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Contributions of Artificial Intelligence to Updating and Developing Research in Social Sciences

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Abstract:

The present research aims to evaluate the contributions of artificial intelligence to updating and improving the methodologies followed in social research, where the research problem stems from the need to leverage artificial intelligence capabilities to process big data and overcome traditional methodological limitations. The study relied on the descriptive approach to examine the methodological structure of social research and how to integrate it with artificial intelligence tools, such as machine learning and reinforcement learning, and the analysis focuses on the methodological interaction between artificial intelligence and social sciences and its practical applications, and the research concluded that artificial intelligence significantly enhances the efficiency and depth of analysis, enabling the detection of complex social patterns, as it contributes to developing and updating the methodological structure of research, and the study emphasizes the importance of establishing clear ethical dimensions to ensure transparency and avoid bias, which forms crucial future prospects for researchers

Keywords: *orderartificial; intelligence development of social research; methodological updating; social research*.

I. INTRODUCTION:

Artificial intelligence is considered a pivotal driving force in the digital transformation witnessed by multiple global sectors, including health, education, and industry, and the importance of artificial intelligence lies in its flexibility and ability to bring about fundamental changes in the lives of individuals and communities, representing a strategic tool to achieve qualitative improvements in quality of life. Artificial intelligence is viewed as the language of the future that combines vast technological possibilities with ethical and managerial challenges that require precise and responsible handling. Scientific research has witnessed remarkable progress in recent decades, driven by the emergence of innovative applications that enhanced the efficiency of research processes, and artificial intelligence stands out as one of the most impactful tools in this field, enabling researchers to analyze phenomena with a scope, depth, and precision that were not previously available, as artificial intelligence represents a particularly promising field in the social sciences, offering innovative tools and techniques to study human behavior and social interactions in unprecedented ways.

This development aims to enhance understanding of social relations, which contributes directly to developing research and analysis methods, as artificial intelligence contributes to improving scientific research processes by enabling researchers to collect and analyze data with exceptional efficiency, significantly reducing the effort and time required to complete studies, as it provides advanced techniques for processing and analyzing data quickly and accurately, surpassing human capabilities in detecting patterns and complex relationships within big datasets, and through the use of machine learning algorithms and advanced statistical methods, artificial intelligence can enhance the accuracy of predicting experimental outcomes and testing hypotheses with utmost rigor.

This tremendous progress opens unprecedented horizons for social scientific research, establishing fundamental transformations in the methodologies and approaches used to understand the complexities of social phenomena, and despite the numerous methodological and analytical benefits, the use of artificial intelligence in scientific research raises ethical and methodological challenges that require special attention, which confirms the necessity that this progress take place within a strict ethical and methodological framework.

The problematic of this study stems from the contradiction between the increasing need of the social sciences for analyzing datasets and understanding complex patterns of human behavior, and the traditional methodological and analytical limitations that researchers face. Despite the immense opportunities that artificial intelligence provides in enhancing the efficiency and accuracy of scientific research, integrating these technologies into social research raises profound challenges related to methodology, reliability, and ethical dimensions.

Therefore, our problematic revolves around:

- **To what extent is the real and effective contribution of artificial intelligence to updating and developing social research?**

Branching from the main problem are the following key questions:

- What are the most important contributions of artificial intelligence to improving the efficiency and accuracy of data collection, processing, and analysis processes in the social sciences?
- How can artificial intelligence techniques help in detecting complex patterns and relationships in big social data that exceed human capabilities?
- What are the methodological challenges facing social researchers when integrating and using artificial intelligence tools in their studies?
- What are the future prospects opened by the methodological interaction between artificial intelligence and social research to develop our understanding of social phenomena?

to the topic, the problematic and the method of analysis adopted, the hypotheses adopted, clarify the objectives of the article.

1. Importance of the Study:

- Contributing to updating and developing the methodological structure of research in the field of social sciences.
- Providing new insights into how to leverage advanced technologies (such as artificial intelligence) to enhance the efficiency and reliability of research results.

- Helping to open future horizons for social scientific research, enabling opportunities for new discoveries.
- Presenting a framework for understanding the ethical dimensions associated with integrating artificial intelligence, which ensures responsible application of these technologies.
- Enabling researchers and decision-makers to benefit from deeper and more comprehensive analysis of complex social phenomena.

2. Objectives of the Study:

- Exploring the pivotal role of artificial intelligence in developing and updating social research methodologies.
- Evaluating the capability of artificial intelligence tools to process and analyze big social data with high efficiency.
- Identifying ways to overcome traditional methodological limitations facing researchers in the social sciences.
- Clarifying the importance of artificial intelligence in deepening analysis and detecting complex and previously invisible social patterns.

3. The Methodological Structure of Research in Social Sciences:

The achievement of social research represents a sequential and logical methodological path, beginning with the crystallization of the research idea and ending with the presentation of a comprehensive report of the results. These stages are characterized by close interconnection and cognitive integration. Despite slight methodological variations between research schools in arranging some details, there is general consensus in the social sciences on the basic elements constituting the structure of social research.

4. Identifying the Problem and Its Scope:

This foundational stage is the most difficult and important, requiring a deep understanding of the nature of the social research issue and precise identification of its theoretical and field dimensions, and the issue must be formulated in clear and specific terms, transforming it into purposeful research questions or testable hypotheses, with adjustment of the spatial and temporal scope of the study.

The research problem in its essence is an issue or matter requiring a solution or interpretation according to known methodological rules, and the social researcher must focus on building the problem as a process of deconstructing the research topic, which fundamentally consists of variables linked by some relationship, where the deconstruction process begins with knowing the relationship between the "independent variable" and the "dependent variable" to determine which affects the other, and one of the characteristics of the problem in the social sciences is starting from the general to the specific through deduction, reaching the specified variables.

- **Defining Concepts and Explaining Them**: Establishing concepts and their definitions, and the social researcher, when defining concepts, must analyze and critique them to understand the essence of the concept, its basic indicators, and the shortcomings in its previous treatment, as sociology is the science of concepts, and its crisis is linked to the degree of precision and rigor in constructing these concepts.
- **Reviewing Previous Literature:** The social researcher must conduct a comprehensive critical review of relevant previous theories and studies related to the phenomenon of the study, aiming to establish the theoretical framework on which the research will rely, and neutrality must be maintained in presenting and evaluating the literature.
- **Establishing the Methodological Design:** The researcher must develop an appropriate research design, which is a detailed action plan clarifying the details of its chapters and sections, followed by determining the methodology to be adopted to achieve the objectives (such as the descriptive approach, analytical approach, or mixed approach), which must suit the nature of the studied social phenomenon.
- **Collecting Field Data:** The researcher must first identify the variables, dimensions, and indicators after refining the topic through the exploratory study, and indicators for each dimension in the hypotheses are extracted to facilitate their formulation into research tool questions.

The researcher selects appropriate research tools for the social sciences (such as

observation, interview, questionnaire), and proceeds to implement the data and information collection process necessary for the study, based on the previously specified methodology, and the sample is determined as the miniature society representing the original society and bearing its characteristics, with the nature of the topic controlling the choice of the appropriate sampling method.

- **Recording and Classifying Data:** The collected information is recorded, whether as direct quotes or summaries on cards or standardized forms, and accurate documentation of all sources must be ensured to guarantee ease and effectiveness of retrieval and use of the scientific material later.
- **Analyzing and Interpreting Data:** This is the pivotal stage, where the researcher uses critical or statistical analysis methods to extract meanings, significances, and indicators from the data, and the goal is to interpret phenomena and verify the validity of hypotheses, going beyond merely listing numbers to extracting social cognitive indicators.

The social researcher must analyze the language of numbers sociologically, without favoring quantitative language over qualitative analysis, as the origin of quantitative data is qualitative, so the researcher must combine analysis methods to ensure the objectivity of results, and the analysis must rely on social imagination in presentation, practice, linking, and proof. (Grawitz, 2007)

In the analysis, results must be linked to previous studies, whether those that agreed with the researcher's results or differed from them, to deepen the discussion and frame the results within a broader cognitive context.

- **Organizing the Scientific Material:** The researcher organizes the scientific material and data in an integrated and sequential logical system, including placing the theoretical material in its appropriate place, presenting numerical data in clear interpretive tables, and interpreting each part in its correct context to ensure research coherence.
- **Formulating the Final Report:** The final report of the project is prepared according to a methodological sequence, and it must be characterized by scientific objectivity, clear language, and precise terminology. The report contains the following main parts:
    - **Introduction:** Presenting the research idea, its importance, specifying objectives and methodology.
    - **Body (Content):** The main part including analysis details and detailed presentation of sections.
    - **Conclusion:** Including main conclusions, factors leading to them, and presenting future recommendations.
    - **References List:** A comprehensive and documented record of all sources used by the researcher(Ahmed, 2009).

5. Importance of Artificial Intelligence in Developing Social Research:

Artificial intelligence represents a driving force for methodological transformation in the field of social research, providing immense possibilities to enhance efficiency, accuracy, and comprehensiveness in processing societal phenomena. Its importance is manifested in the following aspects:

- **Improving the Accuracy of Social Research:** Data accuracy is one of the most prominent advantages provided by artificial intelligence to social research; through its advanced tools, data can be examined and analyzed with a high degree of precision surpassing traditional methods, and for example, artificial intelligence is used to detect and correct latent methodological biases in social datasets, in addition to verifying and correcting errors in the information collection process.
- **Accelerating the Research Process:** Artificial intelligence contributes to fundamentally accelerating research processes; instead of manual or traditional data analysis, artificial intelligence can perform analysis faster and more efficiently, significantly reducing the time frame needed for the researcher to reach final results.
- **Enhancing Access to Research and Data:** Artificial intelligence works to facilitate access to social research and electronically available information. This is done through advanced tools like intelligent search engines, or systems offering precise research recommendations, or through analyzing global datasets; this improvement in data and

information availability enables researchers to access the largest possible number of relevant studies at a faster pace.

- **Enhancing the Comprehensiveness of Social Research:** Artificial intelligence enables researchers to collect and analyze data from highly diverse sources, enhancing the comprehensiveness of social research; by processing massive amounts of data from various sources, researchers can examine and interpret the impacts of social phenomena on diverse categories and groups in society more accurately and representatively.
- **Improving Decision-Making in Social Policies:** Artificial intelligence can improve the quality of decision-making in social policies by relying on accurate and efficient analysis of collected data; thanks to artificial intelligence, governments and social institutions can use predictive models in planning effective and targeted strategies to address existing social challenges.
- **Enhancing Collaboration Among Researchers:** Artificial intelligence helps enhance scientific collaboration among researchers by improving access to shared tools and data available via the internet, contributing to knowledge exchange and research collaboration between academic and research institutions worldwide (Faisal, 2024).

6. Artificial Intelligence and Research Practice in the Social Sciences:

Artificial intelligence reshapes the ways of practicing scientific research in nearly every field, and social and human sciences workers have begun discovering the unique capabilities enabled by artificial intelligence tools in processing large and complex datasets, interpreting texts, and building models for social phenomena.

Examples of these tools include: machine learning, whether supervised (helps predict voting behavior or cluster universities with similar characteristics) or unsupervised, reinforcement learning (helps improve models based on new data), natural language processing (helps analyze large bodies of textual and discursive data), in addition to large language models that help build generative models supporting agents.

6.1. Artificial Intelligence as a Research Tool:

Sociologists attempt to use artificial intelligence tools to build models of social phenomena, simulate complex social movements, recognize forms of behavior, predict transformations, analyze discourse, especially via communication media, in addition to analyzing population data and opinion polls.

Psychologists use the tools in diagnosis, clinical treatment planning, sentiment analysis, and emotional cues in language and facial expressions. Researchers in public policy and administration rely on opportunities to automate routine tasks and collect and process data to formulate recommendations aiding more efficient policy-making, and in anthropology, these tools are used to code and analyze large descriptive datasets, transcribe and translate human languages in writing, and preserve cultural heritage through analyzing historical documents and building future visions. Generative artificial intelligence systems, particularly large language models, offer opportunities to create synthetic content supporting research.

6.2. Methodological and Ethical Challenges :

Despite these opportunities, the tools pose major challenges in research practice

- **Data Bias:** Datasets feeding artificial intelligence models may contain inherent biases and may not represent reality, leading to inaccurate or misleading outputs.
- **Model Opacity:** Researchers face the black box phenomenon, referring to the internal complexity of the model's logic and lack of clarity, making interpretation steps difficult and depriving research of its essence.
- **Misleading Outputs and Fabrication:** Artificial intelligence tools can be deliberately exploited to create and disseminate fake content (such as deepfakes), and hallucinations are added, where models can generate plausible but incorrect outputs, threatening scientific integrity and risking loss of trust in epistemic authority.
- **Impact on Policy-Making:** Lack of critical awareness of algorithmic bias leads to amplifying the illusion of certainty among policymakers when formulating recommendations without critical sense, potentially leading to discriminatory policies and marginalization of public deliberations, as the increasing demand for data deepens surveillance and control.
- **Epistemological Challenge:** Artificial intelligence is not just a research tool but also a subject of social research itself, and the social sciences must study how it is shaped by social and technological forces (Al-Shamri, 2020)

6.3 Artificial Intelligence as a Subject of Study:

New fields, such as critical data studies and critical algorithm studies, are turning to artificial intelligence as a standalone matter.

- **Shaping Reality:** Focus shifts to studying the ways in which AI-generated content and algorithmic control shape user behavior and their understanding of the world, as artificial intelligence redefines the information environment and reframes public discourse itself.
- **Engineering Social Behavior:** The infiltration of artificial intelligence into social media platforms, beyond recommendation models, is used to organize content to maintain user attention, raising concerns of unprecedented social engineering, where engines of this intelligence may transform from media reflecting user ideas to engines shaping and reshaping them.
- **Sociology of Artificial Intelligence:** This calls for studying artificial intelligence as a complex socio-technical system shaped by and shaping social forces, including uncovering political and economic interests behind its development, deconstructing technological determinism discourse, and revealing social gaps in access to and governance of it. What is called the AI gap results in profound social and economic repercussions, most notably deepening existing inequality gaps. (Al-Harbi, 2019).

7. Most Prominent Artificial Intelligence Tools Used in Social Scientific Research:

- **Scite: AI for Research:** This platform is an advanced tool powered by artificial intelligence technologies, specifically designed to enhance the efficiency of academic research. The tool provides researchers with methodological mechanisms to explore scientific literature, critically evaluate it, and deeply understand its cognitive dimensions. The added value of the Scite platform lies in its ability to analyze the textual context of reference citations within scientific texts; enabling the researcher to methodologically classify these citations into: supporting, opposing, or neutral. In addition, the platform integrates an intelligent assistant aimed at facilitating and accelerating the processes of research and bibliometric analysis.

Link: https://scite.ai/assistant

- **Consensus:** It represents a specialized search engine relying on artificial intelligence algorithms, providing researchers with the following academic functions:
  - Literature retrieval.
  - Finding scientific papers precisely relevant to the research topic using machine learning models.
  - Knowledge extraction: automatic extraction of scientific results and their summarization directly from research texts.
  - Academic reliability: limiting the search scope to rigorous scientific outputs derived exclusively from sources published in peer-reviewed journals.

Link: https://consensus.app/home/about-/us

- **Chat GPT-3:** Classified as an advanced linguistic model developed by OpenAI, designed to process textual data and comprehend natural language at a level mimicking human cognition. This model is characterized by its superior ability to accomplish a wide spectrum of cognitive and practical tasks, such as drafting academic texts, preliminary data analysis, and providing precise scientific interpretations; making it a pivotal tool in education, consulting, and document preparation sectors. Despite its effectiveness as a supporting tool for automating complex research tasks, it is worth noting its methodological limitations, such as the possibility of errors in some simple computational operations or shortcomings in handling advanced statistical analysis issues.
  - Link: https://chatgpt.com
- **YOU.com:** It is an interactive search engine powered by artificial intelligence technologies, designed to provide a personalized and high-performance information retrieval experience. Its basic functions are as follows:
  - Customized search engine: Grants the researcher authority to adjust search criteria and customize results according to precise requirements, accelerating access to the most relevant cognitive content.
  - Assistant for drafting and textual analysis: Includes intelligent tools assisting in

text processing and content analysis, providing valuable methodological support in preparing and developing research and academic projects.

- Link: https://you.com

- **Perplexity.ai:** It represents a cognitive model relying on natural language processing (NLP) technologies and machine learning algorithms, aiming to provide accurate and immediate responses to research queries through comprehensive internet scanning. This model is based in its structure on OpenAI's GPT-3.5 version for generating rigorous scientific texts and providing updated data. Its functions stand out in:
  - Providing accurate answers: Employs linguistic processing techniques to extract comprehensive and direct answers aligning with user research questions.
  - Elevating the cognitive retrieval experience: Surpasses the traditional approach based on listing electronic links, instead presenting direct and updated informational syntheses built on researcher queries.
  - Link: https://www.perplexity.ai/
- **Gemini:** It is an integrated system of large language models (LLMs) developed by Google AI research labs, where the "Gemini Ultra 1.5" version represents the most advanced within this family. The model's operation relies on advanced natural language processing and text generation, and it has been strategically integrated into Google cloud applications (such as Docs, Sheets, and Gmail) to provide institutional and research support. Its functions are embodied in:
  - Textual and visual generation: Ability to produce and analyze textual and visual data for analytical and creative purposes.
  - Integration as an intelligent assistant: Effective integration within Google Workspace suite to facilitate automation of daily and research tasks for users.
  - Reliability and cybersecurity: Applying institutional-level security and privacy protection standards to ensure researcher data confidentiality.

· Linguistic interactivity: High efficiency in building conversational texts responding to user queries in a natural and precise manner. (Sofiane, 5/11/2024)
Link: https://gemini.google.com.

8. Artificial Intelligence and Analysis of Social Research:

Artificial intelligence has revolutionized knowledge processing methods, transcending being merely a technological tool to become a method for uncovering latent social facts in data.

8.1 Big Data Analysis:

Artificial intelligence plays a vital and pivotal role in analyzing big data associated with social research, providing advanced techniques such as machine learning to process massive amounts of information quickly and accurately, which bare human capabilities cannot achieve in record time.

Thanks to these tools, hundreds of thousands of scientific articles across multiple fields can be analyzed and automatically classified based on topics, fields, or research trends. For example, machine learning algorithms are used to recognize patterns in scientific literature; allowing classification of articles according to their content, identifying the most relevant or important articles on a specific topic, which is tremendous support for the exploration and previous studies stage.

In addition to classification, artificial intelligence plays an important role in understanding emerging research trends; through analyzing recently published research, artificial intelligence can identify fields experiencing rapid growth or research gaps not sufficiently addressed, facilitating researchers and academic journals to focus on the most important topics and directing research efforts toward areas needing more study. Big data analysis using artificial intelligence not only helps provide a broader understanding of the scientific field but also enhances academic communities' ability to absorb developments and innovations faster and more efficiently.

8.2. Scientific Text Mining:

Scientific text mining techniques relying on artificial intelligence are a powerful tool for analyzing large volumes of academic texts and extracting new patterns and ideas, fundamentally relying on machine learning algorithms and natural language processing to analyze texts and interpret their content automatically, mimicking and sometimes surpassing human analytical

capability in speed and comprehensiveness. When applied to large journals and scientific research, these tools help discover hidden connections between topics, identify new research trends, and generate data-based scientific hypotheses.

Text mining techniques enable extracting basic information, such as the most common terms, relationships between concepts, and identifying emerging topics. For example, text mining can reveal common ideas in several research papers or identify research gaps not sufficiently addressed, and it can help develop new insights on interactions between different disciplines, supporting.

multidisciplinary research and enhancing innovation. Thanks to these capabilities, text mining tools contribute to accelerating scientific discovery and providing precise results guiding future research (Yahya, 2024).

9. Applications of Artificial Intelligence in the Social Sciences:

Artificial intelligence has emerged as a pivotal force in bringing about a radical transformation in diverse scientific methodologies, including social and human disciplines. Integrating artificial intelligence within these cognitive fields has led to qualitative progress in research methodologies and big data analysis, deepening our perception of highly complex human phenomena.

- **Text and Visual Content Analysis (Images and Video):** One of the most prominent application areas of artificial intelligence in the social sciences is its superior capability to process and analyze texts, articles, publications, and other documents, extracting essential insights and information from them. This enables researchers and thinkers to analyze ideas and concepts related to social structures. Additionally, artificial intelligence is employed in analyzing images and video through computer vision techniques, where it can be used to assess facial expressions, emotions, movements, and behavioral patterns, providing precise understanding of human behavior and social interactions at a level of accuracy not previously available.
- **Data Analysis and Human Behavior Modeling:** One of the main contributions of artificial intelligence in the social sciences lies in its high effectiveness in processing and analyzing massive datasets, with machine learning algorithms excelling in discovering patterns and trends within these sets, offering valuable and statistical insights into human behavior, social trends, and cultural shifts. Moreover, artificial intelligence possesses the capability to build simulation models representing human behavior in various contexts, facilitating the study of social interactions among individuals and evaluating their impact on social relations and communication models.
- **Predictive Modeling and Forecasting:** Artificial intelligence enables social researchers to develop predictive models capable of forecasting future trends and behaviors based on historical data, and this capability has a strategic impact on policy decision-making processes, allowing governments and organizations to formulate data-based decisions to address anticipated social challenges.
- **Sentiment Analysis and Public Opinion:** Natural language processing (NLP) algorithms enable sentiment analysis, allowing researchers to gauge public opinion on social issues, political events, and cultural phenomena, as this technology helps understand the underlying dynamics of public discourse and identify factors influencing the formation of societal orientations.
- **Neuroscience and Mental Pathology:** Artificial intelligence intersects with neuroscience and mental pathology fields, facilitating exploration of human cognitive mechanisms and brain functions, with machine learning models able to analyze brain imaging data, contributing to deeper understanding of neurological disorders and cognitive processes.
- **Social Robots and Human-Computer Interaction:** AI-powered social robots and interactive systems enhance our understanding of human behavior and communication mechanisms, with uses varying in therapeutic, educational, and social support services, offering innovative and effective solutions to societal challenges. (Al-Khuzami, 2023)

10. Future Prospects and Ethical Dimensions:

Smart applications have become an integral part of our daily lives to facilitate life's requirements, not to mention being the latest theoretical and applied maturity achieved by science. Their use in the social sciences has become urgent due to the flexibility they provide in

studying social phenomena, ease of data access, and shortening of time and distances. Therefore, it can be said that the world of robots and artificial intelligence applications represents an effective pillar for the social sciences in approaching various topics and providing benefit to society.

As for the topic of fears, we believe it is exaggerated, especially if considering a matter of utmost importance: in the realm of social sciences, the researcher must be present as a thinking, critical self no matter the technologies used. Such a matter suffices as a guarantee to maintain the credibility of these sciences, particularly in ethical considerations often raised when discussing artificial intelligence and its applications.

Our Arab countries need to overcome states of weakness and cognitive lag in the technological field, and the time has come to engage in producing artificial intelligence technology so as not to remain mere consumers of it, as has been the case since the independence stage and the formation of national entities; failure to do so will deepen the civilizational gap between us and advanced countries, increasing our cognitive and scientific dependency. Moreover, our Arab societies need the social sciences more than ever to drive the development process, which primarily requires a diagnostic reading of our reality and a prospective one for our future. Hence, the justifications for artificial intelligence applications emerge to produce specialized cognitive discourse meeting objectivity and rationality conditions, serving as the basic pillar for renaissancee (Al-Tamimi, 2023).

11. Methodological Interaction between Artificial Intelligence and Social Research:

Approaching the relationship between social research methodology and artificial intelligence requires in-depth academic analysis, clarifying how these components interweave to form a new model of knowledge production in the social sciences, describable as "hybrid intelligence methodology." This enables formulating the starting question and problem with precision and depth, transcending superficial description of phenomena toward seeking causal relationships, knowing that the strength of this question stems from the strength of its poser. This cognitive depth leads the researcher to the necessity of achieving epistemological rupture in the exploration stage, i.e., freeing from preconceived judgments and directing conceptual analysis critically, without settling for transferring definitions, as sociology faces recurrent conceptual crises. (Grawitz, 2007)

In contrast, artificial intelligence comes as a supporting methodological tool that multiplies the researcher's capabilities in dealing with digital age complexities, especially in big data contexts. In the literature review and gap identification stage, artificial intelligence uses text mining and machine learning techniques to scan and analyze massive research quantities, identifying research gaps with high precision, accelerating scientific discovery and providing precise insights to guide future research. (Yahya, 2024)

In the data collection and analysis stage, artificial intelligence performs massive analytical tasks; natural language processing techniques are used to analyze sentiments, extract public opinions, and behavioral patterns from digital content, enabling analysis of human behavior and social interactions with unprecedented precision. Moreover, artificial intelligence's capability to build predictive models and conduct simulations serves the researcher in forecasting future trends, with significant implications for data-based policy decisions. These tools also support the mixed method by facilitating handling of massive quantitative data volumes, but acknowledging the sociological method that the origin of quantitative data is qualitative, requiring social analysis of numerical language. (Grawitz, 2007)

These interactions lead to an integrated methodology known as hybrid intelligence, where the researcher (armed with sociological culture) remains the thinking, critical self leading the research and undertaking interpretation, i.e., assigning social meaning and significance to patterns and technical outputs. This human presence is the guarantee for maintaining scientific credibility and ethical considerations. This integration frees researchers from routine burdens to enhance "research creativity," making artificial intelligence a partner contributing to advanced scientific cognitive formation for humans, propelling social sciences toward innovation horizons and overcoming knowledge gaps. (Grawitz, 2007)

II. Conclusion:

Integrating artificial intelligence into social scientific research fields represents a decisive strategic step to update these disciplines in line with digital age requirements, and despite challenges embodied in ethical issues and data bias, artificial intelligence capabilities open wide horizons for cognitive progress.

Artificial intelligence is a powerful methodological tool that significantly accelerates data collection and analysis processes, enabling researchers to reach accurate and reliable results with high efficiency. Machine learning techniques contribute to analyzing complex social data, predicting future trends, and studying human behaviors, supporting decision-making in public policy and mental health fields. This direction reflects a shift toward interdisciplinary integration.

To achieve maximum benefit, the recommendations emphasize the following:

- **Enhancing the Regulatory and Academic Framework:** By establishing specialized departments in "social computing" within academic institutions to integrate artificial intelligence techniques into research curricula.
- **Providing Support and Training:** Through investing resources in funding AI-supported research, organizing specialized workshops for researchers on the latest tools, focusing on ethical challenges such as privacy protection, transparency, and bias reduction.
- **Supporting Collaboration:** Through creating specialized centers and enhancing partnerships between sociology departments and artificial intelligence faculties to develop innovative research tools.

In conclusion, this effective integration between artificial intelligence and human skills represents a qualitative transformation in conducting scientific research, opening the door to great scientific achievements in the social sciences and related disciplines.

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