Sociological Barriers to Latina Youth Attaining a STEAM Education

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The educational system in the United States is both segregated and unevenly balanced among different economic and racial/ethnic groups (Horn, 2016). STEAM is a transdisciplinary and skills-based educational paradigm that integrates science, technology, engineering, art, and math (Belbase et al., 2021). This approach cuts across disciplines to promote multidisciplinary work, problem solving, and thinking that is innovative and creative (Madden et al., 2013). Furthermore, a core feature of the STEAM educational paradigm is its emphasis on the promotion of educational equity and of overcoming the power structures that oppress minority gender and racial/ethnic groups (Woodward et al., 2020). Despite this emphasis, minority students continue to be alienated from educational opportunities, including STEAM educational programs (Woodward et al., 2020). One of the most underrepresented groups of students in science and math programs are Latinx students (Ed.gov, 2014). Although Latinx students constitute the largest minority group within public schools in the United States, they score lower, on average, than the national averages on math and science standardized testing (Ed.gov, 2014). This problem may be even worse for low income Latina youth. Low income Latina youth may face sociological barriers to achieving a STEAM education because of their gender minority status, as well as their ethnic and economic statuses. This paper argues that economic, ethnic stereotype, and gender stereotype sociological barriers prevent low-income Latina youth from achieving a STEAM education.

From the perspective of the field of sociology, people become "trapped" and are impeded from becoming successful in society because of "changes in the very structure of [...] societies" (Mills, 1959). Three research questions guided this paper: (1) What are the economic barriers that keep low-income Latina youth from achieving a STEAM education?; (2) What are the ethnic

stereotype barriers that keep low-income Latina youth from achieving a STEAM education?; and (3) What are the gender stereotype barriers that keep low income Latina youth from achieving a STEAM education? The paper concludes with a recommended pathway of change that can help low-income Latina youth achieve a STEAM education.

A review and analysis of conflict theory and existing peer-reviewed articles is the methodological approach that will be used. This paper will review literature relevant to this study topic and analyze conclusions that can be drawn about sociological barriers that keep low-income Latina youth from achieving a STEAM education. The hypothesis of this paper is that economic, ethnic stereotype, and gender stereotype sociological barriers prevent Latina youth from achieving a STEAM education. Conceptually, the independent variables in this paper are the economic, ethnic stereotype, and gender stereotype barriers, and the dependent variable is the attainment of a STEAM education. The target population for this study is low-income Latina youth.

Conflict Theory

Conflict theory provides insight about why low-income Latina youth may face sociological barriers that prevent them from achieving a STEAM education. The underrepresentation of Latina youth in STEAM educational programs can be considered from the perspective of conflict theory. Conflict theory is a social theory whereby different groups within society interact through conflict instead of cooperation because of conflicting interests (Knapp, 1994). According to sociologist DuBois, conflict can be seen as "the 'higher' against the 'lower' races" in some situations (1903). Through this conflict, a small upper-class group maintains privileged status by exerting wealth, power, and prestige; whereas individuals of minority status are often oppressed and excluded from these same opportunities.

An analysis of conflict theory (Knapp, 1994) demonstrates that low income Latina youth are prevented from achieving a STEAM education because they have three minority statuses: economic, ethnic minority, and gender minority. Consistent with conflict theory, the current paper analyzes the existence of direct conflict between the achievement of a STEAM education on the part of Latina youth with the goals of upper-class groups. Since upper-class groups want privileged educational opportunities to remain available only to elite members, Latina youth are barred from achieving a STEAM education. Therefore, conflict theory provides a theoretical lens through which to understand the sociological structure of the conflicts between the interests of the majority versus the minority classes that are in place to prohibit low-income Latina youth from procuring a STEAM education. The next three sections of this paper review economic, ethnic stereotype, and gender stereotype barriers that Latina youth face when trying to attain a STEAM education.

Economic Barriers

The first research question of this paper examines the economic barriers that prevent low-income Latina youth from achieving a STEAM education. A review of the literature demonstrates that low-income students do not have the same educational opportunities as students of higher income status. Research demonstrates that minority students typically matriculate at the lowest income schools (Horn, 2016). As a result, low income students are denied the high-quality teachers, resources, learning modules, and cutting-edge pedagogies provided to higher income students (Horn, 2016). Low-income students are oppressed because they are often required to work after school to earn income and/or care for younger siblings at home (McKillip & Luhm, 2020). Low-income students are also often denied a high-quality

education because of housing and food instability. Lack of proper housing and nutrition make it more difficult for students to focus and concentrate at school (McKillip & Luhm, 2020).

An analysis of the aforementioned literature indicates that social structures which are in place foster educational segregation based on income status. These social structures are unbalanced and distribute more educational opportunities to high-income students and less to low-income students. This analysis is relevant for understanding how low-income Latina students are alienated from achieving a STEAM education. Based on the reviewed literature, low-income Latina students do not have the same opportunities to attain a STEAM education because they often matriculate from the poorest schools, are denied cutting-edge educational opportunities, and spend after-school hours caring for younger siblings and earning essential income. As such, it is possible to conclude from the literature that low-income Latina youth face economic barriers in society that prevent them from achieving a STEAM education.

Ethnic Stereotype Barriers

The second research question of this paper examines the ethnic stereotype barriers that prevent low-income Latina youth from achieving a STEAM education. A review of the literature demonstrates the existence of pervasive ethnic stereotypes in society against the ethnic minority group of the Latinx population. The media, including the news and social media, represents a large societal power structure which perpetuates stereotypes about the Latinx population (Akines, 2015). The news media represents Latinx groups as illegal immigrants and criminals. Social media portrays Latinx groups as lazy, second-class citizens (Akines, 2015). These stereotypes, in turn, cause members of the ethnic minority to view themselves as undeserving of opportunities.

An analysis of the literature about ethnic stereotyping suggests that the media perpetuates strong social norms which negatively stereotype members of the Latinx population. If the social norm is to regard Latina youth as lazy, second-class citizens, and illegal immigrants, then members of the upper class may regard them as undeserving of a STEAM education or as lacking in the intellectual and motivational skills required for a STEAM education. Therefore, the analysis in this paper suggests that there is evidence for the second research question because of the ethnic stereotypes in place that keep low-income Latina youth from achieving a STEAM education.

Gender Stereotype Barriers

The third research question of this paper examines the gender stereotype barriers that prevent low-income Latina youth from achieving a STEAM education. A review of the research on gender stereotyping indicates that men outnumber women significantly in science and engineering jobs (Wajngurt & Sloan, 2019). Part of this gender bias is due to pervasive gender stereotyping in society, including the unbalanced gender roles of male and female students. That is, girls are typically socialized to believe that their sex is less proficient at math and science than boys (Tomasetto et al., 2011). These gender roles have negative effects on female students' gender identities because they may perform worse on math tests when they are primed to consider the stereotype that boys are better at math than girls (Tomasetto et al., 2011). Gender discrimination occurs when girls are socialized to believe that they are inferior in math and science compared to boys, which may cause them to perform worse in these subject areas. Specifically, girls are being actively discouraged from achievement in these subject areas because of the gender stereotypes they face about their lack of abilities simply because they are female. The second-class status of female students is reinforced by male peers. According to

Wade (2021), female college students are negatively stereotyped if they are not willing to party, drink, and hook up with guys who are interested in them. Females are also coerced into participating in undesired hook ups. This study demonstrates the second-class status of female students.

An analysis of the literature suggests that pervasive gender stereotyping of low-income Latina youth creates a barrier to their achievement of a STEAM education. Latina students are socialized to believe that they are inferior to Latino students in math and science. Therefore, evidence exists for the third research question that low-income Latina youth face gender stereotyping barriers that prohibit them from achieving a STEAM education.

The research reviewed and analyzed in this paper provides support for all three research questions. That is, evidence exists that low-income Latina youth face economic, ethnic stereotyping, and gender stereotyping sociological barriers to attaining a STEAM education. The analysis conducted in this study raised additional questions that need to be explored in future research projects, including mechanisms for dissolving negative stereotypes, the detrimental effect on society of untapped potential of Latinx students, and the detrimental effect on Latinx youth which limited access to STEAM education engenders.

Conclusion

Social structures are in place that prevent low-income Latina youth from achieving a STEAM education. These social structures include economic, ethnic stereotyping, and gender stereotyping barriers. It is recommended that pathways to overcome these barriers are provided to Latina youth. One possible pathway is an afterschool educational outreach program that teaches STEAM to low-income Latina youth. Such a program could teach STEAM to Latina students and provide counseling to reduce the negative impact of stereotypes.

References

Akines, A. L. (2015). Hispanic representations on media platforms: Perspectives and stereotypes in the meme, television, film, and on YouTube. https://digital.library.txstate.edu/bitstream/handle/10877/5741/AKINES-THESIS2015.pdf?sequence=1

Belbase, S., Mainali, B. R., Kasemsukpipat, W., Tairab, H., Gochoo, M., & Jarrah, A. (2021). At the dawn of science, technology, engineering, arts, and mathematics (STEAM) education: prospects, priorities, processes, and problems. *International Journal of Mathematical Education in Science and Technology*, 1-37.

Du Bois, W. E. B. (1903). The souls of black folk. A. C. McClurg.

Ed.gov (2014). *Hispanics and STEM education*. https://www2.ed.gov/about/inits/list/hispanic-initiative/stem-factsheet.pdf

Horn, C. B. (2016). *Level up learning lab: STEAM education for low-income schools* (Unpublished thesis). Texas State University, San Marcos, Texas.

Knapp, P. (1994). *One World – Many Worlds: Contemporary Sociological Theory* (2nd Ed.). Harpercollins College Div, pp. 228–246

Madden, M. E., Baxter, M., Beauchamp, H., Bouchard, K., Habermas, D., Huff, M., ... & Plague, G. (2013). Rethinking STEM education: An interdisciplinary STEAM curriculum. *Procedia Computer Science*, *20*, 541-546.

McKillip, M., & Luhm, T. (2020). Investing additional resources in schools serving low-income students. *Education Law Center.* https://edlawcenter.org/assets/files/pdfs/publications/Investing_in_Students_Policy_Bri.pdf

Mills, C. W. (1959). The sociological imagination. Oxford university press.

Tomasetto, C., Alparone, F. R., & Cadinu, M. (2011). Girls' math performance under stereotype threat: The moderating role of mothers' gender stereotypes. *Developmental psychology*, *47*(4), 943.

Wade, L. (2021). Doing casual sex: A sexual fields approach to the emotional force of hookup culture. *Social Problems*, *68*(1), 185-201.

Wajnert, C., & Sloan, P. J. (2019). *Overcoming gender bias in STEM: The effect of adding the arts (STEAM)*. https://files.eric.ed.gov/fulltext/EJ1222869.pdf

Woodard, R., Mencher, J. N., Olivares, M., Smith, B. E., Stornaiuolo, A., Sult, L., ... & Wen, W. *Principles for Equity-centered Design of STEAM Learning-through-Making*.