Sociological assessment practices for college students in the age of generative AI: A shift towards synthesis-based assignments

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With the prevalent use of generative AI tools, such as ChatGPT and Gemini for educational purposes by students, traditional assignments that are easily answerable by automated systems must be revisited. This paper advocates for a paradigm shift towards synthesis-oriented assignments that emphasise transferable skills such as critical thinking, systems thinking, collaboration, and project building. By adapting assessment methods to align with the demands of an AI-driven era, educational institutions can better prepare students for the complex challenges of the future and equip them to navigate evolving educational landscapes with rigor and innovation. The paper focuses on revisiting assessment methods within the social sciences, specifically sociology, for college-level students.

Introduction

Artificial Intelligence (AI)-driven innovations have profoundly influenced our lives for decades, starting from Alan Turing's work on machine learning during World War II (Muggleton, 2014) to the emergence of automated jobs, the use of algorithms in social media, and the development of autonomous vehicles. However, a historic shift occurred with the introduction of ChatGPT by OpenAI on November 20, 2022. This shift has reshaped various socio-economic fields, including business, social media and, notably, education.

The prevalent use of generative AI tools in education, such as ChatGPT and Gemini (formerly known as Bard) and others, has caused a paradigm shift reflected by the need to revisit our conceptions of meaningful learning and teaching in the age of AI (Fütterer et al., 2023). Various educational institutions and organisations have expressed concerns about the rapid and unethical use of generative AI tools in academic settings, particularly by college students (Bozkurt et al., 2023). For example, without adequate understanding, using AI to draft entire essays and to complete assignments leads to academic integrity violations that are difficult to detect and which disrupt meaningful learning (Fowler et al., 2023). This has prompted key educational non/governmental stakeholders to express concerns and issue key recommendations to address the risks of using generative AI in education. This includes the *Australian Framework for Generative Artificial Intelligence (AI) in Schools* (Department of Education, Australian Government, 2023), the US Department of Education's (2023) report on *Artificial Intelligence and the Future of Teaching and Learning*, and the World Economic Forum's report on *The Role of AI in Education* (Elhussein et al., 2024).

This paper aims to address the challenges of developing reliable assessment methods in

sociology within the context of generative AI. The decision to focus on sociology comes from a core pedagogical principle: assessment design should reflect the learning outcomes of the subject matter. As in any educational area, the goal of learning sociology should guide the choice of suitable assessment methods that promote meaningful and valid learning to reflect the goals of studying sociology and its applications. This paper aims to (a) give an overview of how AI impacts sociology education, and (b) propose innovative synthesis-based learning and evaluation in sociology.

AI impact on sociology education: Towards a paradigm shift

It is important to emphasise that our intention is not to oppose the use of AI but rather to propose more reliable assessment methods that ensure both learning and fair assessment. In other words, the ultimate goal is to harness AI tools, given their projected prevalence (Lodge et al., 2023b), to enhance learning outcomes and develop valid assessment instruments. This approach can help prevent common misuses of AI tools, such as prioritising speed over accuracy, prioritising grades over learning outcomes, and uncritically adopting AI-generated answers.

Intrinsic challenges in assessing sociology learning

Assessment challenges in sociology are not solely attributable to the advancement of AI tools but have been intrinsic to sociology education even before the introduction of AI (Dowd, 1988; Ferreira & Serpa, 2017). These challenges encompass various issues, including the lack of consensus on a unified curriculum (Keith & Ender, 2004; Kalberg, 2005), subjectivity and bias (Shipman, 1973), the problem of triviality which arises from the assumption that anyone can easily grasp social problems without the insights provided by social sciences (Babbie, 2020), and concerns about the validity and reliability of social research methods (Law, 2004; Babbie, 2020). Additionally, despite their shortcomings, expedient assessment instruments, such as quizzes and tests, have been commonly used (Khan, 2011; Marres & Stark, 2020). These challenges are not unique to sociology but are common across the social sciences due to the complexity of understanding social problems, and how this understanding is evaluated and applied. This also explains why many social problems are labelled as wicked problems (Conklin, 2006), and why the social sciences are referred to as messy fields due to methodological difficulties associated with understanding social problems, particularly in the age of technological devices (Law & Ruppert, 2013).

The introduction of generative AI might exacerbate these challenges. The problem of triviality, for example, may worsen if students perceive deep sociological essay questions as trivial and easy to answer, given that their responses can be generated in seconds by AI chatbots. Additionally, concerns about validity and reliability may be heightened due to inherent biases in machine learning algorithms and the datasets used to train generative AI tools. Generative AI may also create entirely new social realities and fabricate information.

Assessing sociology learning in the age of generative AI

Generative AI tools can rapidly fulfil the requirements of various traditional sociological assignment types, such as essay questions, presenting two significant challenges. Firstly, it prompts educators to reconsider the validity of their assessment tools: if assignments can be completed in seconds by generative AI, why should learners invest extensive time studying for tasks that AI can accomplish quickly? (Farazouli et al., 2023). Secondly, it underscores the need for more creative assessment methods that empower learners to apply their knowledge to real-world scenarios to enhance their professional and personal growth (Farazouli et al., 2023). Of course, these challenges existed prior to the prevalence of generative AI tools. For

example, grades do not necessarily reflect competence if assignments are completed unethically by third parties. However, the unprecedented capabilities of generative AI tools have made it challenging for instructors to assess the originality of learners' assignments due to technical limitations in verifying authenticity.

These challenges present an urgent need and opportunity to prompt educators to explore methods for assessing learners' application of sociological knowledge. Achieving this requires a re-evaluation of the design and delivery of learning materials, as well as revision of assessment methods. To do so, it is essential to first understand what it means to learn sociology, as this is a prerequisite for developing effective and valid assessment methods. This understanding will also allow us to assess the relevance and application of generative AI in achieving the goals of teaching sociology and in designing appropriate assessment strategies.

Why study sociology, and what are its benefits?

The questions of why we study sociology and for what benefit are fundamental components of sociology lesson plans, as outlined in various sociology textbooks (Griffiths, 2015; Schaefer, 2018). These questions encompass key topics such as the definition of sociology, the nature of sociological knowledge compared to other types of knowledge, methodological approaches in sociology, and the relevance of sociology to both personal and professional growth. I will use these prompts as examples to demonstrate synthesis-based assessment methods for evaluating students' understanding of these fundamental sociological concepts. The question about defining sociology is also central to ensure validity; students should learn and apply sociological knowledge which reflects the aim of learning sociology.

According to many international sociological associations, as synthesised by the Australian Sociological Association (n.d.), sociology aims to study how individuals and social groups shape and are shaped by social institutions, such as religion and government, and how social change takes place. These learning aims cannot be achieved through tests, quizzes, exams, or short/long essay questions. For example, as a sociological exercise, navigating one's "troubles" according to C. Wright Mills, requires sociologically understanding social issues. Many of our personal troubles, such as poverty and suicide, are embedded within and caused by social/macro structures, such as economy, culture, and value systems (Mills, 2000). Thus, achieving the goals of learning sociology, as encapsulated by the Australian Sociological Association and C. Wright Mills, requires synthesis to cultivate both conceptual and methodological skills. In the age of generative AI, this synthesis becomes even more critical as students must not only understand sociological theories and methods but also navigate the influence of AI tools on research, data interpretation, and the ethical dimensions of social inquiry.

Innovative evaluation in sociology: Embracing synthesis education and assessment

What is synthesis in sociological learning, and why does it matter?

Building the foundations of synthesis in education has been a key challenge and ongoing goal for decades. These foundations encompass synthesis as a central cognitive skill (Bloom, 1956), as an outcome of collaborative learning and social interactions (Van der Veer & Valsiner, 1991), as a reflection of social consciousness and active participation (Dewey, 1897), and as a combination of multiple forms of intelligence (Gardner & Hatch, 1989). Synthesis is argued across multiple academic fields as imperative to (a) embody the essence of a non-elitist college education founded on principles of egalitarian and meaningful learning (Deresiewicz, 2014), (b) embrace the core principles of transdisciplinarity (Nicolescu, 2002), and (c) address issues related to academic and educational silos (Senge, 2006).

These foundations of synthesis can be grouped into two core categories: (1) *cognitive synthesis skills* that facilitate connections between learning materials and students' social realities, struggles, and problems; and (2) *collaborative synthesis skills* that enable students to navigate challenges and foster effective communication and teamwork when collaborating with others from diverse cultural, disciplinary, and socio-economic backgrounds. The foundations of synthesis, grouped into these two categories (Table 1), inform the proposed sociological synthesis teaching and assessment strategies discussed below and detailed in the appendices.

Table 1: Foundations of synthesis: Cognitive and collaborative skills

Category1: Cognitive synthesis skills
Synthesis as a central cognitive skill (Bloom, 1956)
Encourages integration of diverse theories and concepts, enabling effective analysis of complex social issues.
Synthesis as social consciousness (Dewey, 1897)
Promotes active participation and real-world application of sociological theories, developing social awareness among students: how society shapes one's life.
Synthesis as multiple forms of intelligence (Gardner & Hatch, 1989)
Allows educators to utilise diverse intelligences and encourages students to analyse and synthesize sociological data holistically harnessing preferred individual skills: verbal, mathematical (quantitative reasoning), qualitative analysis, and emotional intelligence.
Category 2: Collaborative synthesis skills
Synthesis as collaborative learning (Van der Veer & Valsiner, 1991)
Fosters group discussions and collaborative projects, enhancing understanding through the synthesis of collective knowledge and experiences.
Non-elitist education (Deresiewicz, 2014)
Creates an inclusive learning environment where diverse voices are valued, enriching sociological discourse and understanding of social issues.
Embracing transdisciplinarity (Nicolescu, 2002)
Encourages integration of knowledge from various fields, providing a nuanced understanding of complex social phenomena through multiple disciplinary perspectives, such social and natural sciences.
Addressing academic silos (Senge, 2006)
Helps break down disciplinary boundaries by encouraging connections between sociology and other fields, preparing students to tackle complex societal challenges collaboratively.

Teaching and learning sociological synthesis in the age of AI

At the academic and policy levels, there have been numerous initiatives and calls to re-examine teaching, learning, and assessment practices in the era of AI (Lodge, Thompson, & Corrin, 2023; Lodge, Henderson, Slade et al. 2023). These initiatives underscore the urgent need to develop a comprehensive research agenda aimed at tackling the learning and

assessment challenges posed by AI. This paper contributes to this research agenda by proposing teaching and learning strategies to enhance synthesis skills in sociology education.

Sociology educators should prioritise innovative teaching of synthesis skills before introducing synthesis-based assignments. To do so, I propose seven key pedagogical considerations (see appendices) for designing and implementing synthesis-based sociological learning, that align with the synthesis foundations outlined in Table 1.

The proposed pedagogical considerations are tailored to sociological synthesis, emphasising its unique applications. These applications are twofold: (a) leveraging sociological learning materials to address personal or professional concerns by building connections between the learning materials and one's experiences (cognitive synthesis skills); and (b) fostering the ability to collaborate in multidisciplinary teams (collaborative synthesis skills) to tackle complex social problems, which inherently demand diverse disciplinary perspectives for effective analysis. The proposed pedagogical considerations and applications are explicitly linked to the cognitive and collaborative synthesis skills by emphasising the critique and appropriate use of generative AI, as outlined in the appendices.

Engaging with the pedagogical considerations and sociological applications to develop synthesis skills would require detailed step-by-step guidelines that students can use to build their individual or group projects. At this time AI educational tools can aid in learning. Some studies report benefits of using AI educational tools for brainstorming or building learning scenarios (Lavrič & Škraba, 2023; Mainaly, 2023; Sunitha et al.,2023). These tools can also support students in outlining their group projects and demonstrating collective synthesis skills.

Key considerations and limitations of synthesis-based assessment in the age of AI

Despite the importance of group-based projects in cultivating synthesis skills, they do not necessarily reflect collective efforts due to issues such as freeriding, rigid and uncoordinated task division, and unproductive group dynamics. Educators should therefore ensure that group members are synthesising their contributions by paying heed to the following:

- The use of generative AI can exacerbate issues in group-based projects by making it easier for some members to engage in freeriding. Students might rely on AI-generated content without contributing meaningful personal effort. To mitigate these issues, the learning assignments should be quite specific—focusing on particular contexts, policies, or technologies—to prevent over-reliance on AI tools by requiring students to engage deeply with nuanced aspects of the project. For instance, if the assignment involves understanding key sociological theories to explain deviance, it should focus on a specific type of deviance, within a particular cultural context, and draw from specific data sources. By narrowing the scope in this way, students are encouraged to engage with multiple, nuanced tasks rather than relying on a single AI-generated response to complete the entire assignment.

- Process-based assignments should focus on the process rather than solely on the outcomes. Process-based assignments encourage students to view their work as a learning journey, allowing them to navigate group dynamics—how they collaborate and interact with one another—as well as the requirements of the assignments, including the expected outcomes. The fulfilment of assignment requirements should be approached in phases rather than attempted all at once to enhance student engagement, and thus meaningful learning. Process-based assignments enable instructors to address the misuse or overreliance on generative AI tools. For instance, in an assignment focused on leadership styles and innovation, students might deliver presentations in three phases and receive feedback on each, including comments on the misuse of AI tools.

- A strong link should be established between the group project and each member's specific interests (educational major and personal passions). Students should justify how they relate to the specific project. Instructors should also be willing to support students who cannot relate to the group assignment, through guidance and by building meaningful connections between the sociological project and students' interests.

- Traditional testing tools, such as quizzes (which I label "learning quests") can still play a significant role, not only in evaluation but also in learning development. Slusser and Erickson (2006) propose "group quizzes" to cultivate collaboration among students, and Williamson (2021) proposes engaging and interactive online applications using quizzes and tests in a fun manner to help students memorize the learning materials. Tests and quizzes can also aid in reinforcing the acquisition of disciplinary language, including key concepts, theories, and discipline-based terminology.

- An emphasis on team building is essential in order to foster healthy collaboration among group members. Groups should focus on establishing norms and expectations. A constructive reporting system should be implemented to provide prompt support for addressing emerging issues and prevent the accumulation of unresolved conflicts.

- Students must be introduced to AI prompt engineering and provided with educational resources and demonstrations about the proper and educational uses of generative AI to ensure both academic integrity and learning.

- Instructors should receive logistical support, such as teaching assistants, to develop and implement effective assessment methods. As is well known, mentoring and evaluating students' sociological work requires a significant time investment; therefore, support is essential for effective implementation, including group mentoring, project evaluation, and conflict resolution.

Concluding remarks and further suggestions

Given the widespread use of generative AI, the need for synthesis-based assignments in sociology has become imperative to ensure meaningful learning and the ethical, responsible use of AI tools. When students rely on AI-driven tools for sociology assignments, synthesis-based assignments offer a structured framework that fosters deeper engagement with both the learning material and the AI tools themselves.

In a world where generative AI can easily provide rapid responses, there is a risk that students may prioritise outcomes over the learning process, which in turn disrupts engaged learning. Emphasising process-based synthesis assignments allows students to engage in meaningful sociological learning while reflecting on their own growth and the learning challenges they encounter. Instructors can, in turn, support students' reflections promptly by addressing learning challenges, clarifying assignment tasks, and supporting healthy collaborative learning.

Process-based synthesis assignments not only promote students' learning growth and the corresponding support from instructors but also encourage students to consider the ethical and educational implications of AI tools in their work. This lets instructors evaluate how students are performing over time. Formative assessment plays a crucial role in process-based synthesis assignments, as it provides ongoing feedback that helps students overcome obstacles in their individual and group learning activities and assignment projects.

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About the author

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Appendix A

Pedagogical considerations and sociological applications: Cognitive synthesis skills

Synthesis as a central cognitive skill (Bloom, 1956)

Sociological cognitive skills: Students are encouraged to reflect on and compare their understandings of sociological concepts (e.g. poverty, social status, crime). They are prompted to reflect on how sociological knowledge differs from other types of disciplinary knowledge.

Assignment example: Sociological and biological knowledge are compared and contrasted to help students understand how sociologists view society as a complex system of social groups, individuals, and institutions. Sociological language describes these complex social realities in much the same way that biological language describes organs and their complex relations. But while a sociologist might explain crime rates by looking at factors such as economic inequality or socialisation, a biologist might examine genetic predispositions or neurological factors that influence behaviour. This difference highlights sociology's emphasis on social environments and interactions, as opposed to biological factors.

Sociological meta-cognitive skills: Students are encouraged to share in groups their challenges in grasping sociological language, concepts and theories. This collaborative approach helps sociology educators understand the difficulties students may encounter in comprehending sociological concepts.

Assignment example: In sociology and philosophy, pragmatism refers to reconciling seemingly opposing views. This differs from the everyday use of the term, which typically refers to practicality. Students compare the two meanings, facilitating deeper understanding of sociological terminology and promoting critical thinking about sociological concepts.

Generative AI can enhance metacognitive skills by prompting students to critically analyse AI-generated content.

Assignment example: Students evaluate an AI-generated essay on social inequality to identify how the AI tool constructed arguments and what perspectives were included or omitted.

Synthesis as social consciousness (Dewey, 1897)

Social consciousness is fundamental to sociology, examining how society shapes individuals and vice versa. This skill helps students build self-awareness, contextualise personal and professional challenges, and move beyond binary views, fostering deeper analysis of the reciprocal influences between society and the individual.

Assignment example: Students are encouraged to reflect on their social and religious values while examining how these values differ among individuals. This reflection should draw on discussions of social structures, such as educational institutions, religious organisations, laws, and languages. Importantly, this should be a collaborative assignment to promote dialogue among students and foster their ability to reflect on and articulate how their social environments shape their identities.

Generative AI can help students develop social consciousness by prompting them to critically analyse AI-generated content, examining its alignment with societal norms, biases, and power structures. By exploring who designs AI, the data used, and the cultural representations embedded in it, students gain insight into how technology reflects and shapes social realities. This encourages critical thinking and connects personal experience with broader societal contexts, deepening social consciousness.

Synthesis as multiple forms of intelligence (Gardner & Hatch, 1989)

Multiple intelligences can be engaged in sociology through creative approaches such as art, music, and engineering. For example, using Coolio's song "Gangsta's Paradise" illustrates concepts like anomie, deviant behaviour, and social inequality, tapping into musical intelligence. Similarly, debates can enhance emotional and communicative intelligence.

Assignment example: Students explore the complexities of racism through various disciplinary lenses, which allows for a multifaceted understanding that aligns with the theory of multiple intelligences. They may examine media representations of racism, such as films, to cultivate their linguistic and visual intelligence, or explore psychological theories of prejudice and implicit bias to enhance their social skills and empathy, which are key components of emotional intelligence.

Generative AI can help create assignments tailored to students' unique intelligences. Artistic learners might use creative mediums to explore social issues, while those with verbal intelligence could write essays or create podcasts on sociological themes. Others may benefit from AI-facilitated debates, enhancing communicative skills.

Appendix B

Pedagogical considerations and sociological applications: Collaborative synthesis skills

Synthesis as collaborative learning (Van der Veer & Valsiner, 1991)

Collaborative learning and social interactions can be cultivated in a sociological learning setting by engaging in collaborative practices of social research methods.

Assignment example: Students collectively practice conducting interviews, designing surveys, and organising focus groups. These activities convey that research is, and must be, a collective effort, embodying the spirit of sociological thinking as a collaborative enterprise.

Generative AI tools can enhance synthesis as collaborative learning by fostering dynamic group interactions and encouraging diverse perspectives.

Assignment example: Students provide a collective critical assessment of ChatGPT's responses to a prompt about social issues, such as poverty or systemic racism. This exercise encourages students to evaluate the AI's interpretations and identify biases or gaps to encourage rich discussions about how different perspectives shape understanding. The use of any generative AI tool should involve critical evaluation and adaptation to ensure rigor and accuracy.

Synthesis as non-elitist education (Deresiewicz, 2014)

Non-elitist education is often characteristic of sociology classes because they can be elective courses that attract diverse students from various cultural and disciplinary (college major) backgrounds. This presents a pedagogical opportunity to foster the principles of egalitarianism and meaningful learning by emphasising sociologically the structural barriers many people face in achieving their socio-economic goals, contrasted with the opportunities for higher social mobility enjoyed by others.

Assignment example: The educator illustrates the difference between the sociological concepts of "ascribed status" and "achieved status" by highlighting how simply being born in a particular part of the world can impact social mobility. Citizens of many global south countries often face challenges obtaining visas to visit developed countries, whereas the opposite is generally not true. Engaging in this activity nurtures humility and empathy, fostering a deeper understanding of others' struggles. This also empowers students to situate their privileges and struggles sociologically by examining their personal challenges considering their social upbringings and contexts.

Generative AI: Students should be made aware that AI tools can exacerbate elitism in education. Many generative AI resources, such as advanced learning platforms and personalised tutoring systems, require significant financial investment, making them accessible primarily to affluent students or institutions. This disparity can create an educational landscape where those with more economic resources benefit disproportionately from advanced AI tools, while underprivileged students are left behind. Additionally, reliance on generative AI can lead to a homogenisation of learning experiences, which might reinforce existing power dynamics and limit diverse perspectives. By exploring these issues, students can develop a critical understanding of how generative AI may contribute to elitism in education and the broader implications for social equity and access.

Synthesis as embracing transdisciplinarity (Nicolescu, 2002)

Transdisciplinarity is inherent to contemporary sociology by incorporating insights from various social and natural sciences. For instance, sociological inquiries into race, sexuality, and

gender draw on multiple disciplines to analyse the social and biological constructions of these concepts.

Assignment examples: Educators organise groups to explore a social issue such as racism from multiple disciplinary perspectives. One group may focus on psychological factors contributing to racism, another group may examine the cultural values and norms surrounding racism, and a third group may delve into the historical and biological theories that have perpetuated racist ideologies. This collaborative approach encourages students to integrate diverse disciplinary insights and promotes a deeper understanding of complex social problems, which transcends disciplinary boundaries.

Generative AI: Students can analyse the AI responses generated by various prompts to identify which perspectives and academic disciplines are emphasised, which are omitted, and which are altogether excluded. This examination enables them to critically engage with the biases inherent in AI outputs, helping them understand how certain academic fields may dominate while others are marginalised.

Synthesis addressing academic silos (Senge, 2006)

Academic silos can develop when educators and learners view issues through their disciplinary lenses. However, the overarching objective of disciplinary backgrounds is to enhance learning and contribute to societal improvement, not to create divisions for the sake of doing so. This parallels the study of human physiology, which has led to the development of various medical disciplines. The primary goal of these disciplines is to integrate their findings and contributions for the holistic wellbeing of the human body. Academic specialisations, therefore, are meant to build collaboration rather than encourage isolation and separation from each other.

Assignment example: Students examine AI-generated responses by identifying the academic disciplines emphasised, those omitted, the types of professional jargon used, and the presence or absence of interdisciplinary gaps.

Generative AI can potentially exacerbate academic silos.

Assignment example: Each student or student group selects a specific application of generative AI, such as in healthcare, criminal justice, or education. Students conduct research to identify the academic disciplines that predominantly influence the development of their chosen application. They examine which disciplines are included and which are excluded, analyse how these academic influences shape the technology's design and implementation, and explore the potential ethical or social implications that arise from this narrow focus.