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Improve Female Participation in Construction Using Storytelling

Jing Wen, Ph.D.

Georgia Institute of Technology
Atlanta, GA

Masoud Gheisari, Ph.D.

University of Florida
Gainesville, FL

Recognizing a severe workforce shortage, the construction industry is now keen on diversifying its talent pool, particularly by attracting female students to construction science, engineering, or management (CM) programs. Despite previous efforts to engage female students in construction, they have not yielded the desired results. To address this issue, this study created a series of stories about women in construction, drawing from interviews with over 30 women currently active in the field. These narratives aim to inspire more female students to consider careers in construction and boost female participation. The stories, integrated with interview content, were disseminated online and subsequently assessed by 53 female undergraduate students. The findings indicated a positive impact, revealing that the stories played a pivotal role in boosting the confidence of these students in pursuing careers in construction. By offering a nuanced perspective into the diverse paths within CM professions, the stories empowered these potential female professionals, enabling them to envision and strive for success in an industry traditionally dominated by males. Offering a tangible and relatable portrayal of women's experiences in the industry, this study provided an easily accessible resource for individuals, organizations, and educational institutions interested in promoting gender diversity in construction.

Key Words: Women in Construction, Female Participation, Storytelling, Interview, Construction Education

Introduction

While the need to boost the enrollment of science, technology, engineering, and mathematics (STEM) students is widely acknowledged, the current numbers still fall short of meeting the nation's STEM workforce demand (Bottia et al., 2015). This gap is mirrored in the construction industry, where positions like Construction Managers (5%) are projected to grow faster than the average from 2022 to 2032 (U.S. Bureau of Labor Statistics, 2023a). However, it is reported that leadership roles have been the hardest to fill positions in construction in the last five years, with 80% of the general contractors reporting difficulties (Associated General Contractors of America, 2022). Recognizing the severe workforce shortage, the construction industry is emphasizing the importance of diversifying its talent pool (Sisson & National, 2023). Construction Include Week is one of the efforts the industry has made to build awareness of the need to improve diversity and inclusion in construction (Construction Inclusion Week, 2023).

Despite this imperative, the construction industry continues to face significant gender diversity challenges. Increasing female participation is not just a matter of gender equality; it is a necessary step to bridge the increasing gap in skilled and qualified leadership roles within the construction sector. Attracting female students to the construction science, engineering, or management programs (i.e., CM programs) represents the first step and one of the most important steps to increasing female participation in the construction industry. Though efforts have been conducted to increase female students' interest in construction and expose them to relevant contexts, the desired outcomes have not been forthcoming. As of the latest labor force statistics, females represent just 8.5% of the people employed as construction managers, which typically require a bachelor's degree from CM programs (U.S. Bureau of Labor Statistics, 2023b).

Aiming to inspire more female students to consider careers in construction and boost female participation, this study created a series of stories of women in construction. To make the story narrative representative and authentic with proper real-person details, this study conducted semi-structured interviews with thirty-one women who are currently learning or working in construction. Finally, the story was delivered online to reach out to potential female students, and fifty-three students provided their feedback on the story narrative and reflected on the impact the story had on them.

Literature Review

Current Practices to Promote Female Participation in STEM Programs

Several types of practices have been done to expose students to STEM contexts, including mentoring and role modeling programs (Herrmann et al., 2016; Ilumoka, 2012; Ilumoka et al., 2017), workshops (Ilumoka, 2012; Safapour & Kermanshachi, 2020), job shadowing (Harrington & Earhart, 2020; Ilumoka, 2012), and camps for prospective students (Ilumoka, 2012; Lee et al., 2015; Lee & Walker, 2014). Most of these practices enable a connection between students and practitioners in the field and present role models for students. These practices have received positive feedback and detected the effectiveness in increasing students' interest (Wen & Gheisari, 2022). While these conventional approaches have helped and should be continued, there are several problems with them. Firstly, while female role models can be especially beneficial for females (Lockwood, 2006), current limited female involvement in the construction field results in limited availability of female mentors/role models, therefore the supportive relationship with role models can only impact a small number of female students (Adogbo et al., 2015). Furthermore, there is one major limitation of conventional approaches that cannot be overlooked: because people need to physically attend these events, the number of young students that can directly benefit from such events is relatively small and geographically limited to the local areas where those events happen (Wen & Gheisari, 2022). Furthermore, participating such events, such as role modeling programs, requires a significant amount of time for students and role models, and it is significantly time-consuming and costly for organizers (usually the researchers) to appropriately plan, implement, and promote such activities (Herrmann et al., 2016; Lee et al., 2015; Lee & Walker, 2014). All these factors constrained the impact of existing efforts to improve female participation in construction.

Storytelling as an Easily Accessible Motivational Tool

Storytelling is an interactive art of using words, vocalization, physical movement, gesture, or images to communicate events and often includes improvisation or embellishment (Haigh & Hardy, 2011). With the advent of computer technology, storytellers began using computers and multimedia to

perform storytelling in the 1980s, which introduced the term digital storytelling (McLellan, 2007). As its name implies, digital storytelling communicates an event using digital media. Such digital stories are usually facilitated by computer-based images, text, recorded audio and video, or music (McLellan, 2007). With the help of the Internet, digital storytelling can be accessible to a larger and wider population. Storytelling is an effective tool to deliver information to the audience as stories are believable, rememberable, and entertaining (Neuhauser, 1993). Stories provide the audience with human experience so that the audience tends to consider the information authentic and credible. Engaging the audience with the actions and intentions of the storytellers makes knowledge embedded in stories more memorable (Rossiter, 2002). This approach has been applied in the construction context, where a story of electricians was presented to undergraduate students, and their attitudes toward the electrical construction field were measured before and after being exposed to the story. It was found that immersive storytelling had a positive influence on both male and female students (Wen & Gheisari, 2021, 2022). However, the story was not created in a way that was specifically tailored for female audiences.

Research Method

This study aimed to create a representative, authentic, and motivational series of stories about women in construction, to motivate more potential female students to consider a career path in the construction field. There were four research steps (Figure 1). The existing literature body was first reviewed to identify the story topics that potential students find most relevant and helpful, especially from females’ perspectives. Then, based on the identified topics, interviews were conducted with both CM students and practitioners in the industry, and their experiences and unique points of view about the construction field were integrated into the story to increase the level of detail and authenticity of the story. Finally, a story was created using a story mapping technique to attract female students to CM programs, and it was evaluated by potential female students.

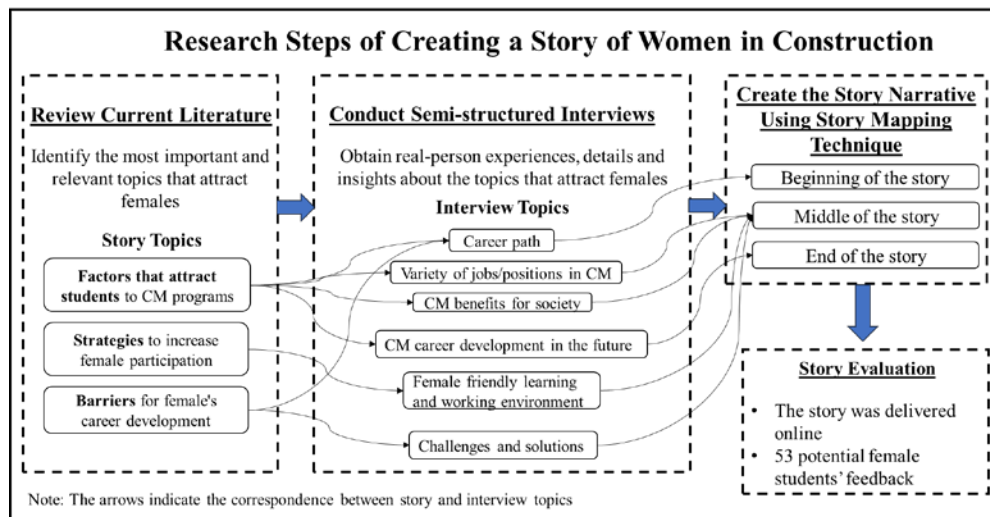


Figure 1. Research steps

Review Current Literature

To craft a narrative tailored specifically for females, the authors conducted a comprehensive review of studies, examining both the factors that attract women to construction and the impediments they face.

Existing strategies for enhancing female participation were also reviewed, guiding the selection of applicable strategies to shape the story's keynotes. The primary goal of this step was to pinpoint pertinent and appealing topics that resonate most with potential female students, subsequently transforming them into narrative elements that address the key concerns and interests of female students.

After reviewing these three categories of information, the research team decided on three main keynotes for the story. Firstly, the story would underscore the importance of addressing barriers to females' career development, showcasing main characters who overcome challenges in the construction field to inspire confidence and expectations in potential female students. Secondly, the story would focus on career opportunities awareness, and exposure to learning environments, acknowledging their significant influence in attracting female students. Additionally, the story would follow applicable strategies to increase female participation by emphasizing tailored marketing approaches to engage the target audience. Recognizing distinct learning styles and motivations, the story content should be specifically appealing to females, such as emphasizing teamwork and collaboration, which are the aspects that are particularly attractive to them (Milgram, 2011). Finally, a set of topics was used to conduct semi-structured interviews to further obtain information from the current students and practitioners in the construction field. Their corresponding attractive factors, strategies, and barriers to career development components were in parentheses.

- Career path (Attractive factor: awareness of career opportunity; barriers to career development) (Afolabi et al., 2019; Arditi et al., 2013; Bigelow et al., 2015; Menches & Abraham, 2007; Moore, 2006; Perrenoud et al., 2020)
- Variety of jobs/positions in CM (Attractive factor: awareness of career opportunity) (Bigelow et al., 2015; Perrenoud et al., 2020)
- CM job satisfaction (Strategy: appeal to females) (Milgram, 2011)
- CM career development in the future (Attractive factor: awareness of career opportunity) (Bigelow et al., 2015; Perrenoud et al., 2020)
- Female-friendly learning and working environment (Strategy: countering negative connotation) (Del Puerto et al., 2011)
- Challenges and solutions (Barriers to career development) (Afolabi et al., 2019; Menches & Abraham, 2007; Moore, 2006)

Conduct Interviews with Female Students and Practitioners in Construction

To draft the story contents with proper details and authenticity, semi-structured interviews with CM female students and industry practitioners were conducted to collect authentic information and valuable insights into the CM programs and the construction industry. Based on the identified topics in the previous step, interview protocols were prepared, including the following several topics or emphasis: a career story of women in construction, female-friendly learning and working environment, variety of jobs/positions in the construction field, the reasons interviewee like about their job, the benefits of in the construction filed for society, and CM career development in the future.

In this study, there were thirty-one interviews conducted on Zoom. Depending on different experiences, the interview time varied from 30 minutes to an hour. Six students were interviewed, and 67% were undergraduates. The other twenty-five interviewees were practitioners in the industry with an average of 12 years of working experience. Most practitioners work as project managers, division leaders, and business owners. The female CM students were recruited from current students registered in the Rinker School of Construction Management at the University of Florida. The practitioners were

recruited with the help of the Alumni Club of the Rinker School and the National Association of Women in Construction. After completing the interviews, the auto-generated transcripts were imported into an Excel sheet for further processing. The research team systematically categorized interview segments into distinct topics, conducting a topic-by-topic analysis to gather both universal information and unique insights.

A story of a female in construction. This aspect delved into interviewees' experiences of entering the male-dominated construction field, focusing on their career paths, challenges, and solutions as underrepresented individuals. It aligns with the main story topics of available career opportunities and barriers to females' career development, which are highly relevant to the audience. Interview findings revealed that 52% of interviewees had transferred majors during their college education. Notably, some had transferred from fields unrelated to architecture, civil engineering, and construction, such as history, biology, arts, communication, chemistry, marketing, and English majors. This resonates with another study, where it was found that over half of CM students had transferred from other majors (Bigelow et al., 2015).

Challenges in career development were also explored. Some interviewees with over two decades of experience noted the need to exert extra effort to gain recognition on par with their male colleagues. This mirrors a common barrier in female career development in construction: the lack of recognition for their capabilities and contributions (Faulkner, 2007). One interviewee shared an example of this barrier, recounting instances of being interrupted and not being heard due to speaking more softly. Female students expressed initial nervousness and fear as they entered the CM program, because they were *'females in a male-dominated industry'*, and they did not have much experience in the construction field compared to their male peers. However, they found relief in knowing *'people that had good experience in construction that were females.'*

Female-friendly learning and working environment. Promoting a female-friendly learning and working environment in construction is crucial to counter the negative stereotype of it being a male-dominated industry and to welcome females. Personal experiences of women in construction can be persuasive and boost the self-efficacy beliefs of potential female students. Most interviewees reflected positively on their learning and working experience in construction and the supportive environment. For example, an interviewee who has more than 20 years of working experience commented *'I never suffered as a result of being a female in this industry... I never felt discrimination or hardship from anybody at the field level.'* Moreover, the same interviewee had a major transfer experience and emphasized the significance of having female faculty in the CM program. She reflected that when she became aware of the CM program, she decided to take just one class, and *'it was very lucky that the first course that I took was being taught by a woman. Very important.'* She continued, *'It was probably her and her alone, that is the reason that I'm here today (to participate in this study to encourage more girls to join the construction field).'* This experience underscores the importance of female faculty in educational programs and can be used strategically to attract and recruit more potential female students. An increase in female participation in construction was also observed among different interviewees' experiences.

Variety of jobs and positions in the construction field and CM career development in the future. These aspects delve into interviewees' daily work routines and their specific job roles, offering valuable insights based on their respective occupations. This directly aligns with the awareness of career opportunities, a crucial factor in attracting students to CM programs. It serves to raise students' awareness of the various positions available in the construction industry and acquaint them with specific job roles. The interviews covered a range of positions, including assistant project managers, project engineers, project managers, senior project managers, division/program leaders, and founders/CEOs of construction companies, illustrating a clear career progression for CM graduates.

CM job satisfaction. Some interviewees in more advanced career stages shared the importance of 'people skills' in their work, emphasizing collaboration, communication, and problem-solving. For instance, interviewees described their work as '*bringing people together, getting everybody to work together, resolving challenges and differences*'. They suggested that by emphasizing that '*you don't have to have a male anatomy to be in the construction industry, it takes brains, it takes people skills, and it takes forethought critical thinking*' to potential female students, '*it (CM careers) might feel a bit more accessible for some of them*'. This emphasis on a collaborative and dynamic work environment was also noted when interviewees discussed CM job satisfaction. Interviewees also commented that they like their jobs because the tangible projects they worked on '*were long-lasting and other people in the community can benefit from*'. They also believed their job is very rewarding as they '*built high schools, middle schools, court houses, banks, where the community is going to really enjoy and grow*'.

Story Narrative Creation Using Story Mapping Technique

After completing the interviews, the story was created from these contents using a story mapping technique (Ohler, 2006, 2013). This technique enables the story creator to consider the story creation in terms of theme and character development. Story mapping can capture a story's central conflict, structure, and elements of transformation and show how the story's essential components incorporate into the overall flow of the narrative (Ohler, 2006). The story's essential elements include (Dillingham, 2005; Ohler, 2006, 2013):

- The beginning of the story – is a call to adventure, where the main character moves from ordinary life events to a new experience.
- Middle of the story – a transformation involves problems and solutions, where challenges happen to the main character due to the new experience, and the main character overcomes such challenges through skills acquisition and learning.
- End of the story – closure, where the story comes to a meaningful conclusion, often involves the main character's realization of significant things.

By blending interview insights with the story elements, a diverse narrative emerged, featuring three main characters representing various career stages in construction. The first character, Latonya, an African American senior CM student with internship experience and major transfers, symbolizes those with basic construction knowledge and limited field experience. The second character, Jing, an Asian project manager with eight years of jobsite experience, embodied those who have worked in construction for some years and specialized in field roles. The third character, Jennifer, a white business owner with over 20 years of experience, encompassed individuals who have held various positions and later transitioned into running their own consulting business in construction.

The story comprised three interconnected narratives, providing both an audience perspective and storytellers' viewpoints. The overarching storyline followed a student's journey as she engaged with three women in construction. The narrative began with the student meeting Latonya, a CM program student, on campus, progressing to a visit to Jing, working at a construction site, and concluding with an encounter with Jennifer, who gave a speech for a CM student club. Each story was framed from the storytellers' perspectives. Latonya's story integrated her career path, daily school life, practical classes, and personal insights, addressing her challenges in a male-dominated program and how she overcame them. Jing's story covered her career path, daily work life, the use of technology, safety, and her reasons for enjoying her job. Jennifer's story discussed her career path and the evolving working environment for females throughout her two-decade experience. To streamline the narratives, common elements were shared between the female students, medium-level practitioners, and

experienced practitioners. This eliminated the need for repeating similar content and focused on sharing varied working scenarios and insights based on rich experiences.

Story Evaluation

This step aims to assess the influence of the created on attracting the audiences to the construction field. Natural human-sound audios were generated for the story narratives, and the story was delivered online using the Qualtrics platform. With a specific focus on attracting incoming freshmen who have not decided or finalized their majors, this study does not exclude students from other majors than CM, or not freshmen, as it was found that more than half of the CM students transferred in from another school or major.

The story was distributed in the spring and summer semesters of year 2021 at the University of Florida, and fifty-three female students provided their feedback on the story. The majority of students did not consider themselves Hispanic/Latino (83.0%) and were mostly White (66.0%) and Asian (24.5%). Participants were mostly freshmen or sophomores (60.4%) from various majors across the university, such as accounting, computer science, biology, linguistics, anthropology, and marketing. Specifically, students were generally from seven different colleges, where the majority were from Colleges of Design, Construction, and Planning (28.3%) and Liberal Arts and Sciences (22.6%). There were 13.2% of students in the College of Engineering, and the same percentage of students have not decided on a major yet.

It was widely observed that the story helped students *'grasp a deeper understanding of what the construction field entails'*; therefore, *'it made me realize that I have more abilities in the (construction) area than I thought I did'*, and *'I became more confident because I came to realize that some of my experiences can also be utilized in the construction field'*. This is the first main aspect of how this story helped improve female students' self-confidence in construction. Additionally, students found this story *'sharing relatable and unique perspectives in the construction industry'* can help them *'feel more empowered as a woman to be involved, because 'knowing that other women are in the (CM) program makes me feel like I could succeed in an unfamiliar area'*. According to a student who *'didn't know much about the construction field'*, the highly relevant stories *'seem so similar to what I experience in my current major that (it) made me more confident I would be able to figure out what I needed to if I went into the construction field'*. This suggested that successful stories of females in a certain field can help female students relate to the field and encourage students to envision themselves working in the same field. However, a significant vocational interest in construction increase was not found in students' feedback.

Conclusion

Drawing on 31 interviews with women actively engaged in construction, this study crafted a series of narratives highlighting women's experiences in the field. Six compelling story topics, identified through a literature review, guided the interviews to gather authentic insights and details. Throughout the interviews, valuable insights emerged, including pivotal moments such as transitioning majors and the initial apprehension often felt by women entering the field. Notably, collaborative problem-solving, effective communication, and the tangible aspect of building products emerged as significant draws for women in construction. Employing the story mapping technique, the research integrated interviewees' experiences and insights into a narrative featuring a female construction management student and two industry practitioners. The resulting story was shared online, inviting feedback from potential female students. It was found that the story, showcasing diverse perspectives and career paths, empowered potential female students to envision their success in a traditionally male-

dominated industry. The story narrative also managed to instill confidence in potential female students by providing a nuanced understanding of careers in construction. Based on previous literature and studies on female participation in construction and authentic experiences and insights, this study created a ready-to-use and representative story of females in construction. The narrative form offered a tangible and relatable portrayal of women's experiences in the industry, providing a ready-to-use resource for individuals, organizations, and educational institutions interested in promoting gender diversity in construction.

Several study limitations and corresponding future research plans are also discussed. Firstly, the current story effects result from short-term data, which were collected right after the intervention. The long-term effects and potential career behavior change (e.g., major change or enrollment in construction courses) remain unknown. Moreover, this study recruited all students from the university, where many of them have already developed career interests in a certain field. This is also observed from the findings of this study that students' vocational interests in the construction field have not been significantly changed. To further understand the influence of storytelling on motivating younger generations to join the construction industry, a longitudinal study design and a larger scope of participants with different age ranges should be considered in the future study, including the K12 students or those with no demonstrated interest in a specific industry.

References

- Adogbo, K. J., Ibrahim, A. D., & Ibrahim, Y. M. (2015). Development of a framework for attracting and retaining women in construction practice. *Journal of Construction in Developing Countries*, 20(1), 99.
- Afolabi, A., Oyeyipo, O., Ojelabi, R. A., & Tunji-Olayeni, P. (2019). Balancing the female identity in the construction industry. *Journal of Construction in Developing Countries*, 24(2), 83–104.
- Arditi, D., Gluch, P., & Holmdahl, M. (2013). Managerial competencies of female and male managers in the Swedish construction industry. *Construction Management and Economics*, 31(9), 979–990.
- Associated General Contractors of America. (2022). *2022 Workforce Survey Analysis*. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.agc.org/sites/default/files/users/user22633/2022_AGC_Workforce_Survey_Analysis.pdf
- Bigelow, B. F., Bilbo, D., Mathew, M., Ritter, L., & Elliott, J. W. (2015). Identifying the most effective factors in attracting female undergraduate students to construction management. *International Journal of Construction Education and Research*, 11(3), 179–195.
- Bottia, M. C., Stearns, E., Mickelson, R. A., Moller, S., & Valentino, L. (2015). Growing the roots of STEM majors: Female math and science high school faculty and the participation of students in STEM. *Economics of Education Review*, 45, 14–27.
- Construction Inclusion Week. (2023). *CIW - About*. <https://www.constructioninclusionweek.com/about>
- Del Puerto, C., Guggemos, A., & Shane, J. (2011). Exploration of strategies for attracting and retaining female construction management students. *47th ASC Annual International Conference Proceedings, Nebraska*, 6–9.
- Dillingham, B. (2005). Performance literacy. *The Reading Teacher*, 59(1), 72–75.
- Faulkner, W. (2007). Nuts and Bolts and People' Gender-Troubled Engineering Identities. *Social Studies of Science*, 37(3), 331–356.
- Haigh, C., & Hardy, P. (2011). Tell me a story—A conceptual exploration of storytelling in healthcare education. *Nurse Education Today*, 31(4), 408–411. <https://doi.org/10.1016/j.nedt.2010.08.001>
- Harrington, R., & Earhart, C. (2020). The effect of job shadowing on recruiting students to academic programs in property management. *Housing and Society*, 47(2), 146–158.
- Herrmann, S. D., Adelman, R. M., Bodford, J. E., Graudejus, O., Okun, M. A., & Kwan, V. S. (2016). The effects of a female role model on academic performance and persistence of women in STEM courses. *Basic and Applied Social Psychology*, 38(5), 258–268.
- Illumoka, A. (2012). Strategies for overcoming barriers to women and minorities in STEM. *IEEE 2nd Integrated STEM Education Conference*, 1–4.

- Ilumoka, A., Milanovic, I., & Grant, N. (2017). An effective industry-based mentoring approach for the recruitment of women and minorities in engineering. *Journal of STEM Education: Innovations and Research, 18*(3).
- Lee, S. B., Kastner, S., & Walker, R. (2015). Mending the gap, growing the pipeline: Increasing female representation in computing. *ASEE SE Annual Conference*.
- Lee, S. B., & Walker, R. (2014). Engaging Middle School Girls in Computing with a Project-based Summer Experience. *ASEE Southeast Annual Conference*.
- Lockwood, P. (2006). "Someone Like Me can be Successful": Do College Students Need Same-Gender Role Models? *Psychology of Women Quarterly, 30*(1), 36–46. <https://doi.org/10.1111/j.1471-6402.2006.00260.x>
- Margolis, J., & Fisher, A. (2002). *Unlocking the clubhouse: Women in computing*. MIT press.
- McLellan, H. (2007). Digital storytelling in higher education. *Journal of Computing in Higher Education, 19*(1), 65–79.
- Menches, C. L., & Abraham, D. M. (2007). Women in construction—Tapping the untapped resource to meet future demands. *Journal of Construction Engineering and Management, 133*(9), 701–707.
- Milgram, D. (2011). How to recruit women and girls to the science, technology, engineering, and math (STEM) classroom. *Technology and Engineering Teacher, 71*(3), 4.
- Moore, J. D. (2006). *Women in construction management: Creating a theory of career choice and development*. Colorado State University.
- Neuhauser, P. (1993). *Corporate Legends and Lore: The Power of Storytelling as a Management Tool*. McGraw-Hill Companies.
- Ohler, J. (2006). The world of digital storytelling. *Educational Leadership, 63*(4), 44–47.
- Ohler, J. (2013). *Digital Storytelling in the Classroom: New Media Pathways to Literacy, Learning, and Creativity*. <https://doi.org/10.4135/9781452277479>
- Perrenoud, A. J., Bigelow, B. F., & Perkins, E. M. (2020). Advancing women in construction: Gender differences in attraction and retention factors with managers in the electrical construction industry. *Journal of Management in Engineering, 36*(5), 04020043.
- Rossiter, M. (2002). Narrative and Stories in Adult Teaching and Learning. *ERIC Digest*.
- Safapour, E., & Kermanshachi, S. (2020). The Effectiveness of Engineering Workshops on Attracting Hispanic Female Students to Construction Career Paths. *Construction Research Congress 2020: Safety, Workforce, and Education, 753–762*.
- Sisson, P., & National, B. (2023). *Construction's Lack Of Diversity In Leadership Is Stark. It's Also Holding The Industry Back*. Bisnow. <https://www.bisnow.com/national/news/top-talent/constructions-workforce-lacks-sufficient-diversity-its-even-more-dire-among-leadership-121211>
- U.S. Bureau of Labor Statistics. (2023a). *Construction Managers: Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics*. <https://www.bls.gov/ooh/management/construction-managers.htm>
- U.S. Bureau of Labor Statistics. (2023b). *Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity: U.S. Bureau of Labor Statistics*. <https://www.bls.gov/cps/cpsaat11.htm>
- Wen, J., & Gheisari, M. (2021). VR-Electricians: Immersive storytelling for attracting students to the electrical construction industry. *Advanced Engineering Informatics, 50*, 101411. <https://doi.org/10.1016/j.aei.2021.101411>
- Wen, J., & Gheisari, M. (2022). Using Immersive Storytelling to Attract Students to the Construction Field. *Computing in Civil Engineering 2021, 1393–1400*. <https://doi.org/10.1061/9780784483893.170>