

Imagination and Innovation for Relevant Research Activities in Social Studies towards Industrial Sustainability in Nigeria

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Abstract

Imagery is the use of visual symbolism or figurative language that creates vivid mental images or sensory impressions, often in literary works but also in fields such as psychotherapy. Innovation involves generating new ideas and transforming them into products, processes, or services, which drive economic growth, create employment, and yield profits for innovative enterprises. Industrial sustainability, on the other hand, is the process of initiating, planning, and implementing changes that foster societal transformation. The development of imagery and innovation leads to new products, services, or systems that enhance value or improve quality. This process involves technological advancements and management restructuring, bringing significant societal changes. Social Studies, as a problem-solving discipline, plays a pivotal role in achieving industrial sustainability. It educates citizens to be responsible for their well-being and their environment, focusing on the relationship between humans and their physical and social surroundings. Moreover, acquiring proper knowledge in Social Studies can address unemployment and poverty by equipping learners with entrepreneurial skills, enabling them to create job opportunities upon completing their education. This paper recommends that schools should foster a culture of innovation and creativity through engaging activities in Social Studies to achieve these objectives effectively.

Keyword: Imagery, Innovation, Research Activities, Relevant, Developing

Introduction

Imagination serves as the foundation of innovation. It begins with envisioning a future and then working towards turning that vision into reality. This process lies at the heart of creativity. Everyone is naturally endowed with the ability to imagine, dream, and fantasize. However, many hesitate to share their dream, which often prevents them from taking steps toward realization. In contrast, creative individuals are bold and sociable, openly sharing their visions with others. They possess the ability to transform imagination into innovative ideas and the capacity to make those ideas commercially viable. Imagination and creativity are central to research and innovation, as creativity demands risk-taking. Experimentation

enhances the likelihood of discovering the right solutions and provides valuable insights for forming hypotheses. As noted by Merriam-Webster in Belyaev (2020), an invention benefits only its creator unless it is made accessible to the public. When an invention improves a product, process, or service for public use, it evolves into an innovation, which can range from minor enhancements to major breakthroughs.

The primary goal of research, as stated by Adediran (2022), is to uncover hidden truths that have yet to be discovered, even though every research study serves a unique purpose. Research is driven by the need to address unsolved challenges, often initiated by practical problems (Vyshedskiy, 2020). Applied research, in contrast to basic research, focuses on discovering, interpreting, and developing methods or systems that enhance human knowledge across various scientific disciplines. While research may utilize the scientific method, it is not always a necessity. Scientific research, however, depends on the systematic application of the scientific method, fueled by curiosity (Afuah, 2008). This type of research generates scientific insights and theories that explain the natural world and its properties, enabling practical applications. It is typically funded by public authorities, charitable organizations, and private entities, including corporations.

The journey from imagination to innovation entirely relies on the researcher. The success of research largely depends on the researcher's qualities, which include a scientific mind-set, a strong imaginative capacity, and the ability to grasp and visualize abstract concepts, unwavering patience, and tireless perseverance. Additionally, researchers must be quick to understand the significance of ideas, possess clear conceptual thinking, and demonstrate strong analytical abilities (Afuah, 2008). Other essential attributes include subject-matter expertise, knowledge of research techniques, and a personal passion for the field of study. A researcher transforms innovative ideas into reality by creating new products, processes, or services. However, the critical aspect is not merely inventing new ideas but also implementing them bringing them to market, applying them practically, and leveraging them to produce value or enhance quality. This process often entails technological advancements and organizational restructuring. It involves adopting new technologies and engaging in creative, unconventional thinking to generate value and drive significant societal changes (Belyaev, 2020). The 21st century has been characterized by ground breaking innovations, emerging technologies, new products and services, and the birth of entirely new

industries. To effectively channel imagination, innovation, and research toward meaningful outcomes, the guidance of a visionary mentor or leader is essential.

Social Studies have evolved into a form of education that addresses social change through its practical teachings within the school system. It offers essential insights into human behavior and the reasons behind people's actions. Consequently, its framework aligns seamlessly with innovation and adaptability, addressing challenges in the social, economic, political, religious, and physical aspects of society (Ogundare, 2010). The knowledge gained from Social Studies equips individuals to understand social trends, critically examine issues, and propose effective solutions to identified problems. This is because Social Studies places significant emphasis on human experiences, addressing everyday challenges that emerge in areas such as family life, education, business, politics, sports, and entertainment. Imagination and innovation in research activities aimed at achieving industrialization and sustainability are achievable through Social Studies. According to Adediran (2021), Social Studies, as a societal, informative, integrated, innovative, creative, and problem-solving discipline, leverages its interdisciplinary approach to address societal challenges comprehensively.

Concept of Imagination

Imagination, derived from the concept of imagery, refers to visual symbolism or figurative language that evokes mental images or sensory impressions. While it is often associated with literary works, it can also be applied in other fields such as psychotherapy (Belyaev, 2020). Imagery can, in fact, be considered a form of imagination. It is the ability to create and simulate new objects, sensations, and ideas in the mind without direct sensory input. Imagination also involves the formation of experiences in the mind, whether through reimagining past experiences, such as vivid memories with modifications, or through entirely invented, sometimes fantastical, scenes. Imagination plays a key role in applying knowledge to solve problems and is essential for integrating experience into the learning process. Imagination is a cognitive process involved in mental functioning, often linked with psychological imagery. It is considered a key element of thinking because it engages with possibilities. Here are several definitions of imagination: It is the ability to envision something that is not currently perceived, yet is spatiotemporally real. It also refers to the capacity to think of whatever one believes to be possible within the spatiotemporal world (Twiss, 2009). Imagination

involves thinking about things the individual believes to be real, even if they are not. It also encompasses the ability to conceive of fictional ideas and entertain mental images (Vyshedskiy, 2020).

Imagination encompasses the ability to think about anything at all, including the non-rational functions of the mind, which can be explained by causes rather than reasons. It allows for the formation of perceptual beliefs about objects in space and time. Additionally, it involves the capacity to sensuously appreciate works of art or natural beauty without categorizing them or considering their practical uses. Imagination also enables the creation of art that evokes such sensory appreciation, as well as the ability to understand things that reveal deeper meanings about human life. It allows for the creation of art that expresses profound insights into life's meaning (Laurence, 2018). However, imagination is not solely a cognitive activity. It is also connected to the body and environment, as it involves engaging with materials and people, suggesting that imagination is not confined to the mind alone.

Concept of Innovation

Innovation, according to Adediran (2022), involves the creation of a new idea and its transformation into a new product, process, or service. This process drives dynamic economic growth, increases employment, and generates profits for innovative businesses. Innovation is not a one-time event but a continuous and cumulative process that spans numerous organizational decisions, from the generation of an idea to its eventual implementation. A new idea typically arises from recognizing a new customer need or discovering a novel production method. It is developed through a cumulative process of information gathering, coupled with a forward-thinking entrepreneurial vision. During the implementation phase, the idea is refined and commercialized into a marketable product or process, leading to cost reductions and enhanced productivity (Urabe, 2008). There are three primary approaches to understanding the concept of innovation. Schumpeter, often regarded as the founder of the innovation theory in economics, defined innovation as the economic effect of technological change, particularly the use of new combinations of existing productive forces to address business challenges (Schumpeter in Vyshedskiy, 2020). Innovation is seen as a process that integrates science, technology, economics, and management, aiming to achieve novelty. This process spans from the generation of an idea to its commercialization through production, exchange, and consumption (Twiss, 2009). Afuah (2008) defines innovation as the application of new knowledge in products, processes, and services. He categorizes innovations based on technological, market, and administrative/organizational factors.

Rational for Innovation in the Educational Research

Innovation involves not only the introduction of new ideas, knowledge, and practices but also the enhancement of existing ones (Kostoff, 2013). In education, innovation adds significant value by improving learning outcomes and the overall quality of educational delivery. For instance, changes in the educational system or teaching methodologies can help tailor the learning process to better meet students' needs. New trends in personalized learning, which rely on innovative ways of organizing schools and utilizing information and communication technology, illustrate such advancements. Moreover, education is widely regarded as a means to promote equity and equality in many countries (Adediran, 2022). Innovation can help ensure more equitable access to education and improve learning outcomes for all students. Public organizations, including educational institutions, face similar pressures as businesses to increase efficiency, reduce costs, and maximize value. Mulgan and Albury (2013) highlight that public service costs, including in education, often rise faster than those in the rest of the economy. This can be attributed to "cost disease," a phenomenon where rising labor costs and limited opportunities for productivity gains affect public services. However, this may also stem from a lack of innovation (Foray & Raffo, 2012). Thus, innovation could drive more efficient service delivery in education. Finally, education must adapt to the rapid changes occurring in society and the economy. The education sector must embrace necessary changes to meet evolving societal needs. For example, educational systems should adopt new teaching methods, learning strategies, and organizational practices that are designed to foster the skills required for innovation.

Challenges to Innovation in the Research Activities

According to Babawale (2007), the challenges to innovation in research activities can be categorized as follows:

Environmental Factors: A supportive and flexible environment is essential for fostering innovation. Such an environment should welcome new ideas, tolerate risks, celebrate successes, encourage collaboration, and promote a sense of enjoyment. Creating this type of climate may be one of the most significant challenges for organizations striving to become more innovative.

Innovation and Goal Definition: Successful innovation requires clear goal definition. Organizations must explicitly articulate their goals in a way that ensures everyone involved in the innovation process understands them. Actions should be effectively aligned with these goals, linking initiatives like ideas and projects to specific objectives.

Participation in teams involves individuals contributing to team efforts, and each person must have a clearly defined role, with responsibilities tied to the overall goals. Additionally, the reward and payment system should be aligned with goal achievement.

Effective Monitoring: To ensure progress, it is essential to monitor the goals, actions, and teams involved in the innovation process. Regular tracking of results is necessary to assess the effectiveness of the innovation efforts.

Inadequate Leadership Guidance and Innovation: Leaders, as trailblazers, should take the initiative in driving innovation within education. Their influence shapes the focus and development of an organization. However, a lack of proper guidance and orientation has been a significant barrier to fostering a culture of innovation in schools.

Poor Attitude to Research Outcomes: Research conducted in education often fails to be effectively utilized (Akomolafe in Mulgan & Albury, 2013). The lack of application of research findings hinders the development of an innovative culture. Many researchers have offered valuable suggestions and recommendations, yet these are seldom implemented.

Innovation Failures: Innovation can sometimes fail, even when the ideas themselves are good. Failures often arise due to budgetary constraints or a lack of necessary skills. Organizations can learn from these failures when they are openly discussed and analyzed. Innovation failures can be attributed to both external and internal factors. External causes are beyond the organization's control, while internal causes are within its influence. Internal causes of failure can be linked to both the cultural infrastructure and the innovation process itself. O'Sullivan, as cited in Afuah (2008), identified common internal causes of innovation failure as poor leadership, poor organization, ineffective communication, lack of empowerment, and poor knowledge management. Within the innovation process, common failures across organizations include poor goal definition, misalignment of actions with goals, inadequate team participation, insufficient monitoring of results, and poor communication and access to information.

Funding: Funding has become a critical issue in the education sector, with financial constraints affecting all areas of the system. The challenge of securing adequate funding has impacted both infrastructure and innovative initiatives in education. To support

innovation and provide the necessary resources, education requires sufficient and sustained funding.

Industrial Sustainability

Industrial Sustainability (IS) refers to the ultimate outcome of a transformation process in which industry plays an active role in contributing to a planet that is socially, environmentally, and economically sustainable. It is also used to describe the process of driving, planning, and implementing the necessary changes to achieve this goal through a transformative journey (Bonacchi & Rinaldi, 2007).

Specific Actions towards Industrial Sustainability

From a practical standpoint, transitioning towards industrial sustainability requires companies to decouple economic growth from environmental impact, primarily through technological advancements, while minimizing their influence on societal changes. This involves taking actions from a macro-level perspective, such as closing the loop of resource flows, while also focusing on internal improvements like Cleaner Production (CP), pollution prevention (P2), and other Sustainable Manufacturing (SM) practices (Urabe, 2008). As highlighted in the previous paragraph, Industrial Sustainability (IS) is an emerging field, with practitioners rapidly learning what works and what doesn't, and an increasing number of researchers working to develop specific solutions and useful frameworks. In the author's view, the current phase of implementation guidance is marked by divergence, as a growing number of consultancies, government organizations, and in-house implementers develop and promote their own frameworks.

This is expected, given that the subject is still relatively new and complex (Bonacchi & Rinaldi, 2007). Observations from companies in practice reveal common themes across many of these frameworks, such as: the use of target-based management, leveraging existing management systems (e.g., quality management), increasing involvement of non-traditional stakeholders, an initial focus on energy use and waste that often expands into a deeper understanding of material and energy efficiency, an initial emphasis on internal operations that eventually extends to include suppliers and customers, material substitution (though with limited willingness to innovate product design initially) (Foray & Ratto, 2012). Furthermore, there is a growing emphasis on industry-specific aspects of sustainability. Given the emerging nature of the subject, it may be wise not to promote specific frameworks or tools at this stage. Instead, it may be more beneficial to focus on sharing effective practices those that work well within certain frameworks and under specific conditions. This

approach would pave the way for the development of more advanced frameworks as practitioners align around proven practices (Bonacchi & Rinaldi, 2007). Ultimately, it is more urgent for the industry to actively engage with the available frameworks and tools, thereby accelerating the learning process and improving implementation practices.

A new Industrial Sustainable Approach

Traditionally, product design and process technology determine the types of pollutants emitted, the generation of solid and hazardous wastes, the resources harvested, and the energy consumed (Guide, Jayaraman, & Linton, 2003). However, in a business environment marked by uncertainty in resource and energy supply, this traditional view and the associated business model have become unsustainable. This model relies on continuous market expansion for growth, product enhancement to maintain demand, and global sourcing to sustain profit margins, all while managing the costs of compliance with end-of-life cycle regulations. Such a production system is based on separate management sub-systems and commercial sectors: production/industry, consumption/retail, and waste (Benn in Mbang & Oyibe, 2013). The fragmentation of these sub-systems, driven by self-interest, leads to inherent inefficiencies.

A prime example of this inefficiency is the value added to materials during their transformation into marketable products, only for that value to be lost in a waste system that is unable to fully identify or utilize it. This system has limited capacity or incentive to create closed-loop material cycles (Foray & Ratto, 2012). The transition to a more sustainable industrial production system also referred to by some authors as sustainable supply chains (SSCs) requires a shift from a fragmented, functional approach to a holistic one, involving a fundamental reassessment of value creation. New concepts and frameworks for sustainability, such as closed-loop supply chains (Guide et al., 2003), sustainable supply chains, energy efficiency in supply chains, and addressing climate change, have been analyzed and proposed.

However, making the first steps towards a sustainable supply chain introduces several complexities: the existence of dependencies between supply and consumption, the management of inter-organizational relationships that are not yet oriented toward sustainability, the difficulty of replacing traditional value propositions with sustainable alternatives, a bounded unidirectional view of material flows rather than a bidirectional one, fragmentation that limits systemic understanding, and a lack of proven economically viable sustainability initiatives. Further exploration of existing industrial experiences and literature can shed light on the common limitations

of current approaches. Notably, there is no one-size-fits-all solution that works for every industry, product, or customer.

Social Studies

Moffitt (2017) argues that Social Studies is well-equipped to address social change by interpreting the actions, attitudes, and behaviours of individuals in response to societal shifts. She defines social change as "the transformation of culture and social institutions over time." In Nigeria, one example of social change is the economic recession that began at the start of Buhari's administration, leading many Nigerians to lose their purchasing power. Social Studies plays a key role in fostering innovation by introducing learners to ideas that enhance their creative and critical thinking skills. The ultimate goal of Social Studies education is to equip individuals with the ability to implement independent ideas that can improve society.

The connection between Social Studies and innovation is highlighted in a study by Chikwelu (in Mezieobi & Onyeanusi, 2011), which states that "Social Studies education serves as a corrective (innovative) measure in shaping attitudes and conditions for national development." The study emphasizes that Social Studies fosters innovation because its objectives are designed to help learners generate ideas that benefit both themselves and others. Social Studies education, they argue, instills in students the skills and abilities needed to become effective and functional members of society. Learners are empowered to "master their environment, explore and utilize local resources to address societal needs, and improve the lives of people" (Mezieobi & Onyeanusi, 2011). This aspect of Social Studies education is directly connected to society, as students are encouraged to address societal ills, engage in community development, and contribute to positive change.

According to Adediran (2017), the current Social Studies curriculum needs restructuring to align with fundamental principles that should be taught at all levels of education. Prominent educationists, such as Obayan (2004), emphasize that studying Social Studies is one of the most powerful tools humanities has developed for ongoing growth and progress. Ukeje (2010) further elaborates that education is a transformative force—it has the power to heal, build, and uplift individuals, groups, and societies, driving improvement and continuous progress. Ukeje also highlights the critical role of the Social Studies curriculum in sustainable development, stating: "Whatever you want in society, you put it in the school; if you want an honest society, you teach honesty in the school; the school is the manufacturer of society; the school mirrors society; and society is changed by the school." Adediran (2022) asserts that Social Studies education is pivotal for character building and the success of a welfare state. In countries like France,

Social Studies is mainly used to sharpen intellect and transmit culture, while in the United States, it focuses on developing qualities essential for good citizenship and the success of democracy (Adediran & Sobola, 2021). In Russia, Social Studies education is used to promote elements of communism. Similarly, the author believes that Social Studies education can be applied in Nigeria to foster peace in regions such as the Niger Delta, and address ethnic tensions in places like Kaduna, Jos, and Ife, as well as combat issues like tribalism, sectionalism, bribery and corruption, hatred, jealousy, electoral malpractice, cultism in schools, student unrest, prostitution, examination malpractice, armed robbery, kidnappings, fraud, assassinations, suicide bombings, religious conflicts, and other social vices.

The Need for Social Studies towards Industrial Sustainability in Nigeria

Social Studies play a crucial role in promoting industrial sustainability by maintaining and enhancing human capital within society. This includes investments in health and education systems, access to services, nutrition, and the development of knowledge and skills, all of which are key components of both industrial and human sustainability (Adediran, 2017). Given that natural resources and available spaces are finite, it is vital to balance continuous growth with improvements in health and economic well-being for all. In the business context, organizations should view themselves as integral parts of society, adopting business values that respect and promote human capital. Through industrial sustainability, Social Studies emphasizes the importance of everyone directly or indirectly involved in the production of goods and services, as well as broader stakeholders, who collectively form the human capital of the organization (Benn in Mbang & Oyibe, 2013). Business activities and the methods used to source raw materials can have either positive or negative impacts on communities worldwide. Social Studies, in the context of industrial sustainability, focuses on developing the skills and human capacity necessary to support organizational functions while promoting the well-being of communities and society at large.

According to Adediran (2022), Social Studies towards industrial sustainability seeks to preserve social capital by investing in and creating services that form the framework of society. This approach takes a global perspective, considering communities, cultures, and the effects of globalization. It aims to safeguard future generations, acknowledging that our actions can impact others and the world as a whole. Social Studies promotes industrial sustainability by focusing on improving social quality through values like cohesion, reciprocity, honesty, and the importance of interpersonal relationships (Obanya, 2004). These principles can be supported by laws, information, and shared ideas about equality and rights. Social Studies also

aligns with the concept of sustainable development as outlined by the United Nations Sustainable Development Goals. The principle of sustainable development emphasizes social and economic progress that protects the environment and fosters equality, demonstrating that the economy, society, and ecological systems are interdependent (Chikwelu, 2001).

Social Studies in the context of industrial sustainability aims to maintain capital while improving living standards. In business, this refers to using assets efficiently to ensure long-term profitability. Critics of the traditional economic model point out that modern accounting practices fail to account for the environmental damage, which is often not reflected in market prices (Babawale, 2007). A more inclusive approach to economics, referred to as new economics, recognizes the importance of natural capital (ecological systems) and social capital (relationships among people). This model challenges the belief that continuous growth is inherently good, particularly when it risks harm to ecological and human systems (Mbang & Oyibe, 2013). Social Studies also advocates for improving human welfare by protecting natural capital, such as land, air, water, and minerals. Environmental sustainability in industrial practices is achieved when initiatives meet the needs of the population without compromising the ability of future generations to meet their own needs. To ensure industrial sustainability, as described by Adams (2006), businesses must adopt practices that yield positive economic outcomes while avoiding harm to the environment in both the short and long term. An environmentally sustainable business must identify the type of green business to focus on and make strategic decisions that effectively integrate sustainable approaches into their policies and operations.

Conclusion

Imagery refers to visual symbolism or figurative language that evokes mental images or sensory impressions, particularly in literary works, but also in other fields like psychotherapy. Innovation, on the other hand, involves the incorporation of new knowledge into products, processes, and services. Innovations can be categorized based on technological, market, and administrative/organizational characteristics. Social Studies, which places significant value on human experience, addresses the everyday realities that emerge from various spheres of life such as families, schools, businesses, politics, sports, and entertainment (Adediran, 2021). Imagination and innovation in research activities through Social Studies, aimed at industrialization for sustainability, are achievable because, as Adediran (2021) notes, Social Studies is a societal, informative, integrated, innovative, creative, and problem-solving discipline. Its interdisciplinary approach allows

it to address societal issues holistically. One challenge, however, is measuring and classifying innovation, as current literature and many authors offer differing definitions, and the criteria for classification are vast and varied. Nonetheless, fostering imagery and innovation leads to the creation of new products, services, or systems that enhance value or improve quality (Moffitti, 2017). This often involves technological transformations and organizational restructuring, utilizing new technology and innovative thinking to generate value and drive meaningful change in society.

Recommendations

1. The schools should create and maintain the culture of innovation and imagination
2. Leaders should take the lead in creating innovative culture in the school system.
3. Individual should take it upon himself/herself the responsibility of becoming a master of innovation so as to constantly be inventing or creating experience.
4. School authority should develop good attitude to research outcomes, so as to make use of relevant research outcomes to sustain innovation culture.

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