Review Article

A review of gender and technologies: case of central Uganda

Abstract

Although different technologies are developed and used by both men and women, less has been done in the analysis of gender consideration during technology development. As economies reposition themselves to compete in the global economy, the gender gap in technology development and adoption has caught the attention of planners. When projects include gender sensitive components the ability to defend the interests of women and men can be increased. The objective of this paper is to develop a strategy of gender incorporation in technology development. A literature review of case studies was done. In conclusion, the development of technologies is generally not based on a comprehensive analysis of gender roles. Additionally, technology development projects do not offer equal participation of both genders during execution of technology development projects due to the fact that on addition to productive activities, women also dedicate some of their time to reproductive activities in their families.

Keywords: technology, gender, women, men

James Menya, Noble Banadda, Nicholas Kiggundu
Department of Agricultural and Bio systems Engineering, Makerere University, Uganda

Correspondence: Nicholas Kiggundu, Department of Agricultural and Bio systems Engineering, Makerere University, P. O. Box 7062, Kampala, Uganda, Email kiggund@caes.mak.ac.ug

Received: November 16, 2019 | **Published:** January 02, 2020

Introduction

Technology refers to simple tools in addition to complex products and processes.[1,2] Gender refers to roles, duties and prospects of girls and boys or men and women that are generated in families, societies, cultures as well as the expectations detained about the features, abilities and likely behaviours of both women and men.[3–5] For example, the expectation of men to be heads of families and women to be caregivers is a sexual role norm in central Uganda. In addition, women in central Uganda are not expected to ride bicycles. Sex conversely refers to organic differences amid men and women,[6,7] stipulates that an individual is a male or female regardless of race, class or age. In his study,[8] states that there is increasing recognition that society is characterised by a male bias, where the male norm is taken as the norm for society all together, which is imitated in policies and structures. Consequently, male supremacy and female relegation is found in greatest scopes of life, technology development and use inclusive, and the tasks, roles, functions and values attributed to men are usually extra valued compared to those related to women.

Relative to other issues of women in development, issues of gender in science plus technology are newcomers to the international stage.[8] Technology significantly promotes long-term economic growth, and in building a base for a science-based knowledge society,[9] state that the most gain will come from delivering technologies in developing countries. In my opinion however, delivering technologies in developing countries alone may not be enough, the technologies delivered should be economically reachable and willingly dispersed. For years, scientific and technological progressions have helped farmers in the industrial biosphere by driving agriculture production. However, smallholder farmers who are mostly women, have no right of entry to most of the tools required to be successful, like up-to-date irrigation methods, crop management products, manures, postharvest loss way out, better seeds, movable technology, and access to information and extension services.[10] The potential to advance women economically may be the most exciting transformative feature of technology.[11] If women are economically backward, they may not have the financial ability to acquire and use technologies for their activities. This may be due to the fact that little is recognized about gender variances in terms of resource access, ownership and use during introduction and adoption of technologies that improve productivity. Despite the fact that women tend to adopt improved technologies at a lower rate paralleled to men,[12,13] research on technology, together with social shaping research, has been 'gender-blind',[14,15] hence failing to address such problems. In my view, studies on technology adoption rates and use should be undertaken such that findings are used to develop gender specific technologies. Additionally, the virtual prohibiting of women from greatest areas of technological research and design, and the fact that it is chiefly men who make improved technology are mainly ignored. The objective of this paper is to develop a strategy of gender incorporation in technology development.

A literature review of case studies

Gender analysis

Gender analysis is an orderly logical procedure for recognizing, comprehending, and labeling gender variances and the significance of gender characters and power changing aspects in a specific context.[16] It involves the assortment and usage of sex-disaggregated data that reveal the roles and tasks of women and men.[8] Gender analysis aids in understanding the associations between men and women. When gender analysis id done, associations like which gender does which activity and what technology requirements do they need is easily identified. Weighing the relationship makes it promising to determine men's and women's constraints and opportunities. Furthermore,[16] states that gender analysis aids to better understand the opportunities/problems in the community and plan involvements which are useful to both women and men. It helps to uncover obstructions to women's full participation and economic development. It also guides in decision

Conclusions

In conclusion, the development of technologies is generally not based on a comprehensive analysis of gender roles. Additionally, technology development projects do not offer equal participation of both genders during execution of technology development projects. Inequalities in participation of both genders during technology development projects may be due to the fact that on addition to productive activities, women also dedicate some of their time to reproductive activities in their families.

Acknowledgements

None.

Conflicts of interest

The author declares that there is no conflict of interest.

Funding details

None.

References

1. DAW. Gender, science and technology. Report of the expert group meeting, 2010.

2. Perrow C. A framework for the comparative analysis of organizations. *American Sociological Review*. 1967;32(2):194–208.

3. FHI. Gender Integration Framework. How to integrate gender in every aspect of our work. 2012.

4. UNESCO. UNESCO's Gender Mainstraming Implementation Framework for 2002-2007. 2003.

5. Annandale E, Clarke J. What is Gender? Feminist theory and the sociology of human reproduction. *Sociology of Health and Illness*. 1996;18(1):17–44.

6. Deaux K, Emswiller T. Explanations of successful performance on sex-linked tasks: What is skill for the male is luck for the female. *Journal of Personality and Social Psychology*. 1974;29(1):80.

7. Odebode SO. Gender issues in Agricultural Extension and Rural Development in Nigeria, Rural Development. In DR Solagberu, editor. *Contemporary issues and Practices (Adisa)*. 2012.

8. McGregor EA. Gender Mainstreaming in science and technology. United Kingdom: Commonwealth secretariat. 2001.

9. Tester M, Langridge P. Brreding technologies to increase crop production in a changing world. *Science*. 2010;327(5967):818–822.

10. DUPONT. The advisory committee on agricultural innovation and productivity for the 21st century, The role of technology in agriculture. 2012.

11. Gill K, Brooks K, McDougall J, et al. Bridging the gender divide: How technology can advance women economically. 2010.

12. Doss C, Morris M. How does gender affect the adoption of agricultural innovations? 2000.

13. Doss C. Designing agricultural technology for African women farmers: Lessons from 25 years of experience. *World Development*. 2001;29(12):2075–2092.

14. Lift S. Gender and information technology: Current research priorities, strengths, gaps and opportunities. In Second PICT Workshop on Gender and IT, 1989.

15. William R, Edge D. The social shaping of technology. *Research Policy*. 1996;25(6):865–899.

16. Biruktayet A, Nina de R. Manual on Gender Analysis Tools. Capacity Building for Scaling-up of Evidence-based Best Practices in Agricultural Production in Ethiopia, 2015. p. 3–30.

17. Heilman ME. Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of Social Issues*. 2001;57(4):657–674.

18. Acker J. Inequality regimes: Gender, class and race in organizations. *Gender and Society*. 2006;20(4):441–464.

19. Cabrera N, Tamis LeMonda CS, Bradley RH, et al. Fatherhood in the twenty-first century. *Child Development*. 2000;71(1):126–136.

20. Gefen D, Straub DW. Gender differences in the perception and use of e-mail: An extension to the technology acceptance model. *MIS Quarterly*. 1997;21(4):389–400.

21. Morris MG, Venkatesh V, Ackerman PL. Gender and age differences in employee decisions about new technology: An extension to the theory of planned behaviour. *IEEE Transactions on Engineering Management*. 2005;52(1):69–84.

22. Henwood F. Establishing gender perspectives on information technology: problems, issues and opportunities. 1993. p. 31–49.

23. Rathgeber EM. WID, WAD, GAD: Trends in research and practice. The Journal of Developing Areas. 1990;24(4):489–502.

24. Maleko J. Mainstreaming gender in to trade and development strategies: The case of East Africa. UN. 2008.

25. Gender Tool Box. Gender and ICT swedish international development cooperation agency 2015;3(15).

26. Moser C. Gender planning and development: Theory, Practice and training. *Routledge*. 2012.

27. Swedish Secretariat for Gender Research. Guidelines for Gender Mainstreaming in Academia, 2016.

28. Sandercock L, Forsyth A. A gender agenda: New directions for planning theory. *Journal of Educational Computing Research*. 1992;58(1):49–59.

29. Damyanovic D, Reinwald F, Weikmann A. Gender Mainstreaming in Urban Planning and Urban Development. *Urban Development Vienna*. 2013.

30. Vekiri I, Chronaki A. Gender issues in technology use: Perceived social support, computer self-efficacy and value beliefs, and computer use beyond school. *Computers and Education*. 2008;51(3):1392–1404.

31. Reinen I, Plomp T. Information technology and gender equality: A contradiction in terminis? *Computers and Education*. 1997;28(2):65–78.

32. Kirk D. Gender Issuea in Information Technology as Found in Schools: Authentic/Synthetic/Fantastic?. *Educational Technology Publications, Inc*. 1992;32(4).

33. Wajcman J. Reflections on gender and technology studies: In what state is the art? *Social Studies of Science*. 2000;30(3):447–464.

34. Rogers SC. Female forms of power and the myth of male dominance: A model of female/male interaction in peasant society. *American Ethnologist*. 1975;2(4):727–756.

35. Venkatesh V, Morris MG. Why don't men ever stop to ask for directions? Gender, socialinfluence and their role in technology acceptance and usage behaviour. *MIS quarterly*. 2000;24(1):115–139.

36. Weiser EB. Gender differences in Internet use patterns and Internet application preferences: A two-sample comparison. *Cyber Psychology and Behaviour*. 2000;3(2):167–178.

37. Ratchaneewan C, Nophea S, Issei A. Influencing Factors of the Adoption of Agricultural Irrigation Technologies and the Economic Returns: A case Study in Chaiyaphum Province, Thailand. *Mdpi*. 2017;9(9):1524.

38. Lubwama FB. Socio-economic and gender issues affecting the adoption of conservation tillage practices. 1999. p. 155-160.

39. Van Dijk J, Hacker K. The digital divide as a complex and dynamic phenomenon. *The Information Society*. 2003;19(4):315–326.

40. King EM, Hill MA. Women's education in developing countries: Barriers, benefits and policies, 1993.

41. United Nations Human Rights. Insecure land rights for women threaten progress on gender equality and sustainable development, 2017.

42. Doss, C. Women, Marriage and Asset Inheritence in Uganda, 2010.

43. Birungi OF, Oumar S, Danilo A, et al. Strengthening women's land rights and security of tenure for all on customary land settings. 2018.

44. Hafkin, Taggart N. Gender, information technology and developing countries: An analytic study. 2001. p. 42–48.

45. Cai Z, Fan X, Du J. Gender and attributes toward technology use: A meta-anlysis. *Computers and Education*. 2017;105:1–13.

46. Shashaani. Gender differences in computer attitudes and use among college students. *Journal of Educational Computing Research*. 1997;16(1):37–51.

47. Chen M. Gender and Computers: The Beneficial Effects of Experience on Attitudes. *Journal of Educational Computing Research*. 1986;2(3):265–282.