Working on an Interdisciplinary Team to Address the Transportation Experiences of Environmental Justice Populations

Vivian J. Miller[2], Erin Roark Murphy[2], DeAndrea Kelley[2], Zia Rahman[1], Saeed Reza[1], & Meena Balasubramanian[1]

University of Texas at Arlington, [1]College of Engineering & [2]School of Social Work

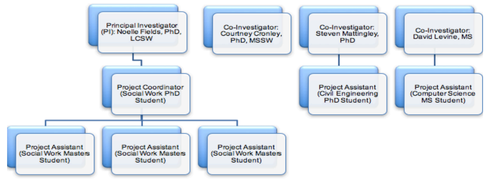
Abstract

This poster reports on student experiences working as part of an interdisciplinary (ID) team to design a mobile-device app, **MyAmble,** which qualitatively and quantitatively captures data regarding the impact of transportation disadvantage on the lived experiences of two environmental-justice (EJ) populations: older adults and mothers experiencing homelessness. A team of 6 students from Civil Engineering (CE), Social Work (SW), and Computer Science (CS) collaborated on the process of storyboarding the app development and then building it. Findings from this case study have important implications for interdisciplinary research, including challenging students and faculty to expand their knowledge base beyond the traditional confines of their respective disciplines, encouraging critical and creative thinking skills, and harnessing technology for the greater social good.

Introduction

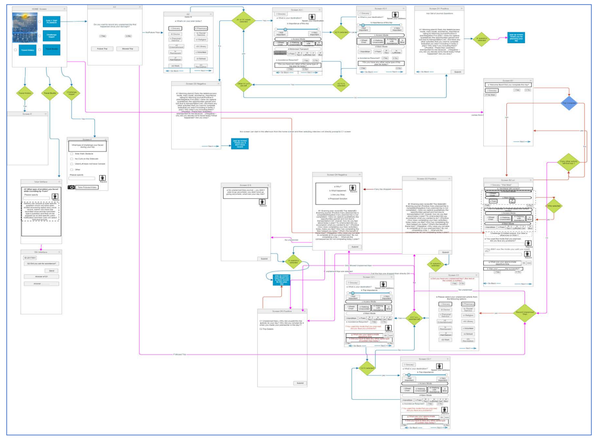
This case study describes an innovative interdisciplinary collaboration among SW and engineering faculty and students. SW and Engineering may appear to be an unlikely partnership, but they share a mutual interest in improving the lives of others (Gilbert, 2014). Students assumed active roles in the development and creation of an app, **MyAmble**, for use with a tablet device that will capture qualitative and quantitative data regarding transportation disadvantage among vulnerable populations in North Central Texas. We describe the process of leveraging cross-disciplinary collaborative efforts to solve a social problem, aimed to improve and advance long and productive lives among two transportation disadvantaged groups: older adults and mothers experiencing homelessness.

Team Organization and Assignments



The team began meeting weekly in Aug. 2016, led the Principal Investigator (PI) and co-PIs in SW and CE. CE and SW members collaborated on storyboarding the initial development of the app, including design, layout, and content. SW team members developed the interview questions for study participants along the domains of social exclusion; CE team members embedded these ideas into an app flowchart (see below).

MyAmble Flowchart



The Final App – "MyAmble"

Figure 1 –**MyAmble** App Icon

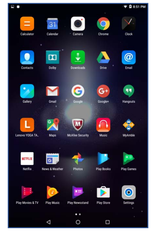


Figure 2 – Main Screen of **MyAmble** App Icon

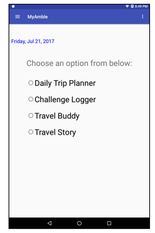


Figure 3 – **MyAmble**

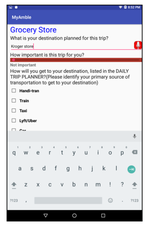


Figure 4 – Details of Selected Trip Screen

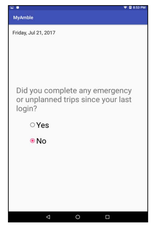


Figure 5 – Unplanned or Emergency Trip Screen

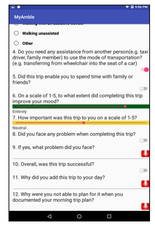


Figure 6 – Trip Review Screen

Discussion

(Left) *Image 1* – Older adult using a wheelchair requiring assistance to transfer onto the handi-tran

(Right) *Image 2* – Women who are homeless with dependent children utilizing public transportation

Conclusions

SW and CE team members participating in this project were challenged to explore new methodologies and paradigms for research, working towards improving the lives for transportation disadvantaged older adults and mothers experiencing homelessness in Northeast Texas. Ongoing weekly student GRA work-meetings served as best practice while developing the mobile device app, and served as an opportunity to collaborate for preparation in ID work in our growing fields of profession, respectively. ID work allows us to meet students in varying disciplines, and has contributed to an expansion of our areas of interest and knowledge base. Finally, ID work allows us students to understand many ways of tackling issues of social justice, where working independently can present a barrier to helping EJ populations.

Acknowledgments

Graduate Research Assistant (GRAs) students involved in this project would like to recognize and extend our great appreciation for Drs. Fields, Mattingly, Cronley, and Mr. Levine, supervising professors on this project. This project was supported with funding from the Transportation Research Center for Livable Communities and the North Central Texas Council of Governments.

References

American Academy of Social Work and Social Welfare. (2017). *12 challenges*, Grand challenges for social work. Retrieved from http://aaswsw.org/grand-challenges-initiative/12-challenges/

Geerts, R. (2013). Dialogue on sustainable development as part of engineering education: The relevance of the Finnish case: Commentary on "A National Collaboration Process: Finnish Engineering Education for the Benefit of People and Environment". *Science and Engineering Ethics, 19*(4), 1571-1576.

Gilbert, D. (2014). Social work and engineering collaboration: Forging innovative global community development education. *Journal of Social Work Education, 50*, 292-304.

Mack, J. (2016). *Social exlusion.* Poverty and social exclusion. Retrieved from http://www.poverty.ac.uk/definitions- poverty/social-exclusion

National Association of Social Workers [NASW]. (2008). *Code of ethics.* National Association of Social Workers. Retrieved from https://www.socialworkers.org/pubs/code/default.asp

Contact Information

Vivian J. Miller, LMSW, PhD Student, GRA
Vivian.miller@mavs.uta.edu
211 South Cooper Street
Arlington, TX 76019
https://mentis.uta.edu/explore/profile/vivian+-miller