



Full Length Article

AI-enabled fraud detection, prevention, and perpetration in nursing credential evaluation: A scoping study

Lauren Herckis, PhD^{a,*}, Emily Tse, MPhil^b^a Senior Director, Center for Global Research and Policy, Global Health Workforce Development Institute, TruMerit, Philadelphia, PA, United States^b Senior Director, Center for Knowledge Management, Global Health Workforce Development Institute, TruMerit, Philadelphia, PA, United States

ARTICLE INFO

Keywords:

Scoping review

Fraud

Credential evaluation

Artificial intelligence

ABSTRACT

Background: Credential fraud among healthcare professionals is a global, significant, and ever-evolving challenge. Technological innovations, such as digital imaging and generative artificial intelligence (AI) that make it easier to fabricate documents, have changed the credential evaluation and verification landscape. A global health worker shortage compounds the critical need to maintain integrity, reliability, and rigor in credential verification of healthcare professionals.

Purpose: To identify evidence-based best practices for combatting nursing credential fraud in the context of AI.

Methods: This research effort entailed a scoping review following Arskey and O'Malley's methodological framework to identify scholarly research related to AI and nursing credential fraud. After the scoping review, an environmental scan of grey literature and professional guidance was performed. Integrated analysis of the findings was used to develop themes and recommendations to guide future work.

Results: Four articles, all published between 2020 and 2025, were subjected to full-text review. Of these four articles, none directly addressed AI in perpetrating or combatting nursing credential fraud. The environmental scan revealed practices documented by professional associations and regulatory bodies as well as emerging trends. Five areas of future research are recommended based on these findings: (1) translate existing research, (2) collaborate in cross-functional teams; (3) engage in experimental software development; (4) generate evidence-based guidance; and (5) participate in ongoing evaluation processes.

Conclusions: This study found emerging practices but no empirical research or evidence-based guidance on the use of AI in combatting or perpetuating nursing credential fraud. Literature addressing employment fraud, AI and nursing regulation, and AI in credential evaluation reveal that nursing credential fraud leveraging AI tools requires urgent attention from regulators, credential evaluators, employers, and researchers.

Emerging technologies are poised to change the nature of nurse credential evaluation, which is the assessment of overseas nursing qualifications for comparability (National Council of State Boards of Nursing, 2016b). The present study, which entailed a scoping review to explore scholarly literature and an environmental scan that encompassed grey literature, addresses the detection, prevention, and perpetration of nurse credential fraud, or the falsification of an educational or licensure credential in nursing, enabled by artificial intelligence (AI). In a rapidly changing landscape, evidence-based guidance around AI and credential fraud is of critical importance to inform the evolution of regulatory guidelines.

Background

Nursing credential evaluation

Healthcare professions, including nursing, are regulated to protect the public and ensure quality of care. These practitioners are required to possess the technical expertise necessary to do their work and not cause harm to their patients. A foundational aspect of regulation is determining whether these professionals have the requisite knowledge and skills before they are admitted into the field and allowed to practice (NCSBN, 2021b; 2023b).

* Corresponding author.

E-mail address: lherckis@truemerit.org (L. Herckis).<https://doi.org/10.1016/j.jnr.2025.08.008>

Received 3 July 2025; Received in revised form 31 July 2025; Accepted 25 August 2025

2155-8256/© 2025 National Council of State Boards of Nursing. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Educational systems and roles within the profession vary by region (Tse, 2015), and this variability introduces additional complexity into the screening of foreign-educated nurses. The assessment of one's educational and professional qualifications earned in one country for comparability in another is most commonly known as credential evaluation (The Association for International Credential Evaluation Professionals, 2021). It may sometimes also be referred to as credential assessment or recognition of qualifications (Canadian Information Centre for International Credentials, n.d.; European Area of Recognition, 2023).

The comparison of qualifications requires an analysis of the features that define the credential in the country of study and how the credential matches those in the destination country. Core features include the educational institution, such as its type and recognition or accreditation status, the minimum entry requirements, the program requirements and learning outcomes, and what it gives access to in the country of origin (Freeman, 2021). Where nursing qualifications are concerned, credential evaluation work requires an understanding of the respective educational systems, the health regulatory systems, and the scope of practice (Tse, 2015). As an example, a qualification that directly leads to practice in a specialized area of nursing, such as adult nursing, would not be regarded as comparable to the training received by generalist nurses. Similarly, distinctions are made among levels of nursing, such as practical/vocational or enrolled nursing and registered nursing.

The reliability of the assessment is based on the premise that the credential is authentic and that the documentation submitted for review has not been in any way falsified (TruMerit; Bergan, 2023). For this reason, credential evaluators, who support the work of regulators and state nursing boards, must also be able to determine what evidentiary documentation is sufficient, which again varies by country. This typically includes understanding what is regarded as official, such as the final transcript and diploma, the appropriate issuing body, the format, and any security features, including those that are visible to the naked eye and those that are embedded (Shaffer et al., 2014; Tse, 2015).

The landscape of documentation has also changed. Academic records were primarily paper-based for many years, but today the field is in a period of transition from paper to digital records (TruMerit; Wenger & Tse, 2020). Digital forms vary widely, from PDF documents to the direct transfer of data from one computer system to another (Wenger & Tse, 2020). Digital adoption rates also vary by country and by institution within a country.

Nursing credential fraud

A nursing credential can be an educational qualification that represents the completion of a nursing program, or it can be a professional license that confirms an individual's authorization to work as a nurse in a particular jurisdiction. Nursing credential fraud is the falsification of such a qualification (NCSBN, 2016b). Nursing credential fraud is particularly problematic considering nurses make up nearly half of the healthcare workforce globally and are attributed with providing nearly 80 % of hands-on care (UHC 2030, 2019), and unqualified individuals may not have the requisite skills and knowledge to provide safe and appropriate care. Fraud can also then lead to the loss of trust in the care and instruction provided by nurses (Ezell, 2023; Prospects Hedd, 2020), thus threatening public health and safety.

Nursing credential fraud detection is complex owing to variations in credentials around the world as well as changes in educational systems that have occurred over time. Nursing is a regulated profession, but nursing education and credentials are comparatively more complex than those of medical doctors, for example, who are typically trained at the university level and commonly have a single pathway or entry point within a country (Clauson Eicher & Mihalyi, 2025). Nursing training is rich and diverse and can take place in a variety of settings. Depending on the country of study, nursing education can be provided in secondary

schools, vocational schools, hospital schools, community colleges, polytechnics, and/or universities (Tse, 2015). There can also be multiple pathways to enter the nursing profession within a single country, such as through an associate, bachelor's, or master's degree. The roles and scopes of practice also vary. For example, they can range from practical/vocational and enrolled nurses to registered general nurses to advanced practice nurses (Tse et al., 2024). All of these variations inform and dictate the features of the educational and professional credentials, which in turn impact fraud detection strategies and capabilities.

Artificial intelligence

AI as a concept was developed by several different theorists who were interested in the question of whether computers could “think” and has been a fixture in computing theory and software development for more than 75 years (Simon, 1995). In practice, AI is a very broad term that encompasses several different types of innovative technologies.

The term AI has been used in the computer science community for decades to refer to programs that mimic human intelligence (Minsky, 1961) or to “intelligent agents” that return output, decisions, or information that is based in part on external input (Wooldridge & Jennings, 1995). Today, AI is ubiquitous and used in everything from adaptive tests to driverless cars to predictive text on mobile devices. AI programs are designed for specific use cases such as these. Artificial general intelligence, which could achieve diverse goals across different types of challenges, does not exist, despite the efforts of researchers to create artificial, human-like generalizable intelligence (McLean et al., 2023).

Generative AI is a type of AI that can produce novel text, audio, video, images, or other types of data in response to prompts. Sometimes, but not always, these prompts may take the form of user-generated natural language such as a question posed to a service such as ChatGPT or Midjourney. In other instances, AI generates novel content based on other kinds of information. Products of generative AI are based on patterns in a body of training data that were identified through machine learning (Bordas et al., 2024; Feuerriegel et al., 2024). To predict which word might be next in a sentence, an AI model must be trained on a body of data that includes many similar sentences.

As generative AI becomes more powerful, the already-rapid transformation of the global information ecosystem is accelerating. It is impossible to identify all the possible risks and misuses of AI, especially as AI capabilities are continually changing (Weidinger, 2022), though AI experts agree that generative AI poses significant social risks and requires serious, immediate attention from regulators and policymakers (Stop Talking, 2023).

Generative AI has been used as a tool for developing false and misleading information for some time (Kreps et al., 2022). Publicly available generative AI tools can produce false information which humans cannot distinguish from content generated by humans (Goldstein et al., 2024), likely in part because humans underestimate the ability of generative AI to create convincing content (Spitale et al., 2023). This includes convincing text, audio, visual, video, and multi-modal content (Groh et al., 2024). As a result, the tools to produce disinformation are becoming widely available and the cost of producing disinformation is dropping precipitously (Buchanan et al., 2021). When people suspect they have encountered misinformation and conduct online searches to verify or debunk the content they encountered, these searches actually heighten the perceived veracity of misinformation (Aslett et al., 2024).

False information produced with the help of generative AI is increasingly encountered by job seekers (Gong et al., 2025), and fraudulent job seekers are increasingly using AI to create false content (Soon, 2022; Vasist & Chatterjee, 2025), including fake credentials (Karnouskos, 2020). A recent integrative review identified digital deception of resource management as an escalating crisis that requires immediate action (Vasist & Chatterjee, 2025).

Nursing regulation and AI

NCSBN's *Regulation 2030* report (NCSBN, 2017) asserts that regulation “cannot remain dormant in light of the rapid pace of changing data systems, information security and use, and predictive analytics” (p. S4). As part of this report, stakeholders identified 25 emergent trends and a sweeping research program that identified “data and technology” as one of four key areas of pressing future research (NCSBN, 2017, p. S14).

Recent NCSBN Environmental Scans offer a window into the rapidly evolving role of AI with respect to nursing regulation. The 2021 NCSBN Environmental Scan identified uses for AI such as personalized learning for nursing education and preventing and reducing the transmission of COVID-19 (NCSBN, 2021a). Five years after *Regulation 2030*, a global research agenda (Alexander et al., 2021) was developed and identified 75 research questions, including, “How can artificial intelligence (AI) be used to transform regulatory processes and make them more efficient and consistent?” (p. 7) and “How can we effectively regulate fast-changing advances in technology (those that we are experiencing and those on the horizon, such as robots as augmentations, not replacements, and AI)?” (p. 9).

In 2022, the NCSBN Environmental Scan suggested using AI in support of human judgment rather than as a replacement for it and in compliance with principles outlined in the World Health Organization's *Ethics and Governance of Artificial Intelligence for Health* (NCSBN, 2022). The 2023 NCSBN Environmental Scan noted that AI has been used to create efficiencies in areas such as clinical decision-making, diagnosis, and patient intake; the report also noted that AI may play a role in addressing nursing shortages (NCSBN, 2023a).

A section of the 2024 NCSBN Environmental Scan dedicated to AI in higher education cited emerging fear and suspicion of AI, encouraged educators to set clear guidelines related to plagiarism, and noted that AI will continue to play a role in nursing education. Therefore, nurse educators must prepare students to “understand the power, limitations and risks of using AI in healthcare” (NCSBN, 2024b, p. S15).

The most recent NCSBN Environmental Scan (NCSBN, 2025) dedicated substantial attention to AI, including a subsection focused on implications of AI for regulators, and urged nursing regulatory bodies to consider their role in the regulation of AI tools. This document offered evidence-based guidance for AI integration into regulatory workflows, such as making sure that the AI tool is systematically designed to be safe and effective and is pilot tested before rollout (NCSBN, 2025, p. S23). This section of the NCSBN Environmental Scan does not engage with credential or qualification fraud. A subsequent section of this report addressed fraud detection and related policy, but, as in previous environmental scans, it did not address the intersection of AI and credential fraud.

AI and fraud

Fraud detection previously focused on fraud perpetrated by technological advances in printing. As such, much of the effort to combat fake credentials has been anchored by developing expertise in physical transcripts and diplomas, including signatures, seals and embedded security features, examples of which range from watermarks to micro-printing and phosphorescent microfibers (TruMerit; Tse, 2015). The transition to digital academic and professional records requires new competencies, such as cybersecurity tools for the detection of email spoofing and in protocols for receiving documents digitally (Hendrickson, 2021a, 2021b; Tse, 2021).

Generative AI has been used to both perpetuate and combat fraud in diverse contexts (Sriram, 2024), and we anticipate that it will soon become a common tool in efforts to commit credential fraud. Fraud in healthcare qualifications is of the largest concern considering the stakes and potential harm that can be caused (Draper et al., 2023). As highlighted by Shaffer et al. (2014), advancements in technology require constant vigilance.

Methods

For the present study, we employed two distinct methods: First, a scoping review was undertaken with an aim of mapping the existing literature that addresses the role of AI in both perpetuating and combatting nursing credential fraud. Following the scoping review, we conducted an environmental scan of grey literature to develop a more complete record, capturing practices and emerging trends that are reported in nontraditional, nonacademic, and nonscholarly venues. This environmental scan had a goal of identifying best practices for combatting nursing credential evaluation fraud in the context of AI. We developed themes reflective of the state of knowledge and practice based on an integrated analysis of scoping review and environmental scan results.

Systematic review

This scoping review adhered to PRISMA-ScR guidelines and was registered in Open Science Framework (OSF). Comprehensive details of our search strategy can be accessed at <https://osf.io/uahbmz/>. Scoping review methodology followed the five-stage process outlined in Arksey and O'Malley (2005) and described in the following paragraphs.

- **Stage 1: Identify the Research Question.** What is the state of the literature (through May 2025) on AI in perpetuating or combatting nursing credential fraud? Are there empirical studies that offer evidence-based guidance or insights on these topics?
- **Stage 2: Identify Relevant Literature.** The authors conducted systematic electronic searches for relevant peer-reviewed articles published before June 2025 in five online databases: PubMed, ACM Digital Library, IEEE Xplore, CINAHL, and ASSIA. A combination of search terms designed to optimize the strategy was applied across the databases. Inclusion criteria were as follows: (1) published prior to June 2025, (2) peer reviewed and published as scholarly literature, (3) written in the English language, and (4) addressed AI in perpetuating or combatting nursing credential evaluation fraud. Conference proceedings were excluded. The reference lists of all articles that were subjected to full review were screened for studies that may not have been captured from the search strategy but met inclusion criteria.
- **Stage 3: Literature Selection.** Fig. 1 is a PRISMA flow chart that highlights each stage of the literature selection process. After our initial search, the first 25 articles were separately reviewed and then compared to standardize the screening process. A 100 % agreement rate was reached. The two reviewers then screened the remaining articles independently for inclusion. All but four articles were eliminated during this stage. Full texts of these four eligible articles were obtained and rescreened by the same two reviewers. Two texts did not address credential evaluation. Two texts did not address fraud. One text addressed credential evaluation, educational qualification, implications for professional mobility across incongruous global systems of education, and professional recognition. It was selected for full text review because, although it did not use the phrase “nurse credential evaluation,” it did explore dimensions of educational qualification recognition that included the major considerations for nurse credential evaluation. Both team members independently reviewed and extracted data from the full texts of the four identified articles.
- **Stage 4: Charting the Data.** Microsoft Excel (Microsoft Corporation) was utilized to organize data extraction. Both team members reviewed the full text of all four articles assessed for eligibility and elaborated findings in a table of evidence.
- **Stage 5: Collate, Summarize, and Report Results.** Data tables were integrated, collated, and the team met to review, discuss, and summarize the results.

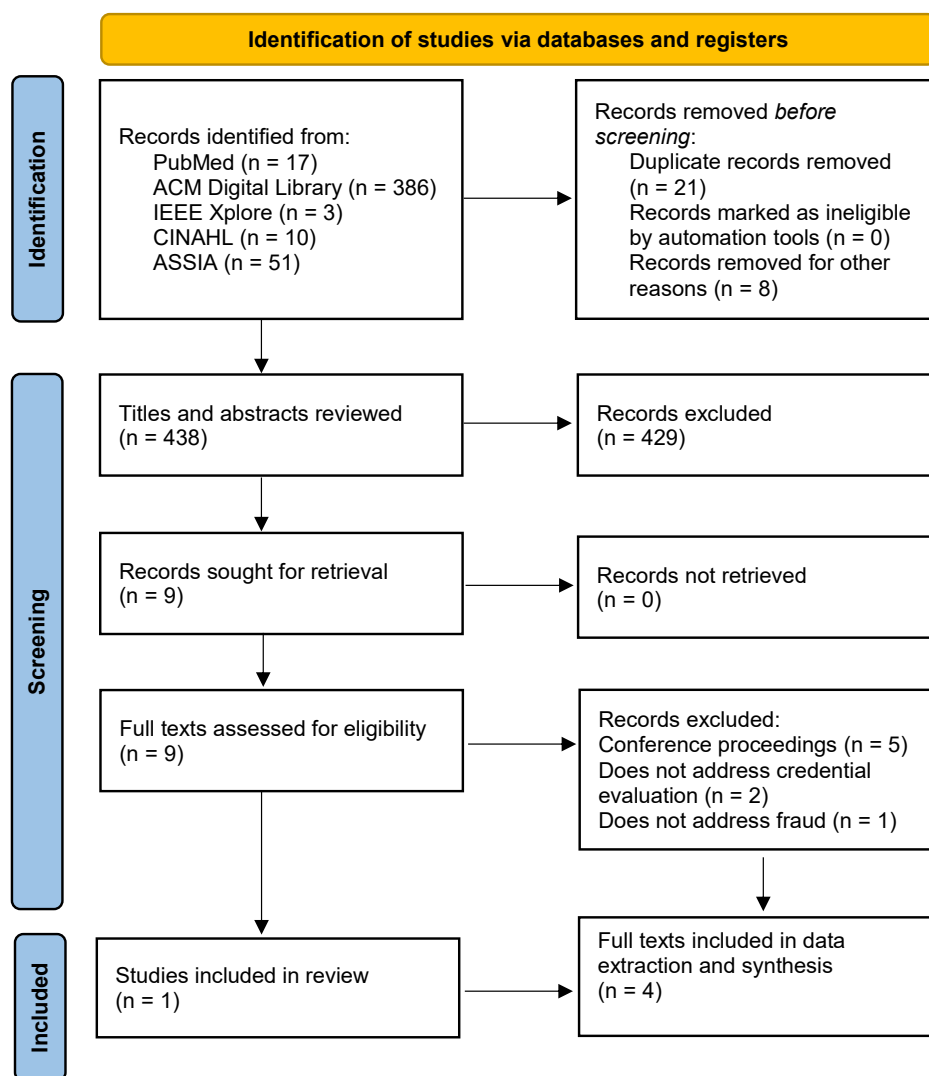


Fig. 1. Preferred Reporting Items for Systematic Reviews and Meta-analyses flow diagram illustrating the literature selection process. This work is licensed under CC BY 4.0. To view a copy of this license, visit <https://creativecommons.org/licenses/by/4.0/>.

Environmental scan

An environmental scan was undertaken to complement the results of our scoping review. As in the scoping review described above, we set out to identify best practices for combatting nursing credential fraud in the context of AI. We identified public resources, resources associated with professional associations and professional networks, and leading bodies in the domain that we might contact for additional information. We used the same base set of keywords that were employed for the purposes of systematic review and leveraged the professional relationships of a co-author who is active in the credential evaluation community for individual outreach. Information collected through this environmental scan was systematically catalogued prior to integration with scoping review results.

Web Search. We used Google web search to find resources and guidance offered to credential evaluation professionals. Results included shared wisdom about educational systems, credential evaluation strategies, and information about changing conventions. We additionally visited and scanned websites that discuss, embed guidance for, and share resources on credential evaluation. These included professional association websites; news sites; LinkedIn, which supports professional networks and information sharing; and the United Nations Educational, Scientific and Cultural Organization (UNESCO), which promotes international educational, scientific, and cultural exchange. As members of, or subscribers to, the American

Association of Collegiate Registrars and Admissions Officers (AACRAO), the Association for International Credential Evaluation Professionals, the UK National Information Centre (UK ENIC), and the Australian Government's Country Education Profiles database, the authors were able to access content only available to subscribers and/or members.

Professional Network and Personal Repository. One author, E.T., is active in the credential evaluation community. She has led training workshops on foundational skills for credential evaluators, presented on credential evaluation at conferences, and contributed to publications in the field. She has also served on committees that oversee a national education database, guide best practices in digital student data, and support professional association newsletters. Her engagement in the credential evaluation world over the course of 20 years has afforded her a personal repository of resources for credential evaluators and professional contacts throughout the international credential evaluation community.

Outreach to professional contacts provided information on current activity in the field and access to informally distributed materials. Personal communication with regulators and practitioners from diverse global regions enabled the team to collect information on emerging policies and practices.

Documentary materials held in personal repositories included resources, many of which were never formally released electronically or

published through commercial presses but that nonetheless are or were widely circulated among the practitioner community. These include training materials, handouts from professional conferences, formal and informal guidance for credential evaluators, and, more recently, webinars, electronic reports, and other materials. Historically, such materials are shared widely throughout the community through informal channels after convenings.

Results

The scoping review produced informative albeit negative results, revealing no research or evidence-based best practices that address the intersection of AI and the prevention, detection, or perpetration of nursing credential fraud. The environmental scan revealed that professional associations and regulatory bodies produce descriptive documentation and guidance pertaining to credential evaluation, although these are available primarily to credential evaluation practitioners. An integrated analysis resulted in four themes, detailed later in this section, that suggest guidance for regulators, researchers, and practitioners.

Scoping review results

The scoping study resulted in four sources that were subjected to full text review. These studies can be characterized by study type, year of publication, domain of publication, credential evaluator involvement, treatment of fraud, and any identified best practices for combatting nursing credential fraud in the context of AI. However, only one of the four studies directly addressed AI in perpetuating or combatting credential fraud. None of the articles identified best practices. For enhanced reporting and recommendation purposes, the four sources subjected to full text review are described in the following paragraphs, with special emphasis on the single article that addressed both educational credential recognition and AI-enabled fraud.

Publication Characteristics. The four publications subjected to full text review were each written from a different disciplinary perspective, for a distinct audience, and published in a different scholarly venue. Each was retrieved from a different database (three studies were retrieved from ASSIA, PubMed, and ACM; the remaining study was retrieved from IEEE).

Two of the full text publications that were screened, [Chiu et al. \(2025\)](#) and [Lafave et al. \(2023\)](#), were scoping reviews written from a healthcare or nursing perspective and were published within the past 6 months. Both were published in venues accessible to health workforce regulators, *PLoS One* and *Human Resources for Health*, and were written for audiences literate in the health sciences. However, neither of these articles addressed AI and credential fraud specifically, nor did they identify best practices for credential evaluation in the context of AI.

A third full text publication, [Liu \(2020\)](#), offered a substantive snapshot of AI applications in healthcare systems at the time of its publication but did not address qualification recognition or credential evaluation as contexts for consideration. Although [Liu \(2020\)](#) did not address fraud or identify best practices for combatting nursing credential fraud in the context of AI, the article did address the diverse contexts in which AI is already used in healthcare delivery systems, describe the recent trajectory of AI applications in healthcare and associated research, and discuss challenges and ethical concerns faced by health system administrators, regulators, and policymakers.

The fourth full text publication ([Lantero et al., 2025](#)) directly addressed AI-enabled fraud as well as credential evaluation. That said, this article was focused on topics that include or overlap with, but are not specifically focused on, nurse credential evaluation, and this article did not directly or explicitly address nurse credential evaluation in these terms. It was also the only publication with listed authors who appeared to be actively engaged with credential evaluation: The lead author, Lantero, contributed to an e-publication on AI in the recognition of qualifications captured in our environmental scan ([Lantero et al., 2023](#)).

[Lantero et al. \(2025\)](#) was published in proceedings from the 2025 International Conference on Computational Intelligence Approaches and Applications, a conference sponsored by the IEEE (Institute of Electrical and Electronics Engineers, a professional organization with a large global membership of engineers and experts at the forefront of innovative computing). The article ([Lantero et al., 2025](#)) analyzed and described challenges and opportunities associated with the integration of AI, specifically in the context of qualification recognition. This analysis considered critical dimensions including equity, recognition workflow, learning outcomes, European frameworks and regulations, and international academic mobility. However, the article did not identify, describe, or recommend existing empirical research reflecting the use of AI in detecting academic qualification or any other type of credential fraud. The authors noted that their literature review “reveals that no empirical studies currently demonstrate the use of AI in detecting academic qualification fraud” ([Lantero et al., 2025](#), p. 2) and suggested both that AI may have utility for detecting academic plagiarism and that challenges with the integration of AI into qualification recognition workflows will require “international cooperation, capacity-building initiatives, and targeted investments in digital infrastructure” ([Lantero et al., 2025](#)).

Environmental scan results

Literature and information concerning credential evaluation target practitioners (those who perform the work) and, to a lesser extent, users (those who receive and use the evaluation reports to determine their international candidates' eligibility). Credential evaluation work might be conducted in institutions with international students and/or professionals or in evaluation agencies. Institutions that directly receive international students and professionals, such as university admissions and registrars' offices and professional licensing bodies, sometimes conduct their own credential evaluation work. Evaluation agencies, on the other hand, are offices that provide credential evaluation as a service for institutions that do not have the staff or knowledge to perform the in-house assessments ([TAICEP, 2021](#)). The types of information collected through this environmental scan, as listed in [Table 1](#), can be understood as pertaining to guidance for the users (and recipients of evaluation reports), guidance for practitioners, reference materials, recognition and other conventions, and the emerging role of AI in credential evaluation.

Guidance for Users. The first category of literature identified in our environmental scan pertains to guidance for users and recipients of credential evaluation reports. Literature can be found providing general guidance to regulators overseeing the licensure application process, which includes fraud mitigation ([NCSBN, 2023b](#)), as well as guidance specific to credential fraud detection and prevention ([NCSBN, 2016b, 2024a](#); [Shaffer et al., 2014](#); [Tse, 2015](#)). Examples include resource manuals, toolkits, and videos, many of which are only accessible to boards of nursing ([NCSBN, 2016a](#)). Two databases for tracking the status of nurses in the United States were also identified. FITS, or Falsified Identity Tracking System, enables the tracking of fraudulent nurses and nursing programs, whereas Nursys enables the monitoring of a nurse's licensure status. Both are managed by the [NCSBN \(2016b\)](#).

Guidance for Practitioners. The second category of information collected through our environmental scan comprises material that addresses the work performed by credential evaluators in terms of guidance and methodology. These represent the bulk of material collected in our environmental scan and were overwhelmingly distributed through informal channels among practitioner communities. Oral tradition has played an important role in the dissemination of information and best practices. In recent years, these have been captured in discussion boards and complemented by webinars, which are farther-reaching and more accessible and persistent (free and recorded). The most notable materials for practitioners are guides (American Association of Collegiate Registrars and Admissions Officers [[AACRAO](#)], [2016, 2021](#)), training manuals ([European Area of Recognition, 2023](#); [Freeman, 2021](#)), and

Table 1
Information and materials collected in an environmental scan.

Category	Description	Examples
Guidance for users (nursing regulators and related parties)	Guides on nursing licensure process and fraud detection	- Resource manuals and videos - Best practice documents and worksheets - Toolkits
Guidance for practitioners	Methodology, including fraud detection and credit and grade conversions	- Regulatory newsletters and journals - Training manuals - Materials from workshops, conference presentations and webinars - Professional competency profiles - Best practice documents - Industry newsletters - Message boards and listservs - Wikis and sites with curated resources - Blogs
Reference material on country educational systems	Information on educational systems, including credentials, curricula, recognized institutions, and grading scales	- Websites, catalogs/handbooks, and syllabi from schools and universities - Websites, education acts, and curricula from ministerial bodies and examination boards - Education system profiles - Industry newsletters - Education databases - Wikis and sites with curated resources - Blogs
Recognition conventions	Framework for evaluation policy and procedure	- UNESCO global recognition conventions - UNESCO regional recognition conventions (Africa, Arab States, Asia-Pacific, Europe and North America, and Latin America and the Caribbean)
AI in credential evaluation	Calls for discussion and guidance, explorations of risks and opportunities	- Communiqués - Frameworks - Industry news articles

Note. UNESCO = United Nations Educational, Scientific and Cultural Organization.

materials that emanate from workshops, conference presentations, and webinars. However, numerous other types of grey literature addressing guidance, methodology, and best practices were also found in the form of professional competency profiles (Canadian Information Centre for International Credentials, n.d.; [TAICEP, 2021](#)); newsletters from professional associations and evaluation agencies ([Dodson, 2016](#); [Tse, 2017](#); [Ullrich & Lofstad, 2017](#)); and blogs, wikis, and websites that include curated evaluation resources ([Cearley, n.d.](#); [TAICEP, n.d.-b](#); Educational Credential Evaluators [[ECE](#)], [2025](#)). Message boards and listservs, such as those found on the TAICEP listserv (called the “Gaggle”) and *ECE Connection*, also serve as repositories of tips and tools as well as a record of debates among evaluators about specific credentials (TAICEP, n.d.-b; [ECE, 2025](#)).

Reference Materials. The third category of literature collected in our environmental scan centers on reference materials about country educational systems. This material offers background and contextual information on the frameworks from which credentials originate. These resources include curricular material and websites of schools, universities, and such authorities as ministries of education. They also contain information on education acts, grading scales, and recognized schools. This body of literature also includes nonacademic publications, such as country education profiles ([International Qualification Assessment Service, n.d.](#); [NAFSA n.d.](#); [Nuffic, n.d.](#)), industry newsletters ([World Education Services, 2025](#)), and education databases ([AACRAO, 2025](#); [Australian Government, n.d.](#); [KultusMinister Konferenz, 2025](#); [TAICEP, n.d.-a](#); [UK National Information Centre, n.d.](#)). Some of these materials offer placement recommendations from the perspective of the country of authorship. These materials are often framed as advisory, and in such instances, readers are cautioned to develop evaluation policies based on the mission and objectives of their respective institutions ([International Education Research Foundation, 2004, 2011](#)).

Recognition Conventions. A fourth category of material collected in this environmental scan includes literature pertaining to recognition conventions that are directed toward governmental bodies, policy makers, and credential evaluators. Recognition conventions, led by UNESCO, reflect global and regional efforts. Regions include Africa, Arab states, Asia-Pacific, Europe and North America, and Latin America and the Caribbean. These materials are designed to inform policy and

provide operational frameworks for evaluators ([UNESCO, 1974, 1999, 2014, 2018, 2019, 2022](#)).

AI in Credential Evaluation. A fifth category of information pertains to AI and the recognition of qualifications. Much of this effort can be found in Europe, where authorities are actively calling for discussion and guidance ([Bergan, 2023](#)). The Tirana Communiqué outlines the commitment of the [European Higher Education Area \(2024\)](#) to the ethical use of AI, including in the recognition of qualifications. This category includes discussions and other materials that explore how AI can be used to automate the more administrative processes of credential evaluation, as well as to help detect fraud ([Lantero et al., 2023](#)). [Qiriazzi and Finocchietti \(2025\)](#) also point out that there are offices experimenting with the use of AI through chatbots and automated responses to queries from applicants about the recognition process.

Personal communications and posts on LinkedIn also reveal organized activity to address the emerging role of AI in credential evaluation. [The Association for International Credential Evaluation Professionals](#), an international organization based in the United States, formed an AI taskforce earlier this year (Bettina Sümegi, TAICEP, personal communication, June 27, 2025). The Centre for Preventing and Countering Education Fraud was established in 2025 as a joint effort of the Council of Europe and CIMEA ([Council of Europe, 2025](#)). This center, which was created in response to the Council of Europe’s recommendation on countering fraud, also addresses the need for digital solutions that include AI ([Council of Europe, 2022](#)). This is the first center of its kind to be devoted to education fraud prevention, which would also directly impact the work of credential evaluators.

Integrated analysis

Theme 1: AI Innovation Is Rapid. Five years ago, [Liu \(2020\)](#) noted that AI was playing a role in the accelerating pace of digital transformation in healthcare. Three years later, [Lantero et al. \(2023\)](#) emphasized the rapid development of AI technologies and its implications in education, as well as the recognition of qualifications. Earlier this year, [Chiu et al. \(2025, p. 25\)](#) observed explicitly that the adoption of AI in regulation is an emerging trend, and that “given the significant

impacts that technological advances in regulatory and professional practice can have on public safety and regulated professionals, research must keep pace with this evolving technological landscape to ensure the ongoing protection of the public.”

Our environmental scan returned the smallest volume of literature, materials, and information on AI in credential evaluation, as compared to our other four categories, due to the comparatively recent emergence of AI as a factor in credential evaluation: materials of this kind all originate within the past 2 years. Most of the material on the recognition of qualifications is found in grey literature, primarily through engagement in practitioner communities. The findings in both the scoping study and the scan of the grey literature show that there is a lack of and need for material at the intersection of nursing credential evaluation, fraud, and AI. Both credential evaluation and regulatory communities would benefit from empirical and scientific study and evidence-based guidance. AI technology is changing so rapidly, however, that both basic and translational research need to accelerate to keep up.

Theme 2: Known Risks and Potential Benefits of AI Are Relevant to Credential Evaluation. The risks of integrating AI into high-stakes sociotechnical systems are well-documented in technical literature by computer scientists and engineers. The potential benefits of using AI to enhance diverse workflows are the subject of uncountable experiments, editorials, and marketing materials created in response to this moment of enthusiasm around AI. The specific harms or potential benefits associated with integrating AI into nursing credential evaluation are not explored in any empirical study identified through this scoping review.

Three of the articles reviewed in full in the course of the scoping study each described challenges and risks associated with AI systems, such as decision-making that reflects and reinforces social inequalities (Chiu et al., 2025; Lafave et al., 2023; Liu, 2020). The fourth, Lantero et al. (2025), explored diverse challenges and risks associated with the integration of AI-enabled qualification recognition, including ethical management of sensitive data, compliance with data protection laws such as General Data Protection Regulation, the likelihood of further entrenching inequalities, the use of AI tools for academic misconduct, and more.

Each of the four articles also noted the potential for AI to offer benefits. In the specific area of qualification recognition, examples included improved fraud detection, streamlined translation, enhanced workflows, and increased efficiency, accuracy, and scalability (Lantero et al., 2025). Materials captured in the environmental scan highlighted similar risks of AI in credential evaluation as well as similar sets of potential benefits (Lantero et al., 2023).

Theme 3: Guidance for AI in Nursing Regulation is Uneven. All four articles reviewed in full for our scoping study alluded to or directly described emerging guidance, regulations, and laws that apply to data security, AI, and education or credential evaluation. Guidance addressing AI design, implementation, and/or use is emerging in some regions of the world, and regulations in some of these same regions may impact nursing regulation.

Chiu et al. (2025) noted that the United Kingdom, the United States, and Australia have developed research agendas designed to produce the kinds of evidence that can inform evidence-based regulatory guidance and health practitioner regulation at the profession or country level. Lantero et al. (2025) explored the role of AI with respect to the Lisbon Recognition Convention and the Global Recognition Convention on Higher Education and described the challenges associated with ensuring AI-driven tools are in compliance with General Data Protection Regulation and other such data protection regulations. Lantero et al. (2025) also noted that initiatives such as the AI Act and the Council of Europe's Convention on Artificial Intelligence require transparency and risk mitigation and that the EU's Artificial Intelligence Act, which came into effect in 2024, significantly constrains the use of high-risk AI in sociotechnical systems. Lantero et al. (2025) explored guidance complementing legal regulation such as the Council of Europe's Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of

Law, which was drafted in collaboration with 46 member states; the UNESCO Recommendations on the Ethics of Artificial Intelligence; the Tirana Communiqué; and the UN 2024 Resolution on Artificial Intelligence and Sustainable Development Goals, which identify AI's role in supporting equitable access to education. None of the peer reviewed articles identified in the course of the scoping study offered empirical evidence or evidence-based recommendations specifically considering the use of AI in perpetuating or detecting nursing credential fraud.

Guidance (both formal and informal), policy, recognition conventions, and research are overwhelmingly organized from the global north and in countries that typically receive more foreign-educated nurses. Recognition conventions, where they do exist, are grounded in a stated belief in the human right to education and promote inclusion, fairness, and mobility, with a focus on individuals both traveling abroad and returning home. It should be noted, however, that the degree of influence of these conventions can vary by region.

Theme 4: Guidance for AI in Nursing Credential Evaluation Is Uneven. Credential evaluators determine the comparability of training completed abroad and whether it meets the minimum educational requirements of the receiving country. Formal guidance for these practitioners that takes into account the emerging prevalence of AI is limited and uneven, and none of this guidance is yet specific to nursing credential evaluation.

In contrast, access to informally distributed materials directed toward credential evaluators has widened with the change in the information landscape over the past 20 years. Message boards and listservs for professional association members provide opportunities for evaluators from around the globe to share experiential knowledge and expertise and so create a record of that evolving expertise and current practices. Since offices in certain countries may be more experienced and better resourced in the educational systems of their neighboring countries, they serve as common resources for practitioners in diverse contexts of practice. The TAICEP community archives the exchanges that take place on its listserv (known as the Gaggles) and on its wiki by topic so that they are easily searchable and retrievable (TAICEP, n.d.-a). This is an indicator of the high degree to which such informal information sharing is valued by the credential evaluation community.

While regulatory guidance addressing AI may be emerging in some regions of the world, many countries do not currently have guidance on the use of AI in credential evaluation. Professional communities are beginning to lead the unevenly-distributed effort to develop guidance and share practices among evaluators on the use of AI. Personal communications with evaluation practitioners including a researcher at Korea Academic Recognition Information Center (Minkyung Shin, personal communication, July 23, 2025), a Senior Advisor at National Information Center for Academic Recognition Japan (Taiji Hotta, personal communication, July 16, 2025), and a Manager of Assessment and Research at International Credential Assessment Service of Canada (Sarah Ledwidge, personal communication July 23, 2025) indicate a lack of organized activity on AI in credential evaluation communities across Korea, Japan, and Canada. Instead, efforts are more commonly found in Europe and the United States. For example, the European Network of National Information Centers and National Academic Recognition Information Centers network, a group of national information centers that support the recognition of educational qualifications, has been active in this effort through European member contributions to policy-making, webinars, and publications (Lantero et al., 2023). TAICEP also formed an AI task force earlier this year to provide leadership and will soon be releasing a position paper (Bettina Sümegi, TAICEP, personal communication, June 26–27, 2025).

Theme 5: Research on AI for Nursing Credential Fraud Detection Is Urgently Needed. Chiu et al. (2025, p. 20) stated that empirical study is needed to support and “advance the science of professional regulation.” While guidance has been developed by and for credential evaluators, such as the *EAR Manual* from the *European Area of Recognition* (2023) and *Guide to Bogus Institutions and Documents* (AACRAO,

2021), a dearth of empirical studies addressing AI for nursing credential evaluation require practitioners to create such guidance in an evidence vacuum. Lantero et al. (2023, p. 31) stressed that the questions on the implications of AI in the recognition of qualifications must be tackled “with a systemic approach.” Chiu et al. (2025, p. 15) observed that “the amount of empirical literature with nursing regulatory issues as the main area of focus is limited, indicating a lack of evidence to support decision-making,” and Lafave et al. (2023) noted that “further research is required to design algorithms for competency evaluation.”

Discussion

Credential evaluation plays an important role in supporting the work of nursing regulators. Such evaluation is of particular concern in the regulation of nursing, which represents the largest sector among the healthcare professions. As NCSBN noted, “instances of fraud involving licensure applications and credentials are experienced by most BONs” (NCSBN, 2016b, p. 3). Emerging material created and shared among credential evaluators, and emerging guidance for credential evaluators, reveal a gap in the literature and a need for direct, evidence-based guidance on AI in credential fraud detection, an area where AI is anticipated to have a distinct impact. AI literacy, evidence-based guidance, and empirical studies aligned with translational research will help combat the evolving threat of nursing credential fraud.

Recommendations for regulators

Fraud detection strategies have traditionally focused on developing expertise in paper-based credentials and the originating educational system. The focus has appropriately expanded to include digitally-issued credentials. However, a significant gap has now emerged in addressing the role of AI in detecting, preventing, and perpetuating credential fraud.

Lead in Coordination and Communication. Nursing regulators have the opportunity to take a proactive stance and provide leadership that is impactful. In 2023, Operation Nightingale uncovered the sale of over 7600 fake nursing diplomas and transcripts (Department of Justice, 2023), which many individuals were able to use to obtain licensure and employment. The discovery wreaked havoc, and NCSBN launched a series of actions to provide guidance. These actions included coordinating Operation Nightingale updates, resources, training, monthly calls for state boards to share strategies and best practices, and a presentation with the Federal Bureau of Investigations and the Office of Inspector General of the U.S. Department of Health and Human Services (NCSBN, 2024b). These reactive measures were onerous, and the consequences of Operation Nightingale were costly. However, NCSBN demonstrated a capacity for much-needed coordination and communication among regulators, government representatives, and evaluation practitioners. We recommend that regulators continue to actively take such measures, such as, coordinating regular meetings among stakeholder groups and updating best practice guides and toolkits on fraud mitigation to include AI literacy and relevant national and international guidance.

Regulators can also coordinate more seamless communication and foster cooperation with other regulatory bodies, credential evaluators, professional associations, and employers – all important agents of the nursing workforce. Nursing regulators can support research and empirical studies in credential fraud and fraud detection related to AI, as they are best positioned to sway the necessary actors and coordinate impactful, research-based anti-fraud efforts.

Coordinate Anti-Fraud Measures. Nurse regulation and credential evaluation are mutually interdependent: Credential evaluators are focused on the comparability of the nursing education completed abroad, as well as the detection and prevention of credential fraud. Their evaluation reports are then submitted to the state boards in the United States. Upon receipt, regulators continue with the review of the entire licensure application, interacting with such data as background checks,

language proficiency examinations, and the nursing licensure examination. State boards are also able to check the status of any nurse in the United States through NCSBN's Falsified Identity Tracking System and Nursys, which provides detailed information for member boards, particularly where movement across jurisdictional borders in the United States is concerned (NCSBN, 2016b; 2023b).

Fraud is most often committed through a web of deceitful acts. Falsifications can take place at any number of possible data points along the licensure process (McClenton, 2012; NCSBN, 2016b), and nursing boards are in a “unique position to spot patterns” (NCSBN, 2023b, p. 14). Nursing regulators have the opportunity to coordinate measures to combat fraud that is emboldened, enabled, or enhanced by AI.

Advocate for AI Literacy. From their position of authority, nursing regulators can provide guidance by highlighting the importance of AI literacy and advocating for it wherever possible. Nursing regulators can support the development of AI literacy among regulators, credential evaluators, and other stakeholders. While the UNESCO AI competency framework provides general guidelines and is a very appropriate starting place, it is broad and lacks the specificity required for nursing regulation and nurse credential evaluation (UNESCO, 2025). Focused AI literacy frameworks should be developed for nursing regulators and credential evaluators as they have been for medical education (Cai et al., 2025) and clinical practice (Tolentino et al., 2024).

AI literacy gaps matter

Artificial intelligence as a field continues to advance at a rapid pace. Research on the design, functionality, creation, and use of AI innovations generates tens of thousands of new reports and publications every year. AI expertise spans dozens of subfields, including research on health systems; fairness, accountability, and transparency in sociotechnical systems; equity and representation in data; natural language processing; machine learning; expert systems; knowledge representation; AI ethics; computer vision; and many others. These domains can be challenging for researchers who work in other domains, such as the health or social sciences, to penetrate, and the relevant research may be difficult to leverage. It may be even more challenging for practitioners, administrators, regulators, and policymakers to access and make use of relevant research findings that have not yet been transformed into plain language accessible to non-experts or translated into actionable guidance for decision-makers in the many other domains touched by these innovations.

The power of innovative AI to improve workflows and enhance efficiencies is particularly appealing in overtaxed and under-resourced sectors, where digital solutions may be designed, purchased, and/or implemented by individuals or institutions with limited AI literacy. This poses particular risks in sectors where AI is largely or completely unregulated. The ubiquity of AI implementation opportunities, and the critical risks associated with AI use in weaponry and other potentially catastrophic contexts, have left AI for nursing regulation in a regulatory vacuum. Lantero et al. (2025, p. 7) noted that “developing digital competencies, understanding AI algorithms, and interpreting AI outputs have become essential skills for credential evaluators in the digital era,” and that AI literacy is critical “for maintaining a hybrid model, where human expertise complements AI-driven tools to uphold the principles of fairness, accountability, and transparency.” Additionally, to combat fraud effectively, AI literacy is imperative for credential evaluators and regulators alike. Without, at minimum, a basic understanding of current AI capabilities, evaluators and regulators will not be able to identify and detect potential fraud or leverage the digital tools available to fight against it.

Future research

Nursing credential evaluation is a core component of the complex nursing regulatory landscape. Nursing credential evaluators are specialists with extensive expertise who exercise informed decision-making on a daily basis. They play a critical role in safeguarding the integrity

and mobility of the global nursing workforce and form a regulatory bulwark against fraud. Nursing credential evaluation is the type of labor-intensive task that AI has the potential to streamline, and at the same time nursing credential evaluation requires context-sensitive, deep expertise in a constantly changing regulatory and sociotechnical landscape. In other words, nursing credential evaluation is the type of work that presents a significant challenge for effective, fair, safe, and consistent AI-enabled systems. AI-enabled nurse credential evaluation workflows have the potential to enhance fraud detection and prevention, but the high-stakes nature of this challenge requires that regulators and credential evaluators proceed with caution.

The research landscape relevant to nursing regulators has expanded. Recent issues of the *Journal of Nursing Regulation* address research topics as diverse as immersive virtual reality in nursing education, nurses' opioid use, and telehealth. AI in nurse credential evaluation is an emerging research domain that will impact nursing regulatory bodies in ways we can only begin to predict. The authors recommend that nursing regulators engage with this research as it unfolds, making an effort to become familiar with, support, collaborate around, and raise awareness of research in these areas.

We identified five areas for future research across diverse relevant disciplines to address gaps in AI-enabled nurse credential fraud detection literature.

1. Develop guidance for credential evaluators and associated regulatory bodies based on existing evidence in the AI research community.
2. Collaborate in crossfunctional teams.
3. Engage in experimental software development.
4. Conduct implementation research to inform the use of AI-enabled tools and processes.
5. Plan to evaluate AI-enabled tools regularly for as long as they are used.

Translate Existing Research. Significant risks and opportunities associated with AI are well-known (“Stop Talking,” 2023). The research on these risks and affordances, however, is often presented in highly technical terms or illustrated in contexts that differ in important ways from the work of credential evaluators. The most prominent users of nursing credential evaluation reports of the type reviewed in our environmental scan are regulators. Regulators manage the overall screening process for migrating nurses, the components of which can include credential evaluation, background checks, licensure examinations, and language proficiency examinations (NCSBN, 2016b; 2023b). Sitting at the intersection of regulatory policy and credential evaluation, nursing regulators are well positioned to support and advocate for the development of research-based guidance for credential evaluators. Evidence synthesis and translational science can be leveraged to produce actionable guidance for nursing regulators and credential evaluators.

Collaborate in Cross-functional Teams. Tools for AI-enabled nurse credential fraud detection are not yet available. Tools developed for more general uses, such as optical character recognition (OCR) for digital analysis of scanned documents, were not designed for use with the diverse types of documentation that nurse credential evaluation entails. The NCSBN 2025 Environmental Scan offers guidance for AI development and implementation. Among other recommendations, NCSBN emphasized that any AI tool developed to support nursing credential fraud detection must be “systematically designed in a way that makes it safe and effective” and pilot tested before rollout (NCSBN, 2025, p. S23). Such a change will require software and workflow development in close collaboration with diverse experts. Human-centered design approaches to software development enable research and design teams to develop tools that are fit for purpose. Designing AI-enabled nurse credential evaluation fraud detection tools and processes will require individuals belonging to many different stakeholder groups, with distinct experiences and expertise, to work closely together. Collaboration in crossfunctional teams that include

experts in nurse credential evaluation, employment fraud, the global regulatory landscape, digital infrastructure, AI systems, human-computer interaction, AI-supported workflows, and educational credentials is critical to ensure that resulting tools are systematically designed and are likely to be safe and effective.

Support Experimental Software Development. Credential evaluators and the regulators who make use of their work represent a specialized stakeholder group that plays a vital role in global equity and patient safety. Building AI models and AI-enabled tools is a complex undertaking that requires specialized expertise. AI tools that support expert human decision-making constitute a subset of AI applications and are generally designed by AI experts working closely with those who best understand the decisions, as well as the context of decision-making, that these new systems will support. The nurse regulator community must partner closely with AI researchers and developers to collaborate in this sector and generate tools, workflows, and evidence-based guidance for AI in nurse credential fraud detection.

To develop human-AI workflows that produce promised efficiencies without compromising safety, equity, or transparency, AI experts and credential evaluation experts working together to build new tools and processes must take an experimental approach. When making technical choices, such as whether to build a rule-based expert system or a fuzzy expert system, the “correct” or “best” choice will depend on interdependencies: In identifying fraudulent credentials, should a system err on the side of more false positives or more false negatives? Many different considerations play a role here, including data privacy, evaluator efficiency, and patient safety.

We do not yet know what types of AI tools and workflows will be most effective to support nurse credential evaluation. Research and development approaches enable us to test approaches such as rule-based or fuzzy expert systems to support (human) expert identification of nurse credential fraud and build tools and strategies on resulting empirics. An experimental software development approach will enable development teams to pilot test systems as they are designed. These experiments produce evidence that can inform research and development, building a knowledge base on which we can develop evidence-based tools and workflows.

Conduct Implementation Research. Implementation science is the study of methods that enable and promote the effective, appropriate adoption of evidence-based practices into healthcare settings (Bauer et al., 2015). A medication or other intervention may or may not be effective, depending on how, where, and when it is used. Implementation science has revolutionized healthcare by translating results of research into guidance for practitioners. Methods drawn from implementation science are recommended to evaluate the efficacy and impact of new tools for AI-enabled nurse credential fraud detection specifically and AI-enabled credential evaluation support in general.

AI-augmented nurse credential fraud detection processes, when developed, will be complex interventions that must be trialed and piloted in diverse contexts of implementation before guidance can be developed for safe use by practitioners. We recommend that research and development teams evaluate the performance, accuracy, and efficiency of new AI tools, or AI-enabled processes, in context. We additionally recommend that teams identify contextual factors that support or impede implementation with fidelity. Only in this way can we develop evidence-based guidance for implementation, enabling regulators to respond meaningfully to emerging trends in nurse credential fraud detection and empowering nurse credential evaluators to use AI-enabled tools and processes equitably, effectively, and appropriately.

Prepare to Re-evaluate AI-enabled Tools Regularly. Research and development teams that produce and implement AI-enabled nurse credential fraud detection can build in plans and processes to support long-term evaluation programs. Once implemented, AI-supported credential evaluation processes must be continually evaluated. Continuous evaluation is important because AI tools and their effectiveness may change, frequently and substantially, after implementation, and

continuous evaluation is particularly important in nurse credential evaluation as the social, informational, technical, and regulatory landscape of credential evaluation continues to change.

Metrics associated with evaluation include quantitative studies comparing performance, accuracy, and efficiency of human experts with that of AI-enabled systems; qualitative evaluation of AI-enabled outcomes; studies that explore the impact of bias in AI-enabled systems (NCSBN, 2025, p. S23); and studies that document impact on workflows and sociotechnical systems. Critically, these studies must be robustly designed and publicly disseminated so that guidance may be developed for continual improvement of AI-enabled nurse credential fraud detection workflows.

Limitations

Scoping reviews are used to map the extent, range, and nature of the literature, as well as to determine possible gaps in the literature. A limitation of scoping reviews is that they do not involve quality appraisal. However, the present scoping review focused on identifying literature that addressed the intersection of nurse credential evaluation and AI use in the perpetuation or detection of credential fraud. It did not rely on quality appraisal.

One limitation of the current review is that the authors set out to explore the intersection of two highly specialized—though mutually relevant—domains: nursing credential evaluation and AI-enabled credential fraud. Our search strategy was complicated by the fact that literature exploring credential evaluation is concentrated in different databases than literature exploring AI, and different usage of the same terms in different fields complicated search string development. The present review incorporated data from the articles that were best positioned to support the authors' goal of mapping the extent, range, and nature of the literature, as well as identifying gaps in the literature, relevant to AI-enabled nursing credential fraud.

An environmental scan captures a more complete record of current knowledge and practices on an emerging topic, but it does not entail as rigorous an approach as a systematic review and is not limited to scholarly products of research. An additional limitation arises from the fact that much writing about, and many guides for, credential evaluation are not published research. Instead, they appear in grey literature or documents produced and shared by professional associations and corporations or informally among practitioners. A more systematic accounting of this material will offer a different set of insights into current and historical practices in credential evaluation.

Finally, this review engaged only with English language materials. As a global phenomenon, credential evaluation is undertaken in many languages, requires engagement with documents and systems in many languages, and spans virtually all global regulatory jurisdictions. This review did not take into account scholarly articles, grey literature, or practitioner materials created in languages other than English and thus may have omitted important sources.

Conclusion

NCSBN states, “there is no immunity to fraud” (NCSBN, 2024a, p. 1). The potential harm caused by AI-enabled fraud calls for the need for attention and guidance. In this study, we set out to find if there are evidence-based guidelines with respect to the use of AI in the detection of nursing credential fraud. This work reveals that there is some research, for example, in employment fraud, AI and nursing regulation, and AI and credential evaluation; however, none is found at the intersection, clearly pointing to a gap and need in this area.

There are a number of points where guidance, coordination, and research can be centered. AI literacy is key for credential evaluators and regulators, who help screen nurses before they are admitted into the profession. In their position of influence, nursing regulators can provide guidance by (1) leading in coordination and communication; (2)

directing anti-fraud measures; (3) advocating for AI literacy; and (4) supporting related research.

Research is necessary to fill substantial gaps in the literature and guide evidence-based practice in nurse credential evaluation fraud detection and prevention. To meet this need, the research community must (1) translate existing research, (2) collaborate in crossfunctional teams; (3) engage in experimental software development; (4) generate evidence-based guidance for implementation; and (5) participate in an ongoing evaluation process as the landscape continues to change.

CRedit authorship contribution statement

Lauren Herckis: Writing – review & editing, Writing – original draft, Validation, Resources, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Emily Tse:** Writing – review & editing, Writing – original draft, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The authors would like to thank Julia To Dutka, Peter Preziosi, and the Carnegie Mellon University Libraries for their encouragement. This project was supported by the Global Health Workforce Development Institute at TruMerit.

References

- Alexander, M., Martin, B., Kaminski-Ozturk, N., Zhong, E., & Smiley, R. (2021). Envisioning the future of nursing regulation through research: A global agenda. *Journal of Nursing Regulation*, 12(3), 5–10. [https://doi.org/10.1016/S2155-8256\(21\)00111-3](https://doi.org/10.1016/S2155-8256(21)00111-3)
- American Association of Collegiate Registrars and Admissions Officers. (2025). *Electronic database for global education (EDGE)*. from <https://www.aacrao.org/edge/about-edge>. (Accessed 13 July 2025).
- American Association of Collegiate Registrars and Admissions Officers. (2016). *The AACRAO international guide: A resource for international education professionals*. American Association of Collegiate Registrars and Admissions Officers. (2021). *Guide to bogus institutions and documents*.
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19–32. <https://doi.org/10.1080/1364557032000119616>
- Aslett, K., Sanderson, Z., Godel, W., Persily, N., Nagler, J., & Tucker, J. A. (2024). Online searches to evaluate misinformation can increase its perceived veracity. *Nature*, 625 (7995), 548–556. <https://doi.org/10.1038/s41586-023-06883-y>
- Australian Government. Country education profiles. n.d. <https://internationaleducation.gov.au/services-and-resources/services-for-organisations/Pages/Services-for-organisations.aspx>
- Bauer, M. S., Damschroder, L., Hagedorn, H., Smith, J., & Kilbourne, A. M. (2015). An introduction to implementation science for the non-specialist. *BMC Psychology*, 3(1), 32. <https://doi.org/10.1186/s40359-015-0089-9>
- Bergan, S. (2023). *How will AI impact upon the recognition of qualifications?* University World News. <https://www.universityworldnews.com/post.php?story=20230404103202227>
- Bordas, A., Le Masson, P., Thomas, M., & Weil, B. (2024). What is generative in generative artificial intelligence? A design-based perspective. *Research in Engineering Design*, 35(4), 427–443. <https://doi.org/10.1007/s00163-024-00441-x>
- Buchanan, B., Lohn, A., Musser, M., & Sedova, K. (2021). *Truth, lies, and automation: How language models could change disinformation*. Center for Security and Emerging Technology. <https://cset.georgetown.edu/publication/truth-lies-and-automation/>
- Cai, C., Duell, J., Chen, D. M., Ho, W. K., Lee, B. T. K., Li, F., Liu, S., Ng, O., Sudarshan, V., Zhou, S.-M., Zhu, G., & Fan, X. (2025). Advancing AI literacy in medical education: A medical AI competency framework development. In A. I. Cristea, E. Walker, Y. Lu, O. C. Santos, & S. Isotani (Eds.), *Artificial intelligence in education: 26th international conference, AIED 2025* (pp. 116–123). Springer. https://doi.org/10.1007/978-3-031-98462-4_15
- Canadian Information Centre for International Credentials. Identify key competencies of an academic credential assessor. n.d. https://www.cicic.ca/1532/competency_profile.canada
- Cearley, S. S. Shelby cearley's blog on international credential evaluation. n.d. <https://shelbycearley.com/>. (Accessed 14 July 2025)

- Chiu, P., Thiessen, N. J., Idrees, S., Leslie, K., & Kung, J. Y. (2025). Nursing regulation in Canada: Insights from a scoping review. *PLoS One*, 20(5), Article e0323716. <https://doi.org/10.1371/journal.pone.0323716>
- Clauson Eicher, L., & Mihalyi, D. (2025). *Best practices in evaluating international professional qualifications*. American Association of Collegiate Registrars and Admissions Officers (AACRAO) Conference (Seattle).
- Council of Europe. (2022). *Countering education fraud*. <https://rm.coe.int/ok-prems-137222-gbr-2512-cmrec-2022-18-et-expose-motifs-a5-web-1-/1680a96147>.
- Council of Europe. (2025). *Council of Europe and CIMEA join forces to launch new centre tackling education fraud*. Retrieved July 14, 2025 <https://www.coe.int/en/web/ethics-transparency-integrity-in-education/-/council-of-europe-and-cimea-join-forces-to-launch-new-centre-tackling-education-fraud>.
- Department of Justice. (2023). *Fraudulent nursing diploma scheme leads to federal convictions*. <https://www.justice.gov/usao-sdfl/pr/fraudulent-nursing-diploma-scheme-leads-federal-convictions>.
- Dodson, O. (2016). Document forensics. *TAICEP TALK*, 2(3), 22–23.
- Draper, M., Farrington, D., Finocchietti, C., Hesselbäck, A., Lanteo, L., Johansson, E., & Newton, P. (2023). *Means to counter education fraud: Legislation, practices and instruments* (Vol. 7). Council of Europe. <https://www.coe.int/en/web/education/-/new-isbn-publication-means-to-counter-education-fraud-etined-volume-7>.
- Educational Credential Evaluators. (2025). *ECE connection*. from <https://theconnection.ece.org/>. (Accessed 13 July 2025).
- European Area of Recognition. (2023). *EAR manual*. Nuffic. https://www.nuffic.nl/sites/default/files/2023-08/1.EARManual2023_2ndedition.pdf.
- European Higher Education Area. (2024). *Tirana communiqué*. Retrieved July 14, 2025 <https://eha.info/Download/Tirana-Communique.pdf>.
- Ezell, A. (2023). Yesterday, today, and tomorrow: A tour of exact, the “World’s Largest Diploma Mill.” In S. E. Eaton, J. J. Carmichael, & H. Pethrick (Eds.), *Fake degrees and fraudulent credentials in higher education* (pp. 49–94). Springer.
- Feuerriegel, S., Hartmann, J., Janiesch, C., & Zschech, P. (2024). Generative AI. *Business & Information Systems Engineering*, 66, 111–126. <https://doi.org/10.1007/s12599-023-00834-7>
- Freeman, K. (2021). *Evaluating foreign educational credentials*. third edition (NAFSA).
- Goldstein, J. A., Chao, J., Grossman, S., Stamos, A., & Tomz, M. (2024). How persuasive is AI-generated propaganda? *PNAS Nexus*, 3(2), Article pgae034. <https://doi.org/10.1093/pnasnexus/pgae034>
- Gong, W., Lee, C. S., Li, S., Adkison, D., Li, N., Wu, L., & Ye, X. (2025). Cyber victimization in hybrid space: An analysis of employment scams using natural language processing and machine learning models. *Journal of Crime and Justice*, 1–22. <https://doi.org/10.1080/0735648X.2024.2448804>
- Groh, M., Sankaranarayanan, A., Singh, N., Kim, D. Y., Lippman, A., & Picard, R. (2024). Human detection of political speech deepfakes across transcripts, audio, and video. *Nature Communications*, 15(1), Article 7629. <https://doi.org/10.1038/s41467-024-51998-z>
- Hendrickson, P. B. (2021a). Receiving digital documents. *College & University*, 96(2), 61–68.
- Hendrickson, P. B. (2021b). Receiving digital documents (Part II). *College & University*, 96(3), 51–58.
- International Education Research Foundation. (2004). *The new country index: Making sense of international credentials* (Vol. I). Ten Speed Press.
- International Education Research Foundation. (2011). *The new country index: Making sense of international credentials* (Vol. II).
- International Qualification Assessment Service. IQAS international education guides. n.d. <https://www.alberta.ca/iqas-education-guides>
- Karnouskos, S. (2020). Artificial intelligence in digital media: The era of deepfakes. *IEEE Transactions on Technology and Society*, 1(3), 138–147. <https://doi.org/10.1109/TTS.2020.3001312>
- Kreps, S., McCain, R. M., & Brundage, M. (2022). All the news that’s fit to fabricate: AI-generated text as a tool of media misinformation. *Journal of Experimental Political Science*, 9(1), 104–117. <https://doi.org/10.1017/XPS.2020.37>
- KultusMinister, K. (2025). *Anabin: Das Infoportal zu ausländischen Bildungsabschlüssen*. Retrieved July 13, 2025 <https://anabin.kmk.org/cms/public/startseite>.
- Lafave, M., Amannejad, Y., Mammadova, U., & Eubank, B. (2023). Systems that evaluate international equivalency in health-related professions: A scoping review with a focus on Canada. *Human Resources for Health*, 21(1), 79. <https://doi.org/10.1186/s12960-023-00864-y>
- Lantero, L., Ferranti, L., Finocchietti, C., Gitto, E., Petrucci, E., Sanasi, F., & Spitalieri, S. (2023). *Artificial intelligence and recognition of qualifications: Opportunities and risks from an ENIC-NARIC perspective*. CIMEA. www.cimea.it/Upload/Documenti/ArtificialIntelligenceandRecognitionofQualifications.pdf.
- Lantero, L., Heleg, G., & Kulumzhanova, A. (2025). Challenges and practical applications of artificial intelligence in qualification recognition. In *2025 1st international conference on computational intelligence approaches and applications (ICCIAA)* (pp. 1–8) (IEEE).
- Liu, J. (2020). Artificial intelligence and data analytics applications in healthcare general review and case studies. In *Proceedings of the 2020 conference on artificial intelligence and healthcare* (pp. 49–53). <https://doi.org/10.1145/3433996.343400>
- McClenton, L. G. (2012). Falsification of nurse licensure applications: Cases and consequences. *Journal of Nursing Regulation*, 2(4), 26–28. [https://doi.org/10.1016/S2155-8256\(15\)30256-8](https://doi.org/10.1016/S2155-8256(15)30256-8)
- McLean, S., Read, G. J. M., Thompson, J., Baber, C., Stanton, N. A., & Salmon, P. M. (2023). The risks associated with artificial general intelligence: A systematic review. *Journal of Experimental & Theoretical Artificial Intelligence*, 35(5), 649–663. <https://doi.org/10.1080/0952813X.2021.1964003>
- Minsky, M. (1961). Steps toward artificial intelligence. *Proceedings of the IRE*, 49(1), 8–30. <https://courses.csail.mit.edu/6.803/pdf/steps.pdf>.
- NAFSA. Guide to education systems by country. n.d. <https://www.nafsa.org/bookstore/guide-education-systems-country>
- National Council of State Boards of Nursing. (2016a). Our resources can help you prevent application fraud. *Focus*, 2(4), 13.
- National Council of State Boards of Nursing. (2016b). *Resource manual on licensure application fraud prevention, detection and communication*.
- National Council of State Boards of Nursing. (2017). Regulation 2030. *Journal of Nursing Regulation*, 8(2 Suppl.), S3–S52. [https://doi.org/10.1016/S2155-8256\(17\)30124-2](https://doi.org/10.1016/S2155-8256(17)30124-2)
- National Council of State Boards of Nursing. (2021a). NCSBN’s environmental scan COVID-19 and its impact on nursing and regulation. *Journal of Nursing Regulation*, 11(4 Suppl.), S1–S36. [https://doi.org/10.1016/S2155-8256\(21\)00002-8](https://doi.org/10.1016/S2155-8256(21)00002-8)
- National Council of State Boards of Nursing. (2021b). *NCSBN model act*. https://www.ncsbn.org/public-files/21_Model_Act.pdf.
- National Council of State Boards of Nursing. (2022). The NCSBN 2022 environmental scan: Resiliency, achievement, and public protection. *Journal of Nursing Regulation*, 12(4 Suppl.), S1–S56. [https://doi.org/10.1016/S2155-8256\(22\)00015-1](https://doi.org/10.1016/S2155-8256(22)00015-1)
- National Council of State Boards of Nursing. (2023a). The NCSBN 2023 environmental scan: Nursing at a crossroads—An opportunity for action. *Journal of Nursing Regulation*, 13(4 Suppl.), S1–S48. [https://doi.org/10.1016/S2155-8256\(23\)00006-6](https://doi.org/10.1016/S2155-8256(23)00006-6)
- National Council of State Boards of Nursing. (2023b). *Licensure of internationally educated nurses: A resource manual*. https://www.ncsbn.org/public-files/23_IEN_manual.pdf.
- National Council of State Boards of Nursing. (2024a). *Fraud detection guidance for employers and educators*. <https://www.ncsbn.org/public-files/GuidanceforFraudDetection-2024.pdf>.
- National Council of State Boards of Nursing. (2024b). The NCSBN 2024 environmental scan: Every moment matters, realizing lasting impact. *Journal of Nursing Regulation*, 14(4 Suppl.), S1–S48. [https://doi.org/10.1016/S2155-8256\(23\)00127-8](https://doi.org/10.1016/S2155-8256(23)00127-8)
- National Council of State Boards of Nursing. (2025). The NCSBN 2025 environmental scan: Going beyond. *Journal of Nursing Regulation*, 15(4 Suppl.), S1–S48. [https://doi.org/10.1016/S2155-8256\(25\)00038-9](https://doi.org/10.1016/S2155-8256(25)00038-9)
- Nuffic. Education systems. n.d. <https://www.nuffic.nl/en/study-and-work-abroad/education-systems>. (Accessed 13 July 2025)
- Prospects Hedd. (2020). *Advice and guidance on degree fraud for providers*. <https://cdn-hedd.prospects.ac.uk/cdn-hedd/2.0.16/pdf/HEDDProvidersToolkit2020.pdf>.
- Qiriaz, V., & Finocchietti, C. (2025). AI is among issues topping qualifications recognition agenda. University World News. <https://www.universityworldnews.com/post.php?story=20250617120057416>.
- Shaffer, F. A., Phillips, J., & Tuttas, C. (2014). Document forensics: Evaluating and verifying nurse credentials. *Journal of Nursing Regulation*, 5(2), 34–38. [https://doi.org/10.1016/S2155-8256\(15\)30085-5](https://doi.org/10.1016/S2155-8256(15)30085-5)
- Simon, H. A. (1995). Artificial intelligence: An empirical science. *Artificial Intelligence*, 77(1), 95–127. [https://doi.org/10.1016/0004-3702\(95\)00039-H](https://doi.org/10.1016/0004-3702(95)00039-H)
- Soon, W. (2022). *More and more people are using deepfakes to apply for remote tech jobs, FBI says*. Business Insider. <https://www.businessinsider.com/people-applying-remote-tech-jobs-using-deepfakes-fbi-2022-6>.
- Spitale, G., Biller-Andorno, N., & Germani, F. (2023). AI model GPT-3 (dis)informs us better than humans. *Science Advances*, 9(26). <https://doi.org/10.1126/sciadv.adh1850>
- Sriram, H. K. (2024). Leveraging AI and machine learning for enhancing secure payment processing: A study on generative AI applications in real-time fraud detection and prevention. *SSRN*. <https://doi.org/10.2139/ssrn.5203586>
- Stop talking about tomorrow’s AI doomsday when AI poses risks today [Editorial]. (2023). *Nature*, 618, (2023), 885–886. <https://doi.org/10.1038/d41586-023-02094-7>
- The Association for International Credential Evaluation Professionals. (n.d.-a). Welcome to the TAICEP Wiki – Beta version! Retrieved July 13, 2025, from <https://www.taicep.org/taiceporgwp/news/welcome-to-the-taicep-wiki-beta-version/>.
- The Association for International Credential Evaluation Professionals. (n.d.-b). Why join TAICEP? Retrieved July 13, 2025, from <https://www.taicep.org/taiceporgwp/membership-benefits/>.
- The Association for International Credential Evaluation Professionals. (2021). *Professional competency profile (PCP) for credential evaluators*. <https://www.taicep.org/taiceporgwp/wp-content/uploads/2021/10/PCP-DEFT-final.pdf>.
- Tolentino, R., Baradaran, A., Gore, G., Pluye, P., & Abbasgholizadeh-Rahimi, S. (2024). Curriculum frameworks and educational programs in AI for medical students, residents, and practicing physicians: Scoping review. *JMIR Medical Education*, 10(1). <https://doi.org/10.2196/54793>. Article e54793.
- Tse, E. (2015). Identifying fraudulent credentials from internationally educated nurses. *International Journal of Nursing*, 6(1), 57–61. [https://doi.org/10.1016/S2155-8256\(15\)30011-9](https://doi.org/10.1016/S2155-8256(15)30011-9)
- Tse, E. (2017). Back to basics: Reviewing international transcripts. *NAGAP Perspectives*, 29(3), 25–27.
- Tse, E. (2021). Electronic academic records. In *Guide to bogus institutions and documents* (pp. 143–162). American Association of Collegiate Registrars and Admissions Officers.
- Tse, E., Belmehdi, M., & Pham, C. (2024). Nursing on a global scale: Insights into education and regulation. *The Association of International Credential Evaluation Professionals Conference, Quebec City*.
- UHC2030. (2019). *International council of nurses: Why nurses are so important for UHC*. <https://www.uhc2030.org/news-and-events/news/partner-insights/partner-insights/international-council-of-nurses-why-nurses-are-so-important-for-uhc-555297/#:~:text=%E2%80%9C9CNursesmakeupnearlyhalf,numberofotherkeyroles>.

- TruMerit. Credentials fraud detection and prevention. Retrieved June 28, 2025, from <https://www.trumerit.org/credentials-fraud-detection-and-prevention>.
- UK National Information Centre. (n.d.). International comparisons. Retrieved July 13, 2025, from <https://members.enic.org.uk/Product/Overviews/Default>.
- Ullrich, A., & Lofstad, R. (2017). Tips for determining documentation authenticity (quickly). *TAICEP TALK*, 3(1), 47–48.
- UNESCO. (1974). *Regional convention on the recognition of studies, diplomas and degrees in higher education in Latin America and the Caribbean*. <https://www.unesco.org/en/legal-affairs/regional-convention-recognition-studies-diplomas-and-degrees-higher-education-latin-america-and>.
- UNESCO. (1999). *Convention on the recognition of qualifications concerning higher education in the European region*. <https://www.unesco.org/en/legal-affairs/convention-recognition-qualifications-concerning-higher-education-european-region?hub=70286>.
- UNESCO. (2014). *Revised convention on the recognition of studies, certificates, diplomas, degrees and other academic qualifications in higher education in African states*. <https://www.unesco.org/en/legal-affairs/revised-convention-recognition-studies-certificates-diplomas-degrees-and-other-academic?hub=70286>.
- UNESCO. (2018). *Asia-Pacific regional convention on the recognition of qualifications in higher education*. <https://www.unesco.org/en/legal-affairs/asia-pacific-regional-convention-recognition-qualifications-higher-education?hub=70286>.
- UNESCO. (2019). *Global convention on the recognition of qualifications concerning higher education*. <https://www.unesco.org/en/legal-affairs/global-convention-recognition-qualifications-concerning-higher-education>.
- UNESCO. (2022). *Revised convention on the recognition of studies, diplomas and degrees in higher education in the Arab states*. <https://www.unesco.org/en/legal-affairs/revised-convention-recognition-studies-diplomas-and-degrees-higher-education-arab-states?hub=70286>.
- UNESCO. (2025). *Artificial intelligence in education*. Retrieved July 28, 2025, from <https://www.unesco.org/en/digital-education/artificial-intelligence>.
- Vasist, P. N., & Chatterjee, D. (2025). Combating fake news and digital deception at the workplace: An integrative review and open systems theory-led framework for future research. *IIM Kozhikode Society & Management Review*, 14(1), 88–104. <https://doi.org/10.1177/22779752231163360>
- Weidinger, L., Uesato, J., Rauh, M., Griffin, C., Huang, P.-S., Mellor, J., Glaese, A., Cheng, M., Balle, B., Kasirzade, A., Biles, C., Brown, S., Kenton, Z., Hawkins, W., Stepleton, T., Birhane, A., Hendricks, L. A., Rimell, L., Isaac, W. S., ... Gabriel, I. (2022). Taxonomy of risks posed by language models. In *Proceedings of the 2022 ACM conference on fairness, accountability, and transparency* (pp. 214–229). <https://doi.org/10.1145/3531146.3533088>
- Wenger, M., & Tse, E. (2020). The wild, wild west: The changing landscape of electronic documents (and verification). *The Association for International Credential Evaluation Professionals (TAICEP) Conference (virtual)*.
- Wooldridge, M., & Jennings, N. R. (1995). Intelligent agents: Theory and practice. *The Knowledge Engineering Review*, 10(2), 115–152.
- World Education Services. (2025). *World education news + reviews*. Retrieved <https://wenr.wes.org/>. (Accessed 14 July 2025).