The future isn't what it used to be: A systemic perspective to knowledge-building

O futuro não é o que costumava ser: Uma perspectiva sistêmica para a construção de conhecimento

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Abstract: This article examines the creative process of knowledge-building through a systemic point of view. First, we will explore ancient human practices to highlight the importance of flexible structures with circumstantial roles in social and intellectual development. Then, we address how industrial practices influenced business, education, and professional development, fostering individualism. Finally, we discuss how the creative ecosystem concept can aid us in understanding our context and facing societal challenges more effectively in the future.
Keywords: Knowledge, productivity, creativity, creative ecosystems.

***Resumo**: Este artigo examina o processo criativo de construção de conhecimento por meio de um ponto de vista sistêmico. Primeiro, exploraremos as práticas humanas antigas para destacar a importância de estruturas flexíveis com funções circunstanciais no desenvolvimento social e intelectual. Em seguida, abordamos como as práticas industriais influenciaram os negócios, a educação e o desenvolvimento profissional, promovendo o individualismo. Por fim, discutiremos como o conceito de ecossistema criativo pode nos ajudar a entender nosso contexto e a enfrentar os desafios sociais de forma mais eficaz no futuro.*
***Palavras-chave**: conhecimento, produtividade, criatividade, ecossistemas criativos.*

Introduction

Contemporary perspectives on knowledge-building largely emphasize individual responsibility. This prevailing notion is dictated by the individual's ability to manage time and effort efficiently (e.g. productivity) and pursue proper education and training (Bogale & Kenenisa, 2024; Doblinger, 2022; Harris, 1994; Kunz, 2020; Ryazanova & Jaskiene, 2022). However, this individualized approach raises a critical question: How can knowledge-building be entirely self-contained, independent of external influences?

The creative process is a fundamental aspect of human development, shaping knowledge-building and social evolution throughout history (Scardamalia & Bereiter, 2021). Knowledge-building encompasses the process of advancing understanding and fostering intellectual progress, with an emphasis on continuous improvement rather than the attainment of a final or optimal solution. This process involves not only breakthroughs but also the deliberate act of iterating and building upon ideas across all levels of society and domains of knowledge (Scardamalia & Bereiter, 1999).

On a systemic level, knowledge-building environments facilitate the exposure and development of ideas, enabling them to enter a path of continuous refinement. By making ideas accessible to the wider community, they can be discussed, interconnected, revised, and eventually superseded (Scardamalia & Bereiter, 2003). The creation of a shared environment for knowledge-building fosters a self-organizing system, where interactions between participants and their ideas evolve organically, reducing the need for externally imposed structures or imposed "organizers" (e.g. managers or team leaders).

Therefore, through a systemic perspective, this paper examined how ancient practices of creativity and knowledge transmission were embedded in flexible social structures, with roles that evolved circumstantially. These early practices contrast sharply with modern industrial approaches, which emphasize individualism and rigid structures, particularly in business and professional development.

By tracing the transition from collective knowledge systems to the individualized frameworks that dominate contemporary thought, this paper highlights the limitations of current approaches and underscores the need for a more integrated, ecosystemic view of knowledge-building. Such a perspective can provide valuable insights into addressing the societal challenges of the future.

The emergence of new knowledge

The authorship of breakthroughs is often attributed to the work and effort of extraordinary -and highly creative- individuals. As Graeber & Wengrow (2021) argued, western perspectives normally neglect the broader social context in which intellectual advancements occur, favoring the notion of solitary genius,

mostly men, over the collective processes that truly drive innovation. However, many ideas, if not all, were not born in isolation. They were, in fact, the result of interactions within ongoing debates taking place in informal settings, such as taverns, dinner parties, or public gardens (Hanchett Hanson, 2015; Oldenburg, 1998; Uzzi & Spiro, 2005). For instance, innovations in Neolithic societies were the product of a collective body of knowledge accumulated over centuries, largely developed by women, manifested through a series of seemingly modest yet profoundly significant discoveries (Graeber & Wengrow, 2021). These discoveries were often preserved and transmitted through rituals, games, and other forms of play, particularly when they overlap (Hocart, 1954). Historically, this realm of ritual play functioned as both a scientific laboratory and a repository of knowledge and techniques that societies could apply to practical problems.

Also, tribes frequently dismantled all forms of coercive authority once ritual seasons ended, carefully rotating which clans or groups wielded power (see Clastres, 1974; Lowie, 1948). These practices reflect an understanding that no social order was permanent or immutable, and such institutional flexibility allowed societies to step outside existing structures and critically reflect on them. However, what could be observed in the contemporary world is quite the opposite, with increasing stagnation of individuals' social lives, circumscribed by boundaries of culture, class, and language (Jacobs, 1961; Oldenburg, 1998). In a chronological perspective, Eliade (1959) proposed that modern societies experience time as linear. The notion that events gain significance relative to the future rather than the past is a relatively recent development in human thought, and it has catastrophic social and psychological consequences. He argued that, compared with more primitive societies, modern humans are less resilient to the challenges of war, injustice, and misfortune, ushering in an era of unprecedented anxiety.

The tendency to describe history as a series of abrupt technological revolutions, such as the Agricultural and Industrial, each followed by periods in which humanity became prisoners of its own creations, has profound implications (Childe, 1936, 1950; Sahlins, 1968). By focusing solely on such revolutions, human society had overlooked the continuous flow of new ideas and innovations, both technological and intellectual, through which different communities made collective decisions about which technologies to adopt for everyday purposes and which to confine to experimentation or ritual play. This linear perspective diminishes the complexity of human creativity, portraying our species as less thoughtful, creative, and free than it truly is.

Thus, recognizing the broader and collective processes behind both intellectual and social innovations challenges the reductionist view of history as a series of isolated, revolutionary events and, instead, underscores both continuous and dynamic interplay between human societies and their environments.

The industrial legacy in knowledge-building

As discussed, human knowledge has been distributed among individuals through social dynamics such as rituals and play since the dawn of civilization. In other words, humans are projects of collective self-creation; once we always lived in groups, the collective shaped us. But our modern urban lives have become increasingly dull, involving long hours of monotonous, repetitive, conceptually empty activity, with little meaningful social connections (Graeber, 2019; Oldenburg, 1998; Petersen, 2020).

But this modern way of working is quite recent, starting only at the turn of the 20th century. It emerged as an industrial concept, closely tied to factory output (Kim, 2022; Newport, 2024; Zelenyuk, 2023). Even traditional education systems were designed to meet industrial needs (Albisetti, 2019; Erickson, 2019; Illich, 1971). Most of the urban labor was confined to factories and manufacturing processes, with Henry Ford pioneering advancements in assembly line efficiency that significantly reduced production time (De Loecker & Syverson, 2021). Ford's success in enhancing productivity exemplified the industrial focus on system optimization, reducing the worker hours required to produce a Model T by nearly a factor of ten (Ford & Crowther, 1922; Newport, 2024).

Then, the transition from industrial systems of work to office settings occurred largely due to the work of Peter Drucker, who introduced the concept of "knowledge work," arguing that this type of work necessitates autonomy (Drucker, 2011). In contrast to manual labor, knowledge workers are less prone to be supervised closely, leaving it to the individual to decide how to best apply their expertise and, therefore, their productivity. However, Drucker's framework did not fully account for the inherent limitations of human capacity. As Headlee (2020) argued, societal and cultural pressures have pushed individuals into an unsustainable state of constant productivity, driven by an induced guilt for unproductive moments.

While the rise of knowledge work is intertwined with technological advancements, the emphasis on individual responsibility has had unintended consequences (Graeber, 2019). For instance, Newport (2024) warned of the psychological burden placed on individuals who are now expected to optimize their own productivity systems, akin to the complex optimizations once reserved for factory settings. The constant pressure to perform isolated individuals within the system led to a false equivalence between busyness and effectiveness and affected how knowledge was shared. Moreover, this shift has blurred the boundaries between professional and personal life, leading to increased stress and burnout (Petersen, 2020).

The advent of technology

At the turn of the 21st century, project-management theories argued that simply adding more (technological) resources does not necessarily speed up productivity, and more structured processes, such as agile methodologies, are required to achieve better outcomes (Brooks, 1995). For instance, methodologies like David Allen's *Get Things Done* (GTD) and Merlin Mann's *Mailbox Zero* became a "productivity fever" in the 2000s onward (see Allen, 2015; Charnas, 2018).

Despite the proliferation of productivity tools and methodologies, the pursuit of productivity as an individual obligation has not resulted in a more efficient or fulfilling workday, often at the expense of meaningful work and social connections (Jones, 2009; Martela & Pessi, 2018; Sylva et al., 2019). Guilford (1970) highlighted the inadequacy of technological advancements in addressing social problems, emphasizing the need for systems that reward innovative solutions and promote professional fulfillment. Note that Guilford comments were only a few months after humankind had invested billions of dollars in going to the moon.

Recently, Sternberg (2024) proposed that *transactional creativity* may be a result of this individualistic perspective, where individuals are willing to create or produce something in exchange for some type of reward (e.g. money, awards, fame). But transactional creativity is not a problem *per se*. Many significant inventions were driven, at least in part, by the pursuit of profit. However, the use of modern technologies, such as the Internet and social media, may be harmful both societally as well as individually if driven solely by individualistic purposes (Sternberg & Karami, 2024).

In this context, rethinking knowledge-building necessitates a shift from an individual-centric approach to one that acknowledges the interconnectedness of individuals and their environments (Hanchett Hanson & Clapp, 2020; Hong et al., 2022). Some researchers posit the need for more positive and realistic suggestions on these pressing issues in a way that promotes the proliferation of ideas in more productive ways (Bloom et al., 2020; Jones, 2009). For instance, Morin's (2008) concept of autonomy within a framework of dependencies underscores the importance of understanding one's role within larger sociocultural systems. For a living being to achieve autonomy, it must rely on its environment for matter, energy, knowledge, and information. As autonomy increases, the dependencies on these various aspects of the environment also become more complex and numerous.

Similarly, Gruber's (1981) *Network of Enterprise* theory emphasizes the complexity of meaningful work, which requires balancing depth and breadth across various domains of expertise. These enterprises support each other while also maintaining some independence, much like strands in a net, with new relationships continuously emerging within the living network. Also,

meaningful work is a complex human activity where, during the process, the individual faces tradeoffs between depth and breadth (Gruber & Wallace, 1989). In other words, one's work is not a straightforward set of steps with clear goals, but an intertwined body of knowledge that evolves continuously with and within their worlds.

The Creative Ecosystems' perspective on knowledge-building

An ecosystem is a system formed by communities and their environment that works as a unit. These living systems exemplify organized complexity, where the integrated behavior of the system coordinates the actions of many elements (Kauffman, 2016). Thus, an ecosystem is not a single final unit; it is composed of subunits and may itself be the subunit of some larger collectives and the dynamic interactions between them. In the case of human sociocultural systems, ecosystems are about how people meet, talk, trust, share, collaborate, team up, experience, and grow together. When an ecosystem thrives, it means that people have developed patterns of behavior —or culture— that simplify the flow of ideas, talent, and capital across the entire system.

Florida (2019) argued that true economic power comes from what he called *place*: a specific common space where a group of people with creative skills and talents meet. For example, innovation-driven groups of companies, important research centers, and a business and social climate conducive to risk-taking are better able to solve problems and create opportunities. Although he refers to the "place" mainly as cities, cities have one crucial resource —their people. As Landry (2012) stated, "human intelligence, desires, motivations, imagination, and creativity are replacing location, natural resources, and market access as urban resources" (p.xxi). Today it is possible to build spaces that serve as a meeting point, which can be physical (such as a city, an office, or a classroom), digital (such as websites, online forums, social networks, apps, or videoconferences), or even *phygital* (hybrid environments). What matters most today is not where people are geographically, but where they meet to share and build knowledge.

Therefore, rethinking our systems not only requires an understanding of their interconnectivity but also the roles we play within them (see Zamana, 2021). The awakening of creativity is associated with the growth of complex social groups, which emerged during human development through a long-term process, strongly influenced by the social environment. The *Silk Road* in the ancient world and the *Age of Discovery* from the 15th century onwards are examples of platforms that allowed the interaction between these complex social groups (in this case, civilizations). The import/export of ideas arose in abundance and spread more easily within certain borders, and all these complex social environments (in this case, cities or settlements) were emerging platforms. More recently, in analyzing major innovations in art, science, and politics in history, Collins (2009) found that

the creativity of many key figures followed the same pattern as being embedded in a network of artists or scientists who shared ideas and acted as critics or fans of each other. Uzzi et al. (2013) had similar findings when analyzing scientific articles, identifying that articles written by groups were more likely to present high-impact creative work than articles by a single author. Compared to solo authors, while only 48% of group articles were successful in 1950, that number has risen to 90% from the 2000s onwards.

This systemic perspective of knowledge-building emphasizes productivity as quality and consistency rather than quantity and speed. As society faces increasing technological advancements, it is imperative to acknowledge the limitations of the current paradigm and seek collective solutions that foster both individual and societal well-being. Also, in a society where ideas are increasingly the key currency, the ability to share ideas and build knowledge drives social well-being and prosperity as long as the culture is willing to change and provides the infrastructure to transform concepts into innovations (Zamana, 2022). Thus, it is of paramount importance that, now more than ever, we are aware of the impact of our actions on other people's lives and the environment when we create.

Conclusion

If there was a significant turning point in human history, it may well have been when people started to lose the flexibility to imagine and establish alternative forms of social existence. The shift from collective knowledge systems rooted in flexible structures and meaningful social interactions to individualized and industrialized frameworks has had profound implications for creativity and intellectual development. While modern systems of knowledge, such as schools and universities, have brought significant advancements, they have also fostered a culture of individualism that often overlooks the interconnectedness of social and intellectual processes.

In examining the creative process from a systemic perspective, this paper highlights the importance of collective knowledge-building and the limitations of modern, individualistic frameworks. Ancient practices of creativity and knowledge transmission were embedded in flexible, social structures that fostered collaboration and circumstantial roles, in contrast to the industrial legacy that promoted individualism and rigid organizational systems. While modern advancements have greatly contributed to professional development and knowledge expansion, they have also created a culture that prioritizes productivity over meaningful, collective innovation.

By adopting a creative ecosystem perspective, we can better understand the complex dynamics that shape human development and address the pressing challenges of our time. By emphasizing the interconnectedness of individuals and their environments, this approach not only emphasizes the importance of

meaningful work (quality and consistency) over busyness (do more and faster) but also advocates for a more holistic understanding of the circumstantial roles individuals and their environments play in fostering innovation. It advocates for the continuous improvement of ideas, the importance of shared spaces for collaboration, and the role of social structures in fostering innovation. Ultimately, by moving beyond the constraints of individualism and adopting a more ecosystemic view of knowledge-building, we can create sustainable, adaptable systems that promote both individual well-being and societal progress. This shift is critical for tackling the complex challenges of the future and ensuring the ongoing advancement of human creativity and knowledge.

References

ALBISETTI, J. C. National Education Systems: Europe. In: RURY, J. L.; TAMURA, E. H. (Eds.). London: Oxford University Press, 2019.

ALLEN, D. **Getting Things Done: The Art of Stress-Free Productivity**. New York: Penguin Books, 2015.

BLOOM, N. et al. Are Ideas Getting Harder to Find? **American Economic Review**, v. 110, p. 1104–1144, 2020.

BOGALE, A.; KENENISA, D. Organizational culture: a systematic review. **Cogent Business & Management**, v. 11, p. 2340129, 2024.

BROOKS, F. **The Mythical Man-Month: Essays on Software Engineering**. New York: Pearson Education, 1995.

CHARNAS, I. **Inbox Zero: How to Stop Checking Email and Start Finishing It**. New York: Inbox Zero Solutions, 2018.

CHILDE, V. G. **Man Makes Himself**. London: Watts, 1936.

CHILDE, V. G. The Urban Revolution. **The Town Planning Review**, v.21, p. 3–17, 1950.

CLASTRES, P. **La Société contre l'état**. Paris : Editions de Minuit, 1974.

COLLINS, R. **The Sociology of Philosophies: A Global Theory of Intellectual Change**. Cambridge: Harvard University Press, 2009.

DE LOECKER, J., & SYVERSON, C. An industrial organization perspective on productivity. In K. HO, A. HORTAÇSU, & A. LIZZERI (Eds.). New York: Elsevier, 2021.

DOBLINGER, M. Individual Competencies for Self-Managing Team Performance: A Systematic Literature Review. **Small Group Research**, v. 53, p. 128–180, 2022.

DRUCKER, P. **Landmarks of Tomorrow: A Report on the New**. New York: Transaction Publishers, 2011.

ELIADE, M. **The Sacred and the Profane: The Nature of Religion**. London: Houghton Mifflin Harcourt, 1959.

ERICKSON, A. T. The Urban History of Education. In: RURY, J. L.; TAMURA, E. H. (Eds.). London: Oxford University Press, 2019.

FLORIDA, R. **The Rise of the Creative Class**. London: Hachette UK, 2019.

FORD, H.; CROWTHER, S. **My Life and Work**. London: Doubleday, Page, 1922.

GRAEBER, D. **Bullshit Jobs: A Theory**. London: Simon and Schuster, 2019.

GRAEBER, D.; WENGROW, D. **The Dawn of Everything: A New History of Humanity**. London: Farrar, Straus and Giroux, 2021.

GRUBER, H. **Darwin on Man: A Psychological Study of Scientific Creativity**. Chicago: University of Chicago Press, 1981.

GRUBER, H., & WALLACE, D. B. **Creative People at Work: Twelve Cognitive Case Studies.** London: Oxford University Press, 1989.

GUILFORD, J. P. Creativity: Retrospect and Prospect. **The Journal of Creative Behavior**, v.4, p. 149–168, 1970.

GUTIERREZ-BRAOJOS, C., et al. Exploring Collective Cognitive Responsibility Through the Emergence and Flow of Forms of Engagement in a Knowledge Building Community. In L. DANIELA (Ed.). Springer International Publishing, 2019.

HANCHETT HANSON, M. **Worldmaking: Psychology and the Ideology of Creativity.** London: Palgrave Macmillan UK, 2015.

HANCHETT HANSON, M., & CLAPP, E. P. (2020). Participatory Creativity. In S. PRITZKER & M. RUNCO (Eds.). New York: Academic Press, 2020.

HARRIS, D. **Organizational Linkages: Understanding the Productivity Paradox**. New York: National Academies Press, 1994.

HEADLEE, C. **Do Nothing: Break Away from Overworking, Overdoing and Underliving**. London : Hachette UK, 2020.

HOCART, A. **Social Origins**. London: Watts, 1954.

HONG, R. et al. Impact of Cultural Individualism and Collectivism on Protean and Boundaryless Career Attitudes and Job Satisfaction. **Journal of Career Development**, v. 49, p. 218–231, 2022.

ILLICH, I. **Deschooling Society**. New York: Harper & Row, 1971.

JACOBS, J. **The Death and Life of Great American Cities**. New York: Vintage Books, 1961.

JONES, B. F. The Burden of Knowledge and the "Death of the Renaissance Man": Is Innovation Getting Harder? **The Review of Economic Studies**, v. 76, p. 283–317, 2009.

KAUFFMAN, S. A. **Humanity in a Creative Universe**. London: Oxford University Press, 2016.

KIM, R. C. Rethinking corporate social responsibility under contemporary capitalism: Five ways to reinvent CSR. **Business Ethics, the Environment & Responsibility**, v. 31, p. 346–362, 2022.

KUNZ, J. Corporate Social Responsibility and Employees Motivation—Broadening the Perspective. **Schmalenbach Business Review**, v. 72, p. 159–191, abr. 2020.

LANDRY, C. **The Creative City: A Toolkit for Urban Innovators**. New York: Earthscan, 2012.

LOWIE, R. Some Aspects of Political Organization Among the American Aborigines. **The Journal of the Royal Anthropological Institute of Great Britain and Ireland**, v. 78, p. 11–24, 1948.

MARTELA, F.; PESSI, A. B. Significant Work Is About Self-Realization and Broader Purpose: Defining the Key Dimensions of Meaningful Work. **Frontiers in Psychology**, v. 9, 2018.

MORIN, E. **On Complexity**. London: Hampton Press, 2008.

NEWPORT, C. **Slow Productivity: The Lost Art of Accomplishment Without Burnout**. New York: Portfolio, 2024.

OLDENBURG, R. **The Great Good Place: Cafés, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community**. New York: Marlowe, 1998.

PETERSEN, A. H. **Can't Even: How Millennials Became the Burnout Generation**. New York: Mariner Books, 2020.

POWELL, K. Work–life balance: Break or burn out. **Nature**, v. 545, p. 375–377, 2017.

RYAZANOVA, O.; JASKIENE, J. Managing individual research productivity in academic organizations: A review of the evidence and a path forward. **Research Policy**, v. 51, p. 104448, mar. 2022.

SAHLINS, M. Notes on the Original Affluent Society. In: LEE, R.; DEVORE, I. (Eds.). London: Aldine, 1968.

SCARDAMALIA, M., & BEREITER, C. Schools as Knowledge-Building Organizations. In D. KEATING & C. HERTZMAN (Eds.), New York: Guilford, 1999.

SCARDAMALIA, M., & BEREITER, C. Knowledge Building. In **Encyclopedia of Education**. New York: Macmillan Reference, 2003.

SCARDAMALIA, M., & BEREITER, C. A Brief History of Knowledge Building. **Canadian Journal of Learning and Technology,** 2010.

SCARDAMALIA, M., & BEREITER, C. Knowledge Building: Advancing the State of Community Knowledge. In U. CRESS, C. ROSÉ, A. F. WISE, & J. OSHIMA (Eds.). Springer International Publishing, 2021.

STERNBERG, R. J. Varieties of Transformational and Transactional Creativity. In: STERNBERG, R. J.; KARAMI, S. (Eds.). New York: Springer International Publishing, 2024.

STERNBERG, R. J.; KARAMI, S. (EDS.). **Transformational Creativity: Learning for a Better Future**. New York: Springer International Publishing, 2024.

SYLVA, H. et al. Person-job fit and proactive career behaviour: A dynamic approach. **European Journal of Work and Organizational Psychology**, v. 28, p. 631–645, 2019.

UZZI, B., MUKHERJEE, S., STRINGER, M., & JONES, B. Atypical combinations and scientific impact. **Science (New York, N.Y.)**, v. 342, p. 468–472, 2013.

UZZI, B., & SPIRO, J. Collaboration and Creativity: The Small World Problem. **American Journal of Sociology**, v.111, p. 447–504, 2005.

ZAMANA, F. Creative Ecosystem Framework: A Case Study of World Creativity Day. **Revista Ibero-Americana de Criatividade e Inovação - RECRIAI**, v. 2, p. 134–150, 2021.

ZAMANA, F. (2022). **Taking Creativity Seriously: Why your ideas are more about us than about you.** São Paulo: Câmara Brasileira do Livro, 2022.

ZELENYUK, V. Productivity analysis: roots, foundations, trends and perspectives. **Journal of Productivity Analysis**, v. 60, p. 229–247, 2023.

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