

DOI: <https://doi.org/10.56712/latam.v4i2.1054>

Exploring Diversity and Inclusion Issues in the Civil Engineering Field in Latin America

Una Exploración sobre Diversidad e Inclusión en el campo de la Ingeniería Civil en América Latina

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Artículo recibido: 16 de agosto de 2023. Aceptado para publicación: 31 de agosto de 2023.
Conflictos de Interés: Ninguno que declarar.

Abstract


This paper examines diversity and inclusion issues in the civil engineering field across Latin America. It highlights the importance of studying diversity to bring innovation, address societal needs, and enhance education. The paper analyzes key sociocultural factors that impact the profession in Latin America, including history, politics, social inequalities, cultural diversity, education, urbanization, indigenous movements, and gender attitudes. The consequences of lack of diversity are explored, including limited perspectives, unconscious bias, and underutilization of talent. Recommendations to promote diversity and inclusion are outlined, involving education, mentorship, recruitment, inclusive workplaces, collaboration, research, and professional development. The paper concludes that a multifaceted approach is required to foster diversity and equity in Latin American civil engineering. Strategies should address historical and institutional barriers and aim to increase representation, provide support systems, raise awareness, and create inclusive organizational cultures. This will enable the field to leverage diverse talents and perspectives for innovation and effectively serve the needs of diverse societies. The insights from this analysis can inform policies and initiatives to develop a more inclusive civil engineering profession across Latin America.

Keywords: social inequalities, workforce development, professional development

Resumen

Este artículo examina los temas de diversidad e inclusión en el campo de la ingeniería civil en América Latina. Destaca la importancia de estudiar la diversidad para fomentar la innovación, atender las necesidades sociales y mejorar la educación. El artículo analiza los principales factores socioculturales que impactan la profesión en América Latina, incluyendo la historia, política, desigualdades sociales, diversidad cultural, educación, urbanización, movimientos indígenas y actitudes de género. Se exploran las consecuencias de la falta de diversidad, como perspectivas limitadas, sesgos inconscientes y el sub-aprovechamiento del talento. Se describen recomendaciones para promover la diversidad y la inclusión, relacionadas con la educación, tutoría, contratación, ambientes de trabajo inclusivos, colaboración, investigación y desarrollo profesional. El artículo concluye que se requiere un enfoque multifacético para fomentar la diversidad y la equidad en la ingeniería civil latinoamericana. Las estrategias deben abordar las barreras históricas e institucionales y apuntar a aumentar la representación, proporcionar sistemas de apoyo, crear conciencia y culturas organizacionales inclusivas. Esto permitirá al campo de la profesión aprovechar talentos y perspectivas diversas para la innovación y atender eficazmente las necesidades de las diversas sociedades. Los conocimientos de este análisis pueden orientar políticas e iniciativas para desarrollar una profesión de ingeniería civil más inclusiva en toda América Latina.

Palabras clave: desigualdades sociales, desarrollo de la fuerza laboral, desarrollo profesional

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Como citar: Carvajal Rivadeneira, D. D., Cordero Garcés, M. O., Cañarte Baque, G. A., & Zavala Vasquez, C. J. (2023). Exploring Diversity and Inclusion Issues in the Civil Engineering Field in Latin America. *LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades* 4(2), 6323–6333. <https://doi.org/10.56712/latam.v4i2.1054>

INTRODUCTION

Diversity and inclusion are crucial aspects of any workforce, including the field of civil engineering. The examination of diversity and inclusion issues in the civil engineering field across Latin America is of great importance in understanding the current state of the industry and identifying areas for improvement. This research topic aims to shed light on the challenges and opportunities related to diversity and inclusion in civil engineering in Latin America.

Diversity refers to the presence of individuals from different backgrounds, including but not limited to race, ethnicity, gender, age, and socioeconomic status. Inclusion, on the other hand, focuses on creating an environment where all individuals feel valued, respected, and have equal opportunities to contribute and succeed. Both diversity and inclusion are essential for fostering innovation, creativity, and productivity within organizations (Choi et al., 2022).

The civil engineering field, like many other STEM (Science, Technology, Engineering and Mathematics) disciplines, has historically been dominated by certain demographic groups, particularly men. This lack of diversity can lead to a narrow perspective in problem-solving, limited innovation, and a less inclusive work environment. It is crucial to address diversity and inclusion issues in civil engineering to ensure that the field benefits from a wide range of perspectives and experiences, leading to more effective and sustainable solutions (Casper et al., 2021).

Research on diversity and inclusion in civil engineering across Latin America is limited but necessary. Understanding the unique challenges and opportunities in this region can help identify strategies to promote diversity and inclusion in the field. For example, a study on the use of augmented reality in Latin-American engineering education found that engineering educators in Latin America are leading innovation in design, pedagogy, and research practices (García et al., 2022). This highlights the potential for incorporating innovative teaching methods that promote diversity and inclusion in civil engineering education.

Another study focused on the assessment tools used in civil engineering and architectural design found that there is a need for holistic assessment criteria that include diversity, equity, and accessibility (Zallio & Clarkson, 2021). This suggests that current assessment practices may not adequately address diversity and inclusion issues in the field. By examining the existing assessment tools and identifying gaps, researchers can develop new tools that promote diversity and inclusion in civil engineering projects.

Furthermore, research has shown that there are disparities in the representation and career satisfaction of underrepresented groups in civil engineering, such as women and minority students (Keku et al., 2021). Understanding the factors that contribute to these disparities and developing strategies to address them is crucial for creating a more inclusive and diverse workforce in the field.

THE SIGNIFICANCE OF STUDYING DIVERSITY IN THE FIELD OF CIVIL ENGINEERING

The significance of studying diversity in the field of civil engineering cannot be overstated. Understanding and promoting diversity in civil engineering is crucial for several reasons. Firstly, diversity brings a variety of perspectives and experiences to the field. Civil engineering projects often require innovative and creative solutions to complex problems. By having a diverse workforce, different viewpoints and approaches can be brought to the table, leading to more effective and sustainable solutions (Elleithy et al., 2016). Research has shown that diverse teams are more likely to generate innovative ideas and make better decisions (BrckaLorenz et al., 2021). Therefore, studying diversity in civil engineering can help foster a culture of innovation and improve the overall quality of projects.

Secondly, diversity and inclusion in civil engineering are essential for addressing societal needs and ensuring equitable access to infrastructure and services. Civil engineering projects have a direct impact on communities and society as a whole. By considering the diverse needs and perspectives of different groups, civil engineers can design and implement projects that are inclusive and meet the needs of all individuals (Bramald et al., 2015). For example, studying diversity can help identify and address disparities in access to infrastructure in marginalized communities, ensuring that everyone has equal access to essential services such as clean water, transportation, and housing (Almeida et al., 2021).

Moreover, promoting diversity in civil engineering is crucial for addressing the underrepresentation of certain groups in the field. Historically, civil engineering has been a male-dominated profession, with limited representation of women and minority groups. By studying diversity and understanding the barriers that prevent underrepresented groups from entering and advancing in the field, strategies can be developed to promote inclusivity and create a more diverse workforce (Vandenberghe, 2021). This can help address the persistent gender and racial disparities in civil engineering and create a more equitable profession.

In addition, studying diversity in civil engineering can contribute to the educational experience of students. Research has shown that incorporating case studies and examples of diverse civil engineering projects and professionals in the curriculum can enhance students' educational experiences and attitudes towards the profession (Elleithy et al., 2016; Leong & Elleithy, 2016). By exposing students to diverse perspectives and experiences, they can develop a broader understanding of the field and be better prepared to work in a diverse and globalized industry.

Moreover, diversity in civil engineering is closely linked to the concept of sustainability. Sustainable development requires considering social, economic, and environmental factors in the design and implementation of projects. By studying diversity, civil engineers can better understand the social and cultural aspects of communities and design projects that are socially and culturally sustainable (Bramald et al., 2015). This can help ensure that infrastructure projects are not only environmentally sustainable but also socially and culturally appropriate.

SOCIOCULTURAL FACTORS IMPACTING THE PROFESSION IN THE REGION.

Sociocultural factors play a significant role in shaping the profession of civil engineering in Latin America. These factors include a wide range of social, cultural, and political dynamics that influence diversity and inclusion issues in the field. The discussion below highlights some of the key sociocultural factors impacting the profession in the region.

Latin America has a complex history of colonization, imperialism, and social inequalities. The legacy of colonialism and the exploitation of resources have shaped the development of infrastructure and the distribution of resources in the region (Altman & Castiglioni, 2020). This historical context has implications for the representation of women and minorities in civil engineering, as it may have perpetuated inequalities and limited opportunities for underrepresented groups.

The political landscape in Latin America varies across countries, and different political regimes and governance systems can influence diversity and inclusion issues in civil engineering (Vogt, 2016). The nature of political institutions, policies, and decision-making processes can either facilitate or hinder the representation and participation of women and minorities in the profession.

Latin America faces persistent levels of poverty, inequality, and social disparities. These social inequalities can affect access to education, resources, and opportunities for women and minorities in civil engineering (Klaufus et al., 2017). Addressing these social inequalities is

crucial for promoting diversity and inclusion in the profession and ensuring equal access to opportunities for all individuals.

Latin America is known for its rich cultural heritage and ethnic diversity. The region is home to various indigenous communities and diverse cultural practices. Understanding the experiences and challenges faced by different ethnic and cultural groups in the field of civil engineering is essential to promote inclusive practices that consider multiple dimensions of identity (Trigos-Carrillo, 2019).

The sociocultural context of Latin America influences the educational experiences and academic literacies of individuals in the field of civil engineering. Socioeconomic factors, language barriers, and educational inequalities can impact access to quality education and the development of necessary skills and competencies (Carrillo, 2019). A critical sociocultural perspective can help address these issues and promote inclusive educational practices (Klaufus et al., 2017).

In addition, Latin America has experienced rapid urbanization and the development of infrastructure projects. However, these processes have often resulted in social fragmentation, segregation, and exclusion. Understanding the sociocultural dynamics of urban development and the impact on marginalized communities is important for promoting inclusive and sustainable infrastructure projects.

Indigenous movements in Latin America have played a significant role in advocating for the rights and inclusion of indigenous communities. These movements have highlighted the importance of recognizing and valuing indigenous knowledge, practices, and perspectives in the field of civil engineering (Vogt, 2016). Understanding the dynamics of these movements can inform strategies for promoting diversity and inclusion in the profession.

Lastly, sociocultural attitudes and stereotypes regarding gender roles and abilities can influence the representation of women in civil engineering. Gender biases and discrimination can create barriers for women in accessing educational and professional opportunities (Morgan & Buice, 2013). Challenging these attitudes and promoting gender equality is crucial for fostering diversity and inclusion in the profession.

THE REPRESENTATION OF WOMEN AND MINORITIES IN CIVIL ENGINEERING IN LATIN AMERICA

Examining the representation of women and minorities in the field of civil engineering in Latin America is crucial for understanding the current state of diversity and inclusion in the profession. This section aims to provide an overview on the representation of women and minorities in civil engineering in Latin America. By analyzing the existing literature, we can gain insights into the level of diversity and identify areas for improvement in the field.

While specific statistics on the representation of women in civil engineering in Latin America are limited, research on women's representation in Latin American legislatures can provide some insights. According to (Schwindt-Bayer, 2016), women's representation in national legislatures has increased over time in most Latin American countries, but to varying degrees. The primary explanation for this variation is the nature of electoral institutions, such as the magnitude of electoral districts and gender quota laws (Schwindt-Bayer, 2016). However, it is important to note that these studies focus on political representation and may not directly reflect the representation of women in civil engineering.

There are also studies that suggest that institutional factors may also play a role in the representation of women and minorities in civil engineering. For example, Danielson et al. (2013) argue that the underrepresentation of women in local political office in Mexico and Latin America

is not solely due to patriarchal cultures but is also influenced by institutions that limit female candidates. This suggests that institutional barriers may also affect the representation of minorities in civil engineering. Further research is needed to explore the specific challenges faced by minorities in entering and advancing in the field of civil engineering in Latin America.

The underrepresentation of women and minorities in civil engineering in Latin America can similarly be attributed to various challenges and barriers. These may include societal stereotypes and biases, lack of access to educational opportunities, limited mentorship and support networks, and workplace discrimination. Addressing these challenges requires implementing strategies to promote diversity and inclusion in the field. This can include initiatives such as targeted recruitment efforts, mentorship programs, and creating inclusive work environments that value and support the contributions of women and minorities.

Efforts to promote diversity and inclusion in civil engineering in Latin America can draw lessons from the political sphere. Gender quota laws have been successful in increasing women's representation in politics (Restrepo Sanín, 2022). Similarly, implementing measures such as diversity and inclusion initiatives, mentorship programs, and targeted recruitment strategies can help increase the representation of women and minorities in civil engineering. These efforts should be accompanied by addressing the institutional barriers that limit the participation of underrepresented groups (Danielson et al., 2013).

THE IMPACT OF LACK OF DIVERSITY IN CIVIL ENGINEERING

The lack of diversity in the civil engineering field across Latin America has significant implications for the profession, the workforce, and the communities served. First, A lack of diversity in civil engineering limits the range of perspectives and experiences brought to the table. Diverse teams are more likely to generate innovative ideas and solutions by drawing on a variety of backgrounds and insights (Bramald et al., 2015). Without diverse perspectives, the field may miss out on creative problem-solving approaches and innovative solutions to complex engineering challenges.

Civil engineering projects directly impact communities and society as a whole. Without diverse representation in the profession, there is a risk of overlooking the specific needs and concerns of different communities, particularly marginalized and underrepresented groups (Shi et al., 2021). This can result in infrastructure projects that do not adequately address the social, cultural, and environmental contexts of the communities they serve.

The lack of diversity in civil engineering can also create a scarcity of role models and mentors for aspiring engineers from underrepresented groups. Role models and mentors play a crucial role in inspiring and supporting individuals in their career development (Shi et al., 2021). Without diverse role models and mentors, aspiring engineers from underrepresented backgrounds may face additional challenges in navigating the profession and accessing opportunities for growth and advancement.

The lack of diversity in civil engineering can perpetuate unconscious bias and discrimination within the profession. Unconscious biases can influence decision-making processes, hiring practices, and career advancement opportunities, leading to unequal treatment and limited opportunities for individuals from underrepresented groups (Lilian, 2022). Addressing unconscious bias and promoting inclusive practices are essential for creating a more equitable and inclusive work environment.

Diversity in civil engineering brings together individuals with different skills, perspectives, and expertise. Collaboration among diverse teams can lead to more comprehensive and effective solutions to engineering challenges (Shi et al., 2021). The lack of diversity limits the potential for

collaboration and knowledge exchange, hindering the profession's ability to address complex and multidimensional problems.

The lack of diversity in civil engineering results in the underutilization of talent and potential contributions from underrepresented groups. By not fully tapping into the diverse talent pool, the profession may miss out on valuable skills, knowledge, and perspectives that could enhance the quality and effectiveness of civil engineering projects (Lilian, 2022).

Finally, a lack of diversity can contribute to a homogeneous and exclusionary organizational culture within civil engineering firms and institutions. This can create an unwelcoming and non-inclusive work environment, leading to lower job satisfaction, higher turnover rates, and difficulties in attracting and retaining diverse talent (McComb & Tehrani, 2014).

RECOMMENDATIONS FOR INCREASING DIVERSITY AND INCLUSION IN CIVIL ENGINEERING

Promoting diversity and inclusion in the civil engineering field across Latin America requires a multifaceted approach that addresses various aspects of the profession. The following recommendations can help increase diversity and foster a more inclusive environment in civil engineering:

Education and Curriculum Enhancement: Integrate sustainability, ethics, and diversity-related concepts explicitly into civil engineering curricula (Bramald et al., 2015). This can include incorporating courses that address sustainability, ethics, and social responsibility, as well as highlighting the importance of diversity and inclusion in engineering education (Mares-Nasarre, 2023). By providing students with a comprehensive understanding of these topics, they can develop a broader perspective and a sense of social responsibility.

Mentorship and Role Models: Establish mentorship programs that connect students from underrepresented groups with professionals in the field (Casper et al., 2021). Encourage civil engineering firms and organizations to provide mentorship opportunities and create networks that support the career development of individuals from diverse backgrounds (Delaine et al., 2016). Having access to role models and mentors who share similar experiences can inspire and guide aspiring engineers.

Recruitment and Outreach: Implement targeted recruitment strategies to attract individuals from underrepresented groups to the civil engineering field (Keku et al., 2021). This can involve partnering with schools, community organizations, and professional associations to promote engineering as a viable career option for diverse populations (Keku et al., 2021). Outreach programs, scholarships, and internships can also help increase access and opportunities for individuals from underrepresented backgrounds.

Inclusive Work Environment: Foster an inclusive work environment that values diversity and promotes equal opportunities for all employees (Porath et al., 2015). This can be achieved by implementing policies and practices that address unconscious bias, discrimination, and harassment (Nakamura, 2022). Encourage diversity training and workshops to raise awareness and promote cultural sensitivity among civil engineering professionals (Delaine et al., 2016). Creating a supportive and inclusive workplace culture will help attract and retain diverse talent.

Collaboration and Partnerships: Foster collaboration and partnerships between civil engineering organizations, educational institutions, and community stakeholders (Mares-Nasarre, 2023). Engage with local communities and involve them in the decision-making processes for infrastructure projects (Ha, 2018). By including diverse perspectives and involving stakeholders from different backgrounds, civil engineering projects can better address the needs and concerns of the communities they serve.

Research and Data Collection: Conduct research and collect empirical data on diversity and inclusion in the civil engineering field across Latin America (Plitmann, 2022). This can help identify specific challenges, barriers, and opportunities for underrepresented groups. By understanding the unique context and experiences of diverse individuals, targeted interventions and policies can be developed to address their needs.

Continuous Learning and Professional Development: Encourage ongoing learning and professional development opportunities for civil engineering professionals to enhance their understanding of diversity and inclusion issues (Cieslewicz et al., 2019). This can include workshops, seminars, and conferences that focus on topics such as cultural competency, unconscious bias, and inclusive leadership (Chi et al., 2021). By continuously expanding their knowledge and skills, professionals can contribute to creating a more inclusive and equitable civil engineering field.

CONCLUSIONS

Examining diversity and inclusion issues in the civil engineering field across Latin America is essential for promoting a more inclusive and diverse workforce. By understanding the challenges and opportunities in this region, researchers and practitioners can develop strategies to address disparities and create a more inclusive and equitable environment in civil engineering.

Studying diversity in the field of civil engineering is of utmost importance. It brings a range of perspectives and experiences to the field, fosters innovation, addresses societal needs, promotes inclusivity, and enhances the educational experience of students. By understanding and promoting diversity, civil engineers can create a more equitable and sustainable built environment that meets the needs of diverse communities.

Sociocultural factors significantly impact the profession of civil engineering in Latin America. Historical context, political dynamics, social inequalities, cultural diversity, education, urbanization, indigenous movements, and gender attitudes all shape the experiences and challenges faced by women and minorities in the field. Understanding these factors is essential for developing strategies and initiatives that promote diversity, equity, and inclusion in civil engineering practices and workforce in the region.

The lack of diversity in the civil engineering field across Latin America has far-reaching consequences. It limits perspectives, innovation, and the ability to address community needs effectively. It also perpetuates unconscious bias, discrimination, and underutilization of talent. To address these issues, it is crucial to promote diversity and inclusion in civil engineering by implementing strategies such as targeted recruitment efforts, mentorship programs, and creating inclusive work environments that value and support the contributions of individuals from underrepresented groups.

Increasing diversity and inclusion in the civil engineering field across Latin America requires a comprehensive and collaborative effort. By implementing the recommendations of this research, the profession can create a more inclusive environment that values diversity, promotes equal opportunities, and addresses the unique needs and perspectives of underrepresented groups.

REFERENCES

- Almeida, L. A. G. de, Pinto, F. R., & Pinheiro, E. C. N. M. (2021). The importance of risk management in civil engineering. *International Journal of Advanced Engineering Research and Science*, 8(6). <https://doi.org/10.22161/ijaers.86.41>
- Altman, D., & Castiglioni, R. (2020). Determinants of equitable social policy in latin america (1990-2013). In *Journal of Social Policy* (Vol. 49, Issue 4). <https://doi.org/10.1017/S0047279419000734>
- Bramald, T. M., Heidrich, O., & Hall, J. A. (2015). Teaching sustainability to first year civil engineering students. *Proceedings of the Institution of Civil Engineers: Engineering Sustainability*, 168(2). <https://doi.org/10.1680/ensu.14.00007>
- BrckaLorenz, A., Haeger, H., & Priddie, C. (2021). An Examination of Inclusivity and Support for Diversity in STEM Fields. *Journal for STEM Education Research*, 4(3). <https://doi.org/10.1007/s41979-021-00055-1>
- Casper, A. M. A., Atadero, R. A., Hedayati-Mehdiabadi, A., & Baker, D. W. (2021). Linking Engineering Students' Professional Identity Development to Diversity and Working Inclusively in Technical Courses. *Journal of Civil Engineering Education*, 147(4). [https://doi.org/10.1061/\(asce\)ei.2643-9115.0000052](https://doi.org/10.1061/(asce)ei.2643-9115.0000052)
- Chi, N., Lurie, E., & Mulligan, D. K. (2021). Reconfiguring Diversity and Inclusion for AI Ethics. *AIES 2021 - Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society*. <https://doi.org/10.1145/3461702.3462622>
- Choi, J. O., Shane, J. S., & Chih, Y.-Y. (2022). Diversity and Inclusion in the Engineering-Construction Industry. *Journal of Management in Engineering*, 38(2). [https://doi.org/10.1061/\(asce\)me.1943-5479.0001005](https://doi.org/10.1061/(asce)me.1943-5479.0001005)
- Cieslewicz, W., Araszkievicz, K., & Sikora, P. (2019). Accident rate as a measure of safety assessment in polish civil engineering. *Safety*, 5(4). <https://doi.org/10.3390/safety5040077>
- Danielson, M. S., Eisenstadt, T. A., & Yelle, J. (2013). Ethnic Identity, Informal Institutions, and the Failure to Elect Women in Indigenous Southern Mexico. *Journal of Politics in Latin America*, 5(3). <https://doi.org/10.1177/1866802x1300500301>
- Delaine, D. A., Tull, R., Sigamoney, R., & Williams, D. N. (2016). Global Diversity and Inclusion in Engineering Education: Developing Platforms toward Global Alignment. *International Journal of Engineering Pedagogy (IJEP)*, 6(1). <https://doi.org/10.3991/ijep.v6i1.5372>
- Elleithy, W., Kang, C. M., & Leong, L. T. (2016). Assessing the Use of Failure Case Studies in Civil Engineering Education. *Matec Web of Conferences*. <https://doi.org/10.1051/matecconf/20164704009>
- García, R. S. B., Borjas, L. G. R., Cruzata-Martínez, A., & Mancisidor, M. C. S. (2022). The Use of Augmented Reality in Latin-American Engineering Education: A Scoping Review. *Eurasia Journal of Mathematics, Science and Technology Education*, 18(1). <https://doi.org/10.29333/EJMSTE/11485>
- Ha, K. M. (2018). Korean civil engineers: handling of natural disaster management and its implication. *Water and Environment Journal*, 32(1). <https://doi.org/10.1111/wej.12287>

Keku, D., Paige, F., Shealy, T., & Godwin, A. (2021). Recognizing Differences in Underrepresented Civil Engineering Students' Career Satisfaction Expectations and College Experiences. *Journal of Management in Engineering*, 37(4). [https://doi.org/10.1061/\(asce\)me.1943-5479.0000902](https://doi.org/10.1061/(asce)me.1943-5479.0000902)

Klaufus, C., van Lindert, P., van Noorloos, F., & Steel, G. (2017). All-inclusiveness versus exclusion: Urban project development in Latin America and Africa. *Sustainability (Switzerland)*, 9(11). <https://doi.org/10.3390/su9112038>

Leong, L. T., & Elleithy, W. (2016). Impact of past project on the educational experience of civil engineering students. *MATEC Web of Conferences*, 47. <https://doi.org/10.1051/mateconf/20164704010>

Lilian, A. (2022). Factors Affecting Workforce Turnover Among Engineers in Klang Valley. https://doi.org/10.2991/978-94-6463-080-0_29

Mares-Nasarre, P. (2023). Analyzing Sustainability Awareness and Professional Ethics of Civil Engineering Bachelor's Degree Students. *Sustainability*. <https://doi.org/10.3390/su15076263>

McComb, C., & Tehrani, F. M. (2014). Research and practice group methodology: A case study in student success.

Morgan, J., & Buice, M. (2013). Latin American attitudes toward women in politics: The influence of elite cues, female advancement, and individual characteristics. *American Political Science Review*, 107(4). <https://doi.org/10.1017/S0003055413000385>

Nakamura, A. (2022). Fostering Diversity and Inclusion and Understanding Implicit Bias in Undergraduate Chemical Education. *Journal of Chemical Education*, 99(1). <https://doi.org/10.1021/acs.jchemed.1c00422>

Plitmann, Y. (2022). Authentic Compliance with a Symbolic Legal Standard? How Critical Race Theory Can Change Institutional Studies on Diversity in the Workplace. In *Law and Social Inquiry* (Vol. 47, Issue 1). <https://doi.org/10.1017/lsi.2021.38>

Porath, C. L., Gerbasi, A., & Schorch, S. L. (2015). The effects of civility on advice, leadership, and performance. *Journal of Applied Psychology*, 100(5). <https://doi.org/10.1037/apl0000016>

Restrepo Sanín, J. (2022). Criminalizing Violence against Women in Politics: Innovation, Diffusion, and Transformation. *Politics and Gender*, 18(1). <https://doi.org/10.1017/S1743923X20000173>

Schwindt-Bayer, L. (2016). WOMEN'S REPRESENTATION AND DEMOCRATIC CONSOLIDATION IN LATIN AMERICA. *E-Legis - Revista Eletrônica Do Programa de Pós-Graduação Da Câmara Dos Deputados*, 9(19). <https://doi.org/10.51206/e-legis.v9i19.284>


Shi, C., Zhang, J., Zhang, J., Shao, F., Zhang, Y., & Zhang, M. (2021). Experimental Study and Numerical Analysis on Impact Resistance of Civil Air Defense Engineering Shear Wall. *Advances in Civil Engineering*, 2021. <https://doi.org/10.1155/2021/7376909>

Trigos-Carrillo, L. (2019). A critical sociocultural perspective on academic literacies in Latin America. *Ikala*, 24(1). <https://doi.org/10.17533/UDEA.IKALA.V24N01A10>

Vandenberghe, J. (2021). How professional engineers can contribute to attraction and retention of minority groups into the engineering profession through equity, diversity, inclusion, and decolonization efforts. *Canadian Journal of Chemical Engineering*, 99(10). <https://doi.org/10.1002/cjce.24151>

Vogt, M. (2016). A new dawn? Indigenous movements and ethnic inclusion in Latin America. *International Studies Quarterly*, 60(4). <https://doi.org/10.1093/isq/sqw020>

Zallio, M., & Clarkson, P. J. (2021). On inclusion, diversity, equity, and accessibility in civil engineering and architectural design. A review of assessment tools. *Proceedings of the Design Society*, 1. <https://doi.org/10.1017/pds.2021.491>

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