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A SYSTEMATIC REVIEW OF SOFT SKILLS IN INFORMATION SYSTEM EDUCATION RESEARCH [ABSTRACT]

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ABSTRACT

Aim/Purpose	This research systematically examines published literature on soft skills development in information systems education, aiming to identify potential gaps in current research. The research examines the type of research (i.e., quantitative vs. qualitative studies), the scope of the research (i.e., whether it examined a curriculum or a specific course or topic), the instructional delivery modality (i.e., if online or hybrid), and the method of instruction (i.e., collaborative learning experiential learning, etc.). By evaluating the literature in information systems education research in this manner, we identify gaps in modern information systems education research regarding soft skills and provide insights as to popular methods in developing soft skills.
Background	According to an August 2024 survey by Intelligent.com, 90% of businesses believe Generation Z needs etiquette training. Employers also noted general deficiencies in soft skills and personal attributes and a growing reluctance to hire recent college graduates due primarily to non-technical factors. Solid technical skills were sixth among factors related to hiring a graduate, and a lack of technical skills was eighth for the reason why graduates

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	<p>were terminated. This should be a concern for higher education. Although higher education may be preparing students technically, it may not be focusing enough on developing soft skills. While the survey was not exclusive to information systems graduates, it should be a concern to all majors to ensure that appropriate soft skills are in our curriculums. Additionally, remote and hybrid work is becoming prevalent and may have drastically changed the traditional corporate culture. Industry and higher education are also changing with the rise of technologies such as generative AI, which may change the mix of soft and technical skills required in the workplace. These factors indicate a need for continued research, and a literature review can help to identify gaps in current research.</p>
Methodology	<p>A systematic literature review was conducted on soft skills in information systems research. The Association for Information Systems eLibrary and the Journal of Information Technology Education: Research was searched for relevant articles from widely read information systems journals. This search resulted in an initial set of 82 potential articles. After eliminating articles which were cross listed across searches or did not appear relevant to the education of soft skills, 36 articles remained to constitute the literature sample for the systematic review. The articles were then coded on 1) if they related to online, hybrid, or traditional, 2) if they were a quantitative, case study, or theoretical paper, 3) if they evaluated the importance or identification of a soft skill for importance or the effectiveness of learning, 4) the delivery modality, and finally, 5) the scope of the analysis in higher education.</p>
Contribution	<p>This research highlights gaps in soft skills research related to information systems and information technology education. It also identifies common modalities for developing soft skills and determines which soft skills are required and important for information systems graduates.</p>
Findings	<p>Soft skills are important in information system education research. Nonetheless, there has been limited recent research to identify the appropriate skills needed for information systems professions. While there were 14 articles that touched on the subject, only 6 articles have been published recently since 2020. Of these articles, five had some quantitative measures, including three periodic updates, one reinforcing that communication was important but did not go in depth on any other soft skills, and one focusing only on the field of data analytics. The final article indicated that technology was changing communication needs like documentation while other aspects of soft skills, such as teamwork, showed a significant discrepancy between where graduates were and what industry expected. If information technology students fail due to a lack of soft skills and general professionalism, more research needs to be done to define and prioritize soft skills as we incorporate them into information systems curricula.</p> <p>The remainder of the research targeted individual pedagogy in courses, assignments, or topics. The most common pedagogies evaluated were experiential learning, team-based learning, and collaborative learning. Nine articles had a focus on quantitative measures, with eight utilizing self-reported</p>

	<p>measures of perceived effectiveness. There is a lack of longitudinal studies examining the results of skills developed in the classroom using external validation of whether the lessons transferred into the student's professional lives. The sole quantitative paper that used external validation reported that communication was emphasized by potential employers but was lacking in syllabi. There were no quantitative papers that compared the effectiveness of soft skills across online, hybrid, and traditional instructional modalities.</p>
Recommendations for Practitioners	<p>Course and curriculum learning objectives should include soft skills. Syllabi and rubrics should incorporate measurements of these skills. The literature indicates that experiential learning, team-based learning, and collaborative learning are essential to foster the ability to communicate and work within teams. Therefore, these learning methods should be included, when possible, in a course, and the curricula should ensure some exposure to such methods.</p>
Recommendation for Researchers	<p>Researchers can define modern measures and definitions of soft skills that are required within information technology fields.</p>
Impact on Society	<p>A generation that has gone through a disruptive event in COVID-19 has now also pivoted into technological change with generative AI potentially changing corporate culture as well as the definitions and importance of various soft skills. Academia needs to align our education practices to maximize the probability of their long-term success.</p>
Future Research	<p>This systematic review may be expanded to include individual soft skills and evaluate more quantitative studies related to individual pedagogies. Research should be conducted to further define the needed soft skills and employee characteristics. More research needs to be done to evaluate the effectiveness of our pedagogy outside of self-reported measures. Methods such as longitudinal studies that evaluate success are important as programs may be placing students, but those students may not succeed in the first year. Evaluation of technical certifications achieved and maintained can evaluate whether alumni have developed an attitude for lifelong learning.</p>
Keywords	<p>soft skills, curriculum, information systems</p>

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Jayla Clanton is a data analytics and management information systems professional from Birmingham, Alabama. She earned her bachelor's degree in data Analytics from Troy University, where she gained experience in predictive analytics, critical thinking, and problem-solving through an internship at Motion Industries. During this internship, she successfully applied data-driven methodologies to complete a project that contributed to the company's operations.

Jayla continued her academic journey at Auburn University at Montgomery, earning a master's degree in Management Information Systems. Her graduate studies provided her with a strong foundation in artificial intelligence, machine learning, the CRISP-DM framework, and ERP systems. Her passion for data-driven decision-making and technological advancements fuels her academic and professional pursuits. In her free time, she enjoys reading, continuously learning, and exercising.



Dr. Jeffrey Bohler is an Associate Professor and Chair of the Information Systems Department at Auburn University at Montgomery (AUM) College of Business. After earning a Ph.D. in Management of Information Technology and Innovation, Dr. Bohler has dedicated himself to teaching and researching the impact of emerging technologies on business and society. His research focuses on decision-making, the role of educational technologies in higher education, and the economic and societal impacts of artificial intelligence.