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Channels introducing life impacting small technologies for women in SNNPR: where are the media?

Pequeñas tecnologías que impactan en la vida de las mujeres en SNNPR: ¿dónde están los medios?

Abstract | This study was conducted in Southern Ethiopia to assess how life impacting technologies are transferred to women, what factors affect the transfer, and to find out the role of media in the process. The study employed household survey data collected from 11,476 households all over the region. The study adopted a women empowerment index and Roger's (1983, 2003) diffusion of innovations model. According to the findings, various factors are in play, and interpersonal and mediated channels are found to be important in transferring vital technology to women, albeit the role of the media is in short due to high women illiteracy. The media, however, need to strive to improve their contribution by creating culturally compatible programs using local radio stations that broadcast programs in respective local languages.
Keywords | media, life impacting technologies, women, SNNPRS.

Resumen | Este estudio se realizó en el sur de Etiopía para evaluar cómo las tecnologías que afectan la vida se transfieren a las mujeres, qué factores afectan la transferencia y para conocer el papel de los medios en el proceso. El estudio empleó datos de encuestas de 11,476 hogares en toda la región. El estudio adoptó un índice de empoderamiento de las mujeres y el modelo de difusión de innovaciones de Roger (1983, 2003). Según los hallazgos, varios factores están en juego, y los canales interpersonales y mediados son importantes para transferir tecnología vital a las mujeres, aunque el papel de los medios es limitado debido al alto analfabetismo de las mujeres. Sin embargo, los medios deben esforzarse por mejorar su contribución mediante la creación de programas culturalmente

Recibido: 15 de enero de 2018. Aceptado: 18 de junio de 2018.
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Dejene Lema, Melisew, Tafesse Matewos Karo. «Channels introducing life impacting small technologies for women in SNNPR: where are the media?» *Interdisciplina* 7, nº 17 (enero–abril 2019): 69-86.
DOI: http://dx.doi.org/10.22201/ceiich.24485705e.2019.17.67522

Volumen 7, número 17, (69-86), enero–abril 2019
DOI: http://dx.doi.org/10.22201/ceiich.24485705e.2019.17.67522

compatibles utilizando estaciones de radio locales que transmiten programas en los respectivos idiomas locales.
Palabras clave | medios, tecnologías que impactan en la vida, SNNPRS.

Introduction

THE ETHIOPIAN economy has not yet benefited what it should from its women, and women are not benefiting from it either though the government seem to be committed to enhance women empowerment by enacting different policy and legal instruments (see for example The FDRE Constitution (1995) for its provisions on Women rights, The National Policy of Ethiopian Women (1993), Education and Training Policy (1994), the Social Welfare Policy (1996)).

The Southern Nations Nationalities and Peoples Region (SNNPR) of Ethiopia is a region with its women population slightly over that of the population of men (50.26%) (SNNPR, BoFED 2015/15). The burden of work for rural women is high as they are usually engaged in manual food processing and family care duties (Almaz 2010). In response to the situation of women in the region, the Regional government formulated a Women Development and Change Package (2007-2012). The package which has been in effect for the last 5 years is holistic and ambitious in its intervention. One area of focus was empowering women to use technology in development efforts. The package in its preamble argues, "As it is impossible to bring sustainable development without involving women and without making them equal beneficiaries and participants of development programs with that of their male counterparts, working to that end needs to be a priority" (SNNPRG BoWCYA 20013, 1, *own translation*).

Question remains what are the determinants of women technology adoption and use? Which channels could be best employed to facilitate women's use of life impacting small technologies which contribute to their empowerment? What is the status of the media in this line?

This study is purposed to achieve two objectives: 1) to investigate factors, as perceived by women in SNNPR, determining the use or otherwise of life impacting small technologies for socioeconomic benefits; 2) to identify channels that are significant in introducing women to technological innovations (that appeal to their health and minimize their burden) so as to see the status of the media along this line.

Rationale

There are plenty of small lives impacting technologies that are vital for rural women to improve their lives. Some of them (like small fuel saving stoves) could

be accessible to women with a reasonably affordable price. Some others (line–sowing technology, for instance) could even save women's expenses for agricultural in puts, as they introduce economic use. Media should play a pivotal role in disseminating such technologies to poor rural women.

However, there are barriers that hinder the adoption of such life impacting small technologies which among others include religious and cultural factors. Therefore, religious and community social institutions should work on promoting those technologies and convince women and their families to adopt them. On the other hand, organizations and stakeholders working on introducing those technologies need to make them as simple and compatible (women friendly) as possible for easier adoption.

Majority of the rural women in the developing world in general and Ethiopia in particular are illiterate and have low media consumption behaviour. They, however, could attend radio as a medium so long as the content presented is appealing and understandable.

The current study which collected primary household data suggested that the media were not playing their role in introducing small but life impacting technologies to poor rural women. Hence, any project that aimed at harnessing the potential of women in promoting development as well as one that aimed to benefit them need to focus on using the media, preferably radio, appropriately.

It is also wise to give due attention to culturally and religiously compatible formats. The media may need to design programs in local languages so as to easily acquaint women with life impacting small technologies. Such programs could also consider sharing the life experiences of successful women who used such small technologies to improve their lives so as to facilitate a relatively higher reception.

Material and methods

Ethiopia is a country in East Africa located 9º 08' N, 40º 29' E with its population currently estimated to be 100 million which makes the nation the second most populous country in Africa next to Nigeria. The study area, the Southern Nations, Nationalities and Peoples Region (SNNPR) is one of the nine Regional States in Ethiopia situated between 4º 43' and 8º 58' north latitude and 34º 88' and 39º 14' east longitude. The population of SNNPR is projected to be 18,954,361 which accounts for about 20% of the population of Ethiopia (SNNPRS 2015/15). This study was part of a huge survey investigating into various issues on the situation of women in Southern Ethiopia (SNNPR). It adopted a crosssectional survey design to include all, 19, of the Zones and Special *Woredas* (Districts) in the region.

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Sampling for this research considered a range of empowerment indicators deduced from recent studies conducted in the study area and the country at large. For instance, the following set of women empowerment indicators were identified: autonomy and decision making index (69.1 %, Gete and Nigatu 2013), rate of women participation in education (64.3 %, CSA 2011), ownership of land/house (61%, CSA 2011), employment status (40.7 %, CSA 2011), violence index (42%, Gete and Nigatu 2013), exposure to media (62.2%, CSA 2011), Access to key health services (65%, CSA 2011). Assuming that the indicators do not vary across the nation, the sample size for the study was calculated employing Cochran (1977) formula, which goes:

$$n = \frac{Z^2_{1-a/2}\, p(1-p)}{d^2}$$

Where, n is the minimum sample size required
P– is the regional level women empowerment index = 53 % (computed by averaging the prevalence rates stated above)
d– is the margin of error tolerated = 5%
$Z^2_{1-a/2}$ is the standard normal variable at (1- α)% confidence level and is α = 5%

The estimated sample size, using the above formula yields 383 for each zone, and weighted by 1.5 (Cochrane 1977), in case of multistage sampling techniques gives us 575. We, then, add 5% contingency to get the final sample size of 604 households from each zone. This multiplied by 19 Zones and Special *Woredas* gives us a total sample size of 11,476 for the region. The households participated in this study were selected employing multistage sampling technique. About 5-10% *kebeles* (the lowest political administrative units) were selected from each *woreda*. Finally, participant households were randomly selected from the *kebele* roster. We then interviewed selected women at household level. At least one focus Group Discussion was also held in each Zone/special *Woreda/*. The data from the household survey was analyzed using SPSS version 20. The qualitative data was analyzed by using thematic categorization and used to supplement the findings of the survey.

Women, life impacting small technologies and the media

Women's contribution as a labour force in agriculture is not far behind men in most developing countries of the world. They constitute 43% and 50% of labour force engaged in agriculture in developing and African countries respectively. However, their productivity is lower compared with their male counterparts due to different factors. One of the responsible factors for lower productivity of

women is lack of access to improved technologies. In the field of agriculture, for instance, increasing access to technologies can improve the productivity of women by 20-30 % (Rathgeber 2011; Doss 2011).

Despite the role of the technologies to boost agricultural productivity of women, to reduce time spent on laborious activities, and to minimize climate induced long term impacts; most of the technologies introduced do not address gender differences and other economic and cultural contexts (Rathgeber 2011). Hence, women may not be interested in adopting new technologies because they may have different preferences to men. Therefore, it is important to develop varieties that meet women's specific preferences. The development of such technological varieties in line with women's preferences needs to be assisted by policy options too (Doss 2011).

It is assumed that women spend most of their income in household issues like improving the welfare of the family members than men do. This shows that introducing technologies that improve the productivity of women mean improving nutritional status of the households which has a multiplier effect on the overall economic status of the family (Quisumbing & Pandolfelli 2010). Technologies developed for rural women need to consider laborious activities carried out by them in the entire value chain system of production and marketing. Besides, the technologies need to be acceptable and affordable to the women. The media could play a crucial role in introducing vital technologies to women and in convincing them to use.

In their critical investigation into the Western Media, Byerly and Ross (2006) are of the opinion that the media, old and new, are to blame for gender biases both in their representations of women and in their content appealing to women. In an earlier work with a similar subject matter that claimed an international focus, Ross and Byerly (2004) argued that women are being misrepresented and stereotyped, albeit the real world witnessed lots of advancement women exhibited in many walks of life. Chambers, Steiner and Fleming (2004) are of similar view when they argue the media are skewed to white men, while women and people of color are marginalized. Chambers, Steiner and Fleming (2004) suggest the whereabouts of the problem to be embedded in mainstream culture manifesting itself in the newsroom.

The other side of the argument for the lopsided content and misrepresentation of women in the media is said to be the women's absence in the newsroom and other vital positions in the journalism profession. The argument seems to hold water as "as one, who sets the tune, dictates the dance". However this, according to Byerly (2013), tells part of the story, as in Nordic countries like Finland where women journalists outnumber their men counterparts "gender troubles" are still there may be due to the patriarchal domination atop at managerial

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levels. The presence of the women as producers of media content facilitates the coverage of contents that benefit women audiences where contents of technological innovations are no exception

We argue when viewed as audiences being on the receptive end on the other hand, women's success as active and interactive audiences is a function of not only the productive end (where women are producers and gatekeepers of media agenda and content) but it also is the function of issues of the receptive end, their literacy among other things. In an African setting where women's illiteracy rate is very high, it is sensible to argue that women's ability and experience to interact with a media content destined to them is dwarfed due to such.

Franks (2013) argues "Journalism is changing, as is the role women in the workplace, but the two are not always evolving in harmony" (p. vii). The cultural demands on women to shoulder much of the domestic responsibility until to date could have ramifications on their work place responsibilities, especially when engaged in a very demanding role. At a global scale especially taking the Western countries as reference women "outnumber men in journalism training" and practice but few able to claim senior positions (Franks 2013).

The situation in Ethiopia is different where Journalism is a male–dominated practice. A study conducted some years ago suggested that women account for only 13.5% of the media personnel. Women enrollment in the Journalism profession is also scanty and the profile of the woman journalist is 'single' and 'well educated' who view the profession as a gateway to other professions (Mengistu 2007). Therefore, there may be an evident gap in the media addressing women issue as the need arises.

Determinants of technology adoption and use

Five factors are outlined as determinants of technology use and adoption by Everett Rogers, the guru in diffusion of innovations research. These are: *relative advantage*, *compatibility*, *complexity*, *traialability* and *observability* (Rogers 1983; 2003).

The notion of *relative advantage* pertinent to the adoption and use of a new technology or innovation is explainable in terms of the perception of its users comparing it to the already existing ones and getting it to be better to employ, weighed against economic benefits, convenience, social prestige and satisfaction. According to Rogers, "The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is going to be" (1983, 16).

The second factor discussed by Rogers (1983, 16) is *compatibility* of the innovation or technology with "the existing values, past experiences, and needs of

potential adopters." To be adopted and used by its beneficiaries, any innovation or technology needs to be consistent with the existing belief and value system the beneficiaries have subscribed to. The use of contraceptives among religious communities is cited as an example for the issue of compatibility.

The third factor in technology transfer is *complexity i.e.* to what extent the technology is easy to understand and use. The easier the technology could be learnt and the less skill it needs to that end, the faster its adoption rate is (*ibid.*).

Trialability is the other factor in technology adoption. A new technology and idea that gives an opportunity for its users to experiment and try, gets a better chance of adoption. For instance, if a new seed variety is piloted giving a chance for the users to experience it, there will be a better chance for that technology to be practiced. For Rogers "An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, as it is possible to learn by doing" (*ibid.*).

The last factor for technology adoption and use outlined by Everett Rogers (1983; 2003) is *observability*. Observability, according to him, is "the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt the innovation" (*ibid.*, 17). The 'visibility' of the new technology triggers discussion among community members stimulating a better adoption of that technology.

Cognizant of the diffusion model's indication of such factors that determine the adoption or use of an innovation, investigating into the determinants of technology adoption by women in a developing country setting and identifying channels better suited for technology transfer is worthwhile as contexts may vary from country to country.

Results and discussions

This section presents the sociodemographic characteristics of the women under study, media consumption behavior, technologies adopted and used, channels pertinent to transferring technologies, and determinants of technology adoption and use as perceived by the women under study.

Socio demographic characteristics of the study participants

As portrayed in table 1, 22.4% (n = 2,498) of the households are female–headed compared to that of male–headed households that account for 77.6% (n = 8,664). The majority of the study participants, 57.2% (n = 6,379) manage extended families that have 5 to over 15 members.

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Table 1. Socio demographic characteristics of the respondents.

Characteristics	N	%
Headship		
Female	2,498	22.4
Male	8,664	77.6
Family size		
Live alone	319	2.9
2-4	4,464	40.0
5-8	5,443	48.8
9-12	858	7.7
13-15	55	.5
above 15	23	.2
Age		
18-28	3,873	34.7
29-39	4176	37.4
40-50	2,243	20.1
51-60	664	5.9
Over 61 years	206	1.8
Education		
Illiterate	4,587	41.1
Practical oriented adult education	695	6.2
1-4 grade	1,709	15.3
grade 5-8	2,072	18.6
grade 9-10	1,139	10.2
Grade 11-12 (preparatory)	297	2.7
Technical and vocational diploma	466	4.2
Degree	187	1.7
Above degree	10	.1

Source: Household survey data, 2015.

Moreover, 72.1% (n = 8,049) of the respondents are at their very productive age, between 18 and 39. Regarding the educational status of the respondents, 41.1% (n = 4,587) identified themselves as illiterate. This figure is seconded by those who claimed the higher level of education they attended to be primary education from (grade 5 to 8), accounting for 18.6% (n = 2,072). Some 10.2% (n = 1,139) of the respondents claimed that they completed their secondary education, (grade 9-10).

Media consumption behavior of the Women under study

Media consumption behavior of adopters and prospective adopters of a new technology is a crucial aspect of possible technology transfer as the media, as channels of communication, have a substantial role to play.

Table 2. Respondents by their media consumption behavior, SNNPR, 2015 (n = 11,462).

Respondents by newspaper reading habits	N	%
Never read	8,968	80.3
Every fortnight	1,212	10.9
In less than one week	785	7.0
Everyday	197	1.8
Respondents by radio listening habits		
Never listen	6,224	55.8
Every fortnight	589	5.3
Once in less than a week	1,259	11.3
Everyday	3,090	27.7

Source: Household survey data, 2015.

The above table portrays that majority of the respondents of this study, 80.3% (n = 8,968) reported that they never listen to the radio, whereas 10.9% (n = 3,090) and 7.0% (n = 785) claimed that they listen to the radio every fortnight and once in less than a week, respectively. The proportion of the respondents who reported to read newspapers every day is just at 1.8% (n = 197).

When it comes to radio listening habits, 55.8% (n = 6,224) of the participants of the study reported that they 'never listen' to the radio, whereas 27.7% (n = 3,090) claimed to listen to the radio every day. Slightly above one in ten of the study participants, 11.3% (n = 1,259), listen to the radio once in less than a week. Above one in twenty, 5.3% (n = 589) of the respondents said that they listen to the radio once in less than a week and once in every fortnight, respectively. Media are found to be very crucial in creating awareness towards the new technology to be adopted or used (Rogers 1983; 1995). The findings of this study, however, suggested that majority of the women are not regular media consumers partly due to their literacy situation and more due to lack of access to the media.

Technologies used by women

Life impacting small technologies are crucial in the lives of women in SNNPR, for women are overburdened with household and farm chores. Previous studies conducted in southern Ethiopia suggest that women are engaged in manual and

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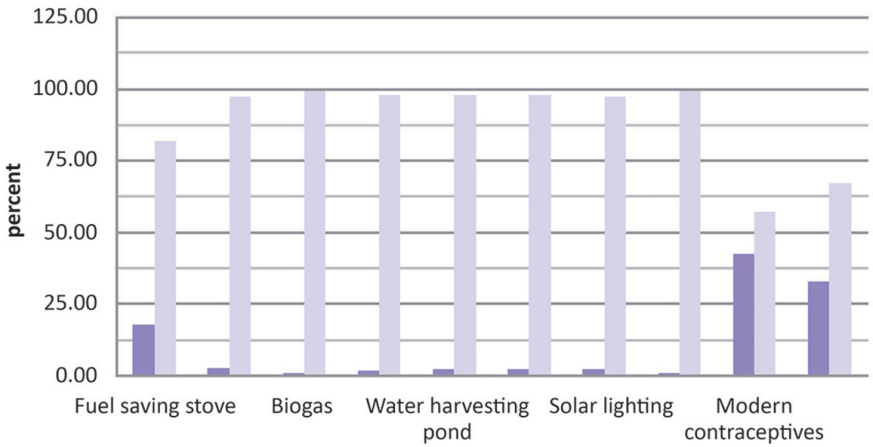
DOI: http://dx.doi.org/10.22201/ceiich.24485705e.2019.17.67522

labor intensive approaches to accomplish their life duties (see, for instance, Almaz 2010).

Figure 1. Respondents by the type of technology they use.



Source: Household survey data, 2015.

As depicted in figure 1, majority, 42.6 % (n = 4,753), of the women reported that they use modern contraceptives. The findings suggest that the proportion of women who are aware of family planning practices is encouragingly significant given that the figure is a cumulative result of both the urban and rural women population.

Nearly one in three, 33.0% (n = 3,680) of the study participants said that they employ improved seed varieties in their agricultural practices. This figure seems small in a country where the lion's share of the nation's population, i.e. about 85%, is agrarian. Those who reported to employ line–sowing technology in their agricultural practices amount to 32.8 (n = 3,660). This is encouraging as the government mobilization for the employment of line sowing technology is a short–lived experience. Surprisingly, however, only 2.5% (n = 280) of the study participants reported to use modern tiller. This suggests that the majority of the women are using traditional tiller with labor intensive agriculture which is just for subsistence. Most of the participants of this study are subsistence farmers as only 0.8% (n = 92) reported to use mechanized farming using tractors. Modern milk processing utility is reported to be used by just 0.9% (n = 103). The findings in most cases concur with that of Almaz (2010) which documented the case of women's mode of food processing in Badewacho area of Hadiya zone, SNNPRG, in that the majority of

women in the region are engaged in manual processing of food and other chores.

Another relatively good figure suggested by the findings is on the usage of fuel saving stove where 18% (n = 2,006) of the respondents claimed to use. However, the findings imply that majority of the women are still using traditional ways of cooking which concomitantly affects their health, waste their time and affect the environment in negative terms, for they resort mostly to using fire wood and animal manure (mainly in rural areas), which respectively result in deforestation and soil degradation (as manure is a good organic fertilizer). Use of biogas technology as an alternative for traditional fuels like fire wood and animal manure is not encouraging as only 0.6% of the respondents claimed so. Data from SNNPR Agency for Mines and Energy indicate that the agency is currently working in about 21 areas and strive to move forward. Apart from access, it is equally important to consider the issue of affordability as the cost of biogas technology may not be affordable to the majority of women in the region.

Only 2.3% (n = 257) of the respondents said they use solar lighting conveying there is a lot more to go especially to address the rural women. Another significantly small figure is the use of modern chicken cage 2.1% (n = 243). This figure may, on the other hand, be argued not as such small expecting that the proportion of those engaged in poultry farming may be so. Another small figure, 2.1% (n = 231), is the proportion of women who reported to use water harvesting ponds. This indicates, as most of the region's areas are dependent on seasonal rainfall, the agricultural practice for most of the participants of the study is of rain–fed type where harvest is mostly once in a year. This implies the need for a lot of hard work in mobilizing the public to use water harvesting ponds and engage in better productive farming destined to a food secure position. Just 1.8 (n = 206) reported to use modern beehives.

How do technologies diffuse to rural women?

Diffusion experts argue that there is no such thing as best media so far as diffusion and adoption of innovations are concerned. The *guru* in diffusion research Everett Rogers (1983; 1995) suggested that communication channels are one of the four important elements in the process of diffusion of innovations/technology. Any diffusion process needs: 1) an innovation; 2) an individual or other unit of adoption that has knowledge of, or experience with using, the innovation; 3) another individual or other unit that does not yet have knowledge of the innovation, and 4) a communication channel connecting the two units. In the case of this specific research *an innovation* refers to small life impacting technologies (that include fuel saving stoves, modern tiller, biogas, modern beehives, water harvesting pond, modern chicken cage, solar lighting, tractor, modern milk processor, modern contraceptives, line sowing technology and improved seed vari-

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eties), women in general and rural women specifically use to ease the burden of life they have to encounter on daily basis from household premises to farm and beyond. The individual or other unit of adoption that has knowledge of, or experience with using, the *innovation* represents government units responsible for disseminating the technology. The third party that represent *another individual or other unit that does not yet have knowledge of the innovation* stands for the women who are the subject of this specific study. A *communication channel connecting the two units* refers to the means (mass media, husband, family member, friends, *kebele* administration, Health extension workers, development agents and model farmers) by which the *innovation* reaches the women.

In Rogers' model, *communication channel* refers to "the means by which messages get from one individual to another" (Rogers 1983, 17). The channels could be mass media channels or interpersonal channels where the former are significant in creating awareness about the new innovation or technology and the latter in persuading users to adopt the new technology (*ibid*.). The idea that which of the channels —mediated or interpersonal— are more efficient, is subject to the awareness level of the potential adopters. That is to say media's ability to create awareness is determined by the capacity of the women as active and interactive audiences. Here comes the importance of education with the assumption that the more educated women are, the better the chance for them to discern the technological package destined to them and use it for the betterment of their lives. An emergent question here is which channels are significant in this regard and why? What is the status of the media?

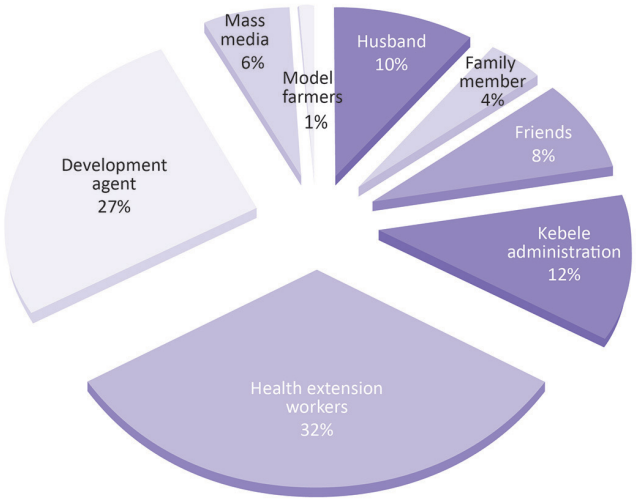
Channels for the transfer of small technologies to rural women

Technology transfer in rural setting takes place through different channels. The common ones identified include: health extension workers, development agents, *kebele* administration, husbands, friends, family members, and mass media and model farmers.

Health extension workers are indicated in playing a significant role in transferring health related and other technologies to rural women in Ethiopia (Bilal *et al*. 2011; Medhanyie 2012). A previous study suggested that health extension workers have significantly contributed for improvements in the utilization of contraceptives, women's antenatal care, and HIV testing in Ethiopia (Medhanyie 2012). In this particular study, 32% (n = 1,927) of the women claimed they were introduced to the technology at their disposal by health extension workers.

Agricultural extension agents, commonly called development agents (DA's) in Ethiopia have been playing significant role in transferring different agricultural technologies to rural societies. Studies on the role of extension agents and neighbors on channeling new technologies to the farmers have indicated that

Figure 2. Women by channels that introduced them to life impacting small technologies.



Source: Household survey data, 2015.

both of them have significant effect on technology transfer (Krishnan 2013).

Slightly above one in four, 27% (n = 1,633) of the participants of this study reported that development agents affiliated to agricultural bureaus have introduced them to the technology. The common agricultural technologies being introduced by development agents in Ethiopia include improved seed verities, fertilizers, line sowing, improved (hybrid animal varieties), soil and water management practices, access to various information (Spielman 2011).

The lower level government administration also serves as a means through which some technologies transfer from one place to the other. Of the total women respondents involved in this study, 12% (n = 737) reported that they got introduced to technological innovations by their *Kebele* Administration. Social networks are also another means for technology transfer in rural areas. A study by Amlaku *et al.* (2012) on 'the impact of social networks on dairy technology adoption in Ethiopia' has indicated that in addition to agricultural extension networks, neighbors' networks were important channels.

An interesting finding from this study is that 10% (n = 611) of the respondents reported that they were introduced to the technology by their husbands. Friends and families are also noted to be important channels in introducing women to the technology where 8% (n = 468) and 2.2% (n = 8), respectively claimed the same.

Although relatively smaller than interpersonal channels in terms of their con-

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tribution, the mass media are also among the vehicles that introduced the participants of the study to respective technologies, as 6% (n = 385) of the respondents claimed so. The findings of the study indicated that a lot of work is ahead in terms of triability, creating an opportunity for beneficiaries of the technology to learn from the experiences of others in the community where only 1% (n = 76) suggested that they were introduced to the technology by model farmers.

According to the findings of this study, both interpersonal and mediated channels are crucial in the introduction and dissemination of technological innovations, the former found to be more significant than the latter. However, given the availability of mass media, specifically FM radios in most parts of the region where they have programs in some of the local languages, their role is found to be lower than expected.

Women's view of determinants of technology adoption and use

The women under study were asked to reflect their view on the determinants of adopting and using a new technology based on their experience. Various factors were implicated.

Table 3. Respondents view of factors affecting their technology adoption and use.

Response	Yes		No		Not sure		Total	
	N	%	*N*	%	*N*	%	*N*	%
The technology is not easy to use.	925	8.3	5,866	52.6	4,371	39.2	11,162	100
I was not trained or explained on the new technology.	1,337	12	5,363	48	4,462	40	11,162	100
The technology contradicts with my culture.	464	4.2	6,318	56.6	4,380	39.2	11,162	100
The technology contradicts with my religion.	643	5.8	6,150	55.1	4,369	39.1	11,162	100
The technology is expensive and not affordable.	2,964	26.6	3,914	35.1	4,284	38.4	11,162	100
There is nothing new with the new technology.	500	4.5	6,190	55.5	4,472	40.1	11,162	100
I do not have interest in using technological innovations.	1,020	9.1	5,647	50.6	4,495	40.3	11,162	100
I do not have opportunity in using technological innovations.	2,500	22.4	3,976	35.6	4,686	42	11,162	100

Source: Household survey data, 2015.

Above one in four, 26.6% (n=2,964), of the study participants believe the technology is not affordable while 22.4% (n = 2,500) of the study participants

claimed that they do not have the opportunity in using innovations (i.e. they were not introduced to the technology). This is an issue of access which the government and other development partners should collaborate to address. Moreover, 12% (n = 1,337) of the participants are noted to say they were not trained on how to use the new technology though the technology was at their disposal. This implies the gap in terms of both interpersonal and mediated channels in creating knowledge and awareness. An intriguing finding is that 9.1% (n = 1,020) of the respondents claimed not to have an interest in using new technological innovations implying, again, lack of awareness creation and/or training.

Having a closer look into the findings as portrayed in the right side of the above table, the majority of the respondents, 40% on average claimed they are not sure whether the technology is easy to use, whether they are acquainted with the technology, whether the technology contradicts with their culture, whether it contradicts with their religion, whether the technology is expensive, whether the technology adds something new to their practice, whether they have an interest in employing the technology or not and funnily whether they have opportunity to use the technology or not. A glancing look may result in an outright rejection of the findings. But the bottom–line here is that these women have little or no awareness in the dissemination of technological innovations indicating a gap in the role of the channels, including the mass media, in introducing technological innovations.

The findings from the focus group discussion also revealed an awareness gap among women users of new technologies. Cases in point are Konta and Basketo *Woredas* (districts) where women in the former are reported to decline from using special varieties of animals offered to them through the agriculture extension package fearing that they would be accountable if the animals die. In the latter case, women in some areas of Basketo were reported to decline from using modern agricultural inputs like fertilizers arguing that their land is already fertile and productive.

Conclusion

The objectives of the study were two–fold. These were to investigate determinants of adopting life impacting small technologies by women in Southern Ethiopia and to identify channels that introduce women to technological innovations to appreciate the contribution of the media.

The findings suggested that several factors challenged women's use of life impacting small technologies, some of them noted to be perceptual in nature. For instance, women's view that 'the innovation contradicts to their religious percepts' and their 'cultural values'; they 'do not have interest in new innovations' are explainable from perceptual dimension. Other issues like 'the difficul-

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DOI: http://dx.doi.org/10.22201/ceiich.24485705e.2019.17.67522

ty of the technology' and 'lack of training' on the importance and workings of technology and beyond are subject to knowledge gap on the side of the adopters and prospective adopters. Such cases imply the gap from the side of channels of communication in accomplishing their task.

In terms of channels of communication and their significance in acquainting women to small but vital technologies, interpersonal channels outsmart the mass media. This may be due to several factors some, of course, could be beyond the scope of this study. To list some those explicable by the findings of this study, the literacy level of women and their concomitant media consumption behavior may be the major ones, for over 40% of the women under this study are illiterate. Moreover, over 80% (n = 8,968) never read a newspaper, and about 56% (n = 6,224) never listen to the radio. The status of the media as vehicles introducing women to new innovations is not encouraging, for only slightly above one in twenty, 6%, credited the media to introduce them to technological innovations. Considering a significant portion of audiences who are exposed to the media, 44% radio listeners and 20% newspaper readers, the media lagged behind in addressing potential women audiences to help them use vital technologies which have high returns to them in terms of saving their time and energy, appealing to their health, decreasing their work burden and minimizing evils like deforestation and pollution.

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