, and teaching methods should adapt to new forms of communication.

Accordingly, the aim of this article is threefold: 1) to examine the neuroscientific aspects of the information-driven postmodern society; 2) to analyse literacy trends in the information neurosociety, incorporating postmodern insights; and 3) to propose a competency-based approach to literacy education, along with general methodical recommendations for reformed educational models, especially in "young democracies."

Research methods include: 1) systemic analysis and epistemological generalisation of relevant literature; 2) extrapolation of the research object to the neuroscientific field; 3) examination of methodical documentation from higher education institutions (HEIs) to assess alignment with postmodernist trends; 4) sociological methods, including a non-randomised survey of university teachers on expected learning outcomes; and 5) pedagogical modelling methods, along with a graphical representation of the results.

The authors collected the input data, which included the results of the analysis of methodological literature and a non-randomised survey of 98 language teachers. This data was gathered from three classical universities in the central region of Ukraine.

3. Research Ethics

The research followed ethical standards in data collection, which involved analysing methodological documentation from specific HEIs and conducting a sociological survey of faculty members. Written consent was obtained from the ethics committees of each institution, and university teachers voluntarily agreed to participate in the survey.

This article aims to address the epistemological gap in the underexplored relationship between postmodern consciousness, linguistics (language communication), and neuroscience. Few key works have addressed these issues so far. Notably, Leffert (2011) explores therapeutic interactions at the intersection of neuroscience, postmodernism, and communicative behaviour. Long (2013) applies postmodern philosophy to neuroscience and the socio-cultural environment.

4. Neuropsychological and Neurosocial Dimensions of the Postmodern Information Society

This article suggests that the concepts of "postmodern society" and "neurosociety" are interconnected. Both describe changes in society and human interaction, driven by technologies that directly influence brain function. Postmodern society is marked by pluralism, the breakdown of traditional hierarchies, and the rejection of established worldviews. In contrast, the neurosociety focuses on the role of digital technologies, neural networks, and artificial intelligence in shaping new communication methods. In this context, individuals gain more freedom for self-expression but also risk becoming "dissolved" in the flow of information and social connections (Raihan, 2023). This transformation challenges traditional ideas of linguistic norms and literacy.

Both postmodern society and the neurosociety share common features. They decentralise power, knowledge, and communication, expand individual choices, and encourage interactivity and rapid adaptation to change. In this environment, individuals interact with various information streams and social groups, shaping their values and beliefs. This society is marked by fast technological advancements, new neuropsychological processes, and evolving social interactions, all of which require further study.. Neuropsychology explores how the digital environment impacts brain function, while neurosociology focuses on how technologies reshape social connections, language communication, and societal structure.

These changes have both positive and negative effects. For instance, neuropsychological research shows that the constant flow of digital information alters how the brain processes data. Prensky (2001) coined the term "digital natives", referring to a generation raised in a digital world, accustomed to rapid access to information. However, this constant multitasking may reduce the ability to engage in deep analysis, critical thinking, and focused reading. Carr (2020) showed that digital interactions change neural connections, making the brain more responsive to instant rewards but less capable of sustained concentration and reflection. This results in a new thinking style, focused on quick answers rather than careful analysis and independent understanding of information.

From a neurosociological standpoint, digital platforms have altered social interaction dynamics. Long before social media emerged, Bourdieu (1990) argued that social connections shape one's capital in society. Today, this capital is increasingly driven by digital communication, likes, and algorithms. These elements create "information bubbles" that can fuel social polarisation (Pariser, 2011). Moreover, digital technologies make social models more flexible but less predictable. This shift affects language practices, leading to greater variability in linguistic norms, while traditional literacy concepts are gradually losing their established form.

Therefore, the postmodern, information-driven society is transforming into a neurosociety, creating a complex landscape for neuropsychological and neurosocial research. On one hand, it offers new opportunities for cognitive and communicative growth. On the other, it introduces risks such as cognitive decline and the weakening of the second signalling system in favour of a "stimulus system." To navigate these advantages and challenges, an interdisciplinary approach is essential as it can fully grasp the complexities of this new era.

5. Discussions on Literacy in the Information Neurosociety: A Creative Adaptation of Postmodernist Experience

In the introduction, the authors explored the "postmodernist imprint" on literacy within the information neurosociety. However, a more detailed examination of both its general and specific aspects is needed.

Scholars studying modernism and postmodernism at the cultural level highlight that modernism emphasises the external and functional, while postmodernism focuses on the internal and spiritual (Lv, 2019). Both movements continue to coexist and compete in Western society. These cultural shifts have given rise to a new concept of literacy, shaped by the evolving digital information and communication culture.

Monakhova (2015), a Ukrainian researcher, provides valuable insights into linguistic norms within postmodernism, particularly regarding online language. The researcher identifies five postmodern tactics in the online information environment, with one of the most recent being deviations from standard spelling and other linguistic norms. She argues that these violations may stem from time-saving strategies used by communicators to create the illusion of conversational continuity. As communication happens quickly, people often type and send messages without rereading or correcting errors in spelling or technical aspects. Despite these inaccuracies, recipients can usually still interpret the intended meaning. Monakhova (2015) also suggests that such violations may be intentional, serve a comedic purpose, or result from poor spelling skills, an increasingly common phenomenon.

The topic of functional compliance versus non-compliance with language norms and current language learning methods has gained increasing relevance over the past 20 years. Since the 2000s, scholars have been actively discussing the need to reform literacy education approaches and methods.

In the age of informatisation, the concept of literacy training has evolved. It now includes an indefinite set of expected outcomes and is seen as a mass non-institutional project or a form of critical literacy (Luke, 2013). Today's society demands the postmodernisation of literacy education to support civic participation in the new world order. In this order, individuals are globally connected in an invisible digital space, while remaining physically dispersed in increasingly complex ways (Lotherington, 2017).

At the elementary level, particularly in primary school literacy education, it is important to recognise that children of the digital age intuitively navigate multimodal spaces. They easily assimilate and operate with various forms of knowledge, often prioritising these modes of communication (Lotherington & Jenson, 2011). Observations show that children born in the digital age naturally understand both linguistic and non-linguistic signs for communication.

However, the language curriculum at both university and school levels does not fully address this important new trend. As a result, literacy in this regard develops spontaneously rather than through formal education. In this context, literacy, in its broadest sense, has evolved into a multimodal symbolic literacy. It now includes functional communication, signalling, hashtags, and other symbolic expressions at its core.

When considering the supra-sign level (composition skills), it is crucial to connect with the discursiveness of the postmodern era and the information society. Daniell (1999) suggests that this culture encourages a specific type of thinking, one that synthesises signs, forms, myths, and narratives. This idea aligns with Lyotard's (1984) contrast between postmodernism's "small narratives" and modernism's grand, totalising narratives. These small narratives can be viewed as part of literacy narratives that encourage critique, self-exploration, linguistic play, and challenges to established norms and ethics. On a broader scale, this reflects the ongoing debate between academic and performative mass literacy, as well as the tension between rigid traditional structures and the flexibility of spiritual and intellectual evolution.

The expansion of the concept of "literacy" is not just definitional but also determinative. Today's literacy, which includes language competence, communication skills, and information

literacy, has evolved over more than 70 years of significant social, political, economic, and cultural changes (Lonsdale & McCurry, 2004). These changes have pushed educators toward multiliteracy and multicompetence. Such competencies are often gained through experience and intuition, without being divided into specific educational components. However, teachers now must recognise and teach the various forms of literacy that students need (Lonsdale & McCurry, 2004).

Postmodern literacy, therefore, involves flexible skills that allow individuals to perceive and create relevant texts using linguistic knowledge, intuition, and ICT. At the same time, ethical, computer-related, linguistic, technological, and social literacies are complementary and inseparable.

6. The Shift from the "Triangle" to the "Inverted Pyramid": Authors' Recommendations for the Postmodern Information Neurosociety and the "Post" Society

Today's society, with its diverse forms of social consciousness and activity, has evolved since the postmodern era. It has shifted its focus to human rights, opportunities, and subjectivity, and can no longer rely solely on classical or traditional principles. The neurosociety, in particular, significantly diminishes individual subjectivity. Postmodernism has challenged the absoluteness of norms and utility, which are foundational to literacy, the central subject of this study.

Kien (2021) explores the impact of postmodernism on normativity and regularity in art and the formation of different discourses. The researcher argues that the principle of post-truth now prevails. This principle does not seek to unify linguistic or artistic worldviews but instead opens up opportunities for developing personal styles and individuality. In this context, individuals view facts, pragmatism, and normativity as elements to be spontaneously transformed and played with.

Based on the theoretical generalisations above, the authors of this article analysed principles and approaches to teaching literacy in university enrollment brochures. They examined the content, methods, and expected learning outcomes in courses such as "Ukrainian for Business," "Practical Ukrainian Language," and "Ukrainian for Professional Use." The analysis shows that the traditional-modernist approach still dominates in Ukraine's higher education institutions.

The aspects of the traditional-modernist approach to literacy teaching were summarised, emphasising that skills follow a hierarchical structure. These skills are organised into six levels, which are represented in a triangular diagram (see Figure 1).

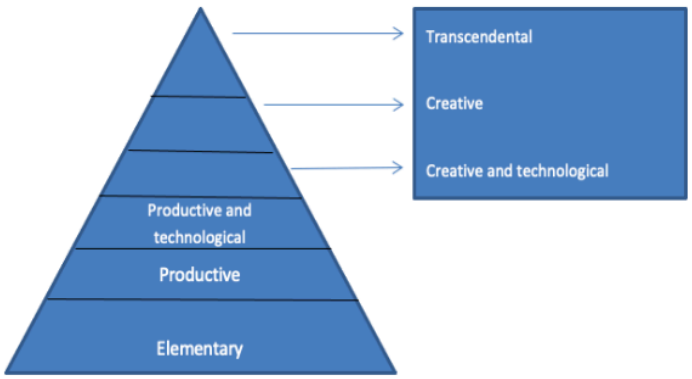

Figure 1. Levels of language literacy (competency)
Source: the authors' own conception

A comparison of this model with traditional professional profiles reveals a significant difference. The professional profiles of Ukrainian HEIs are essentially lists of expected learning outcomes. To clarify this framework, the authors present a table outlining specific skills and methods for their development (see Table 1). These generalised data, derived from the authors' analysis of higher education software, are related to students. The level names were created by the authors.

Table 1. Expected communication and language skills, literacy levels, and methods for their development

A hierarchical level	Level name	The essence of the level	Methods and techniques for development
1.	*Elementary*	Knowledge of the basic linguistic units in native and foreign languages. Skills in listening, speaking, and writing with sufficient adherence to accentological, orthographic, and punctuation norms.	Exercises in writing, speaking, listening.
2.	*Productive*	The ability to appropriately use the linguistic richness of native and foreign languages, convey the main ideas of a text after listening, during summarisation, and use language etiquette in typical situations appropriately.	Listening, summarising, interactive tasks.
3.	*Productive and technological*	Skills in translating professional texts, editing, copywriting, and summarising. The ability to create professional dialogue that aligns with program requirements.	Modelling typical professional situations.
4.	*Creative and technological*	Using all possible linguistic and discursive means to address standard and undefined production situations personally. The ability to create an original professional text according to a given plan and requirements.	Self-managed control of a personal development framework.
5.	*Creative*	Motivation and communication skills for solving non-standard professional tasks. The ability to produce socially and professionally significant oral and written discourse without prior preparation. Forecasting skills.	Creating a portfolio of personal educational activities.
6.	*Transcendental*	Employing linguistic and creative abilities (talent), one should have the need and capacity to construct a communicative process or original discourse. This facilitates the creation of new models of activity, verbal creativity (artefacts), philosophical reflection, and other profound expressions of individuality, capable of generating significant societal impact and influence.	Creative tasks: writing an essay, literary work, oral improvisations.

Source: the authors' own conception

A detailed analysis of the skills at each literacy level, along with the methods for developing them, provides valuable insights. At the higher levels, the traditional-modernist approach dominant in Ukrainian HEIs shows signs of postmodern influences, such as improvisation, creativity, and performativity. However, these elements are not central. The overall structure remains hierarchical,

implying that lower levels must be mastered before progressing to higher ones. This hierarchy suggests that fewer students will reach mastery at each successive level.

The authors also conducted a non-randomised survey of teacher groups from selected HEIs, involving 98 individuals. The results reveal a clear narrowing of expectations toward the top of the triangle. Table 2 summarises the teachers' feedback and explanations for each skill level. Notably, none of the programs, professional profiles, or lists of expected outcomes from the surveyed institutions explicitly mention this "quantitative narrowing." However, teachers attribute it to natural and social factors, suggesting that fewer students can reach higher skill levels.

Table 2. Expected outcomes in mastering literacy levels (by number of students)

Skill level	*Expected outcomes by the number of students (in % and absolute numbers)*
Elementary	100% (98 teachers believe that all students should master this level)
Productive	92% (90 teachers consider this level mandatory)
Productive and technological	65% (64 teachers noted that only the most "professionally suitable" students can master this level)
Creative and technological	40% (39 teachers believe that this level is accessible only to a limited number of creative students)
Creative	20% (19 teachers noted that only the most gifted students could master this level)
Transcendental	5% (5 teachers believe that this level is achievable only by a few exceptionally talented individuals)

Source: the authors' own conception

These figures show that, according to teachers, as the level of language literacy increases, fewer students can master it. This supports the idea of a hierarchical approach to literacy education. However, this approach needs to be reassessed in the context of today's information society.

University teachers believe that the traditional top-down model of language literacy still dominates the educational system. This approach excludes performative, playful, interpretive, occasional, and other creative uses of language. These forms, characteristic of the postmodern information neurosociety, are considered "not for everyone" and are outside the main professional framework. Such methodological stereotypes require critical reform. In contrast, language and discourse practices in the digital society challenge traditional norms. Speakers in this society use both rigid normative and creative meta-normative aspects of language.

The authors conducted a critical analysis of relevant methodical materials, incorporating postmodern trends in the information neurosociety. Based on this analysis, they developed a non-linear and somewhat provocative approach to transforming language education with a focus on literacy. Instead of a triangle with a rigid, unyielding normative foundation and "exclusive" creative skills, they propose the concept of an inverted pyramid (see Figure 2). What was once reserved for a select few is now accessible to all on a mass scale. This includes linguistic creativity, performativity, the right to deviate from the norm, language improvisation, and style blending.

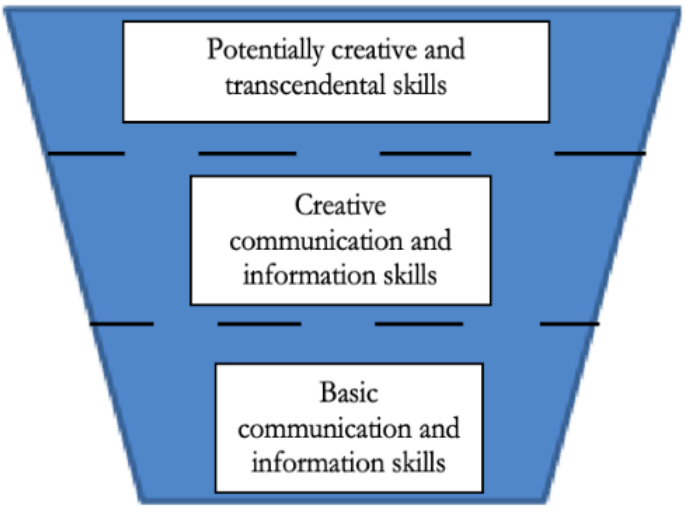

Figure 2. A pyramid of literacy levels
Source: the authors' own conception

The discontinuous boundaries between skills highlight the lack of a clear distinction and emphasise a preference for linearity over hierarchy. The pyramidal structure of the model signals a shift away from hierarchy, suggesting that opportunities expand with each level rather than narrowing. Each conceptual level applies to all actors in the educational process, with language literacy viewed more broadly as communication and information skills. For now, the authors focus on this framework model, leaving the factual and methodical details for further research.

To implement the inverted pyramid model of literacy in curricula or classrooms, teachers should adopt interactive and multimodal approaches. These approaches encourage students to use language and information technologies creatively:

- Instead of traditional written dictation, students can create a digital comic. They combine text, visuals, and symbolic elements to convey meaning.
- Lessons can involve reflective blogs or social media. Students analyse current phenomena and adapt language norms to current communication contexts.
- Real-world interaction scenarios can be modelled, such as debates in podcast format, video essays, or improvisational skits. These activities enhance critical thinking and improve spontaneous speech skills.

Additionally, it is recommended to move away from rigid hierarchies in language norm education within traditional courses. A modular approach would allow students to work on different literacy levels, based on their interests and abilities. These learning methods align with the philosophy of sustainable, "horizontal" human development (Whitby, 2019). As a result, literacy will shift from being a static skill to a dynamic communicative competence, reflecting the flexibility of language practices in the digital age.

7. Conclusion

This article presents two key conclusions at the theoretical level. First, the rise of a postmodern information society, evolving into a neurosociety, is characterised by fragmentation, pluralism, and rapid technological change. These factors deeply influence cognitive processes and social interactions. From a neuropsychological standpoint, the brain's adaptation to digital environments has led to faster information processing, but also reduced deep thinking and sustained focus. In the neurosocial realm, digital communication creates "information bubbles" and changes social interactions through social media, affecting collective perception and behaviour. While these

shifts offer new opportunities for self-expression and intellectual engagement, they also pose challenges to cognitive resilience and social cohesion. This underscores the need for an interdisciplinary approach to balance their impact.

Second, language literacy in a technologised neurosociety faces increasing challenges. These challenges are driven by information overload, the widespread influence of digital media, and the decline of standardised linguistic norms. The rise of "clip thinking" and fragmented information consumption weakens the ability to engage in deep reading, writing, and analytical reasoning. At the same time, online communities often reinforce linguistic simplifications and errors, gradually altering communication standards.

An online survey of teachers has empirically confirmed the presence of "clip thinking" among Ukrainian students, who rapidly switch their attention between dynamic, bright objects. In 75.2% of cases, teachers observe and acknowledge this behaviour but do not view it as a disadvantage (Skvortsova et al., 2021).

This creates a gap between traditional language norms and the evolving cognitive and contextual demands of digital communication. In this new landscape, true literacy goes beyond mastering conventional linguistic rules. It now includes the ability to interpret symbols, engage with multimodal communication, and navigate the complexities of a globally interconnected digital environment.

The research findings are summarised in three key points:

1. Scholars examining literacy through modernism, postmodernism, and poststructuralism offer three crucial insights: a) language literacy is a broad, interdisciplinary social construct; b) a deductive, individualised approach to language use and representation is increasingly important; c) in today's society, overall linguistic, communicative, and expressive effectiveness is valued more than strict adherence to normative rules and formal etiquette.

2. The most effective approach to language education is a flexible, linear model with minimal fixed norms. This allows for adaptability and openness.

3. In emerging democracies such as Ukraine, language education still follows a hierarchical, traditional modernist framework. However, postmodern influences are starting to take root, offering a promising foundation for future reforms and the gradual abandonment of rigid didactic conventions.

The authors present key conclusions on the didactic aspects of language literacy. Literacy trends have significantly evolved in the information neurosociety. Today, they extend beyond traditional norms and emphasise linguistic creativity, expressive communication, performative elements, and personalised language use. This shift reflects a broader understanding of language, transcending age, and social status in a globalised context. Literacy acquisition's challenges and opportunities are best explored through the cultural-historical paradigms of modernism, postmodernism, and poststructuralism. These paradigms offer valuable insights through their contrasts and continuities.

Normativity can still be understood within the framework of traditionalism, which historically codified linguistic, ethical, and deontological norms. Analysing poststructuralism, however, is more complex, as it is actively experienced and interpreted from within. In contrast, the distinction between modernism and postmodernism is clearer and temporally closer, providing concrete examples and well-reasoned arguments.

One key observation is that both modernist and postmodernist frameworks favour the term "language skills" over "language knowledge" or "literacy." In the postmodern era, language became the object of study and the primary tool for structuring and transmitting knowledge. This period also saw the emergence of multiple, coexisting literacy concepts as a recognised phenomenon (Meacham & Buendia, 1999).

The new competency-based approach to literacy education, along with general methodological recommendations for educational models, should focus on integrating language skills into the broader framework of social communicative skills for the digital age. Achieving

learning outcomes such as communication and information skills is now closely linked to developing life and professional adaptability and flexibility (Melnyk et al., 2019).

The authors propose that language (or, more accurately, communication and information) skills should emphasise minimal rigidity while maximising openness and variability. This principle should also apply to the tools and methods used to develop these skills, favouring a continuous and non-discrete educational environment. This conceptual model can be represented as a three-tiered inverted pyramid: 1) foundational language and information skills, 2) creative language and information skills, and 3) advanced creative and transcendental skills.

8. Research Limitations

This research is primarily theoretical and focuses on conceptualising the issue of literacy in the context of a postmodern information society and neurosociety. The conclusions are based on the analysis of methodological materials, a sociological survey of teachers, and an interdisciplinary approach that integrates neuropsychological and language-didactic aspects. However, certain limitations should be acknowledged.

1. *Lack of experimental verification*. While the authors have justified the need for a non-linear literacy model (the inverted pyramid), its effectiveness still requires empirical testing through long-term studies in educational institutions.

2. Limited sample size. The sociological survey was conducted with 98 teachers from three classical universities in Ukraine. Even though this allows for general conclusions about current pedagogical approaches, it does not cover all types of educational institutions or variations in teaching practices.

3. *Cultural-educational context*. The conclusions are based on the Ukrainian educational system, which has its historical, linguistic, and normative characteristics. Further research could compare the situation in other countries and adapt the inverted pyramid concept to a global context.

4. *Methodological variability*. The literacy levels and corresponding competencies in the presented model are based on the authors' classification. This may require further clarification and alignment with other educational theories.

5. *Digital environment dynamics*. Digital technologies and social media are constantly evolving. The analysed trends (e.g., clip thinking, multimodality, social neuroplasticity) may change or take on new forms, requiring additional research.

Future research should focus on testing the proposed model empirically, particularly by evaluating its effectiveness in the educational process, analysing changes in students' literacy, and assessing their adaptation to new forms of communication.

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