Measuring effectiveness of chatbot to change gender attitudes in underserved adolescent children in India

Background: India slipped 28 places to rank 140th among 156 countries in the World Economic Forum's Global Gender Gap Report 2021. In India, gender discrimination starts at an early age and deprives adolescents of their life potential due to incomplete schooling, early marriage, intimate partner violence/sexual abuse, bullying and other issues more so in underserved communities. Our analysis of existing interventions highlighted two important factors that impeded long lasting impact - focus group of intervention (mostly girls) and nature of intervention (in-person). Interventions focusing only on girls inadvertently put the onus on girls to be agents of change. Boys too feel the effect of patriarchy, and it is imperative that we educate both groups so that they can empower each other to break the chain of patriarchy. In-person interventions are difficult to scale, especially in a covid-ravaged world. More than 80 million underserved adolescent children in India have access to the internet and there is potential for a scalable technology solution to reduce gender inequality.

Our solution: WeUnlearn has developed a new scalable technology solution – Wulu – to reduce gender gap by building awareness on priority issues and inculcating relevant skills in underserved adolescents in India. Wulu's chatbot architecture is AI driven and uses data analytics to deliver content based on priority issues for the adolescent. The learning pathway starts at the adolescent's current awareness and skill level and then takes them on a guided journey of building and strengthening the same. To understand priority issues, our team conducted extensive field visits and spoke to more than 200 adolescent children. We developed a three-pronged model for impact - Awareness, Skilling and Role Play. While awareness empowers the adolescent to label and unpack the gender-based discrimination they face, skills help them act on this awareness. We developed a curriculum deeply rooted in developmental, cognitive and behavioral psychology to address the priority issues. We designed and tested multiple prototypes of Wulu last year and improved it based on learnings from previous pilots. For the research project we decided to deliver content through automated messages via Whatsapp. The content consists of short videos everyday followed by few questions to gain understanding of the content.

Research Methodology: We wanted to check the effectiveness of Wulu in changing gender attitudes in adolescent children in this project. We deployed a 2-week intervention to test 2 modules of Wulu - gender stereotypes and bullying. We conducted a Randomized Control Trial (RCT) with a total sample of 1200 children (700 treatment, 500 control) between 14-18 years of age in urban poor areas of Delhi. We partnered with an NGO providing vocational education to these children with branches across Delhi. The children were randomly selected and distributed in treatment and control groups. We randomized the sample by branch instead of by individual to avoid spillovers. The children in the treatment group received the full 2-week intervention whereas the control group did not. We designed an evaluation questionnaire by studying GEMS[1] model and consulting with experts and deployed the baseline and endline in both treatment and control groups via Wulu itself. 368 children from treatment and 284 from control completed the surveys. We also conducted focused group discussions with ~20 children to get their feedback.

Results and Discussions: We ensured that both treatment and control are balanced. For both the groups, the median age of child was 17 and the male female ratio was similar (53% girls and 47% boys in treatment and 52% girls and 48% boys in control). For both the groups almost half of the children had fathers with low education levels (less than high school). Results show that children whose mothers have had higher education (high school and above) showed greater change than children whose mother did not have high school education.

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[1] Gender Equity Movement in Schools (GEMS) was a program rolled out in 2008 in public schools in Mumbai to promote gender equality by encouraging equal relationships between girls and boys, examining the social norms that define men's and women's roles, and questioning the use of violence.

Within just 2 weeks, we saw a positive shift in gender attitudes in the treatment group. The changes were significant in attitudes involving gender stereotypes on education, sports, profession, roles at home. There was also a positive shift in understanding and dealing with bullying and body shaming. The change in attitude was higher in girls than boys, especially on questions regarding male involvement at household level.

The focus group

Percentage point change in gender attitudes

***DiD p values < 0.001,
** p value < 0.05
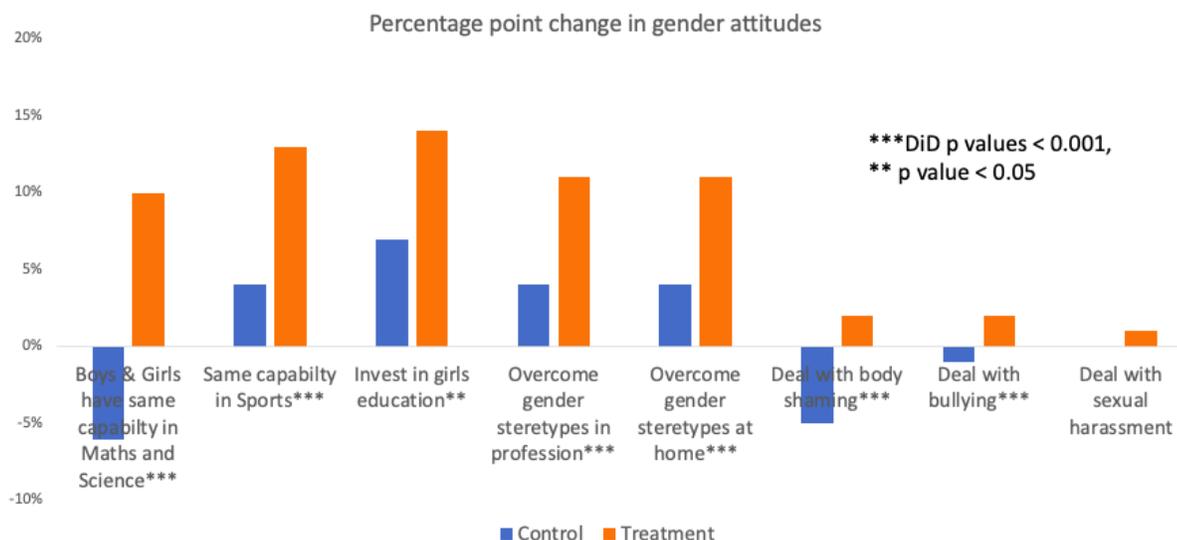
discussions also revealed the efficacy of our content on bullying. During one of the FGDs an adolescent voiced *"thank you for making videos on topics that are so common, but no one is talking about"*. Adolescents reported that the videos helped them understand how they were participating in bullying and the extent of negative impact it could have. This pilot only focused on building awareness. Despite that, the adolescents spoke about changing their behavior for the better. This motivates us to further develop this chatbot to actively address behavior change. Children appreciated the design and delivery of the content – they found it comfortable they the videos were short, only 10-15 minutes a day which was manageable. They also shared their eagerness to implement the learnings from Wulu in their daily lives.

In terms of development areas, children shared that there was ambiguity around the identity of Wulu and how it functioned. Some thought that it was a machine while some thought there was somebody at the backend sharing the responses. Children kept coming back to chat even after the day's content was over and they wanted to establish a personal relationship with Wulu. However, Wulu is yet to evolve to be able to respond to friendly messages and build a trusting relationship. There is also a need to understand more about what changes are required so that the content is more appealing to boys to be able to change their attitudes.

Conclusion: WeUnlearn's technology solution, Wulu, aims at reducing gender gap by building awareness on priority issues and inculcating relevant skills in underserved adolescents in India. An RCT was implemented to test Wulu's curriculum on bullying and gender stereotypes with a sample of around 1200 children in urban poor areas in Delhi. Results show statistically significant changes in attitudes concerning gender stereotypes and bullying. Girls responded more to the content than boys. Children with mother's education more than high school showed greater change than mothers with less than high school education. FGDs also reflected the effectiveness of content in changing attitudes. Going forward there is a need to further build the curriculum to include more pain points faced by adolescents to deliver socially responsible learning outcomes, make it inclusive of all genders, and also translate in multiple vernacular languages to effectively scale up.