Effects of experiential learning on women's participation in agricultural decision-making in India

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1. Introduction

Women's decision-making in agriculture has received considerable research and policy attention in recent years. Decision-making is a key aspect of empowerment. For example, women's input in productive decisions is a key indicator in the Women's Empowerment in Agriculture Index (WEAI). Inclusion of women in decision-making can also help ensure that their knowledge and priorities are considered, which can lead to better agricultural outcomes and resource conditions. A cross-sectional study found that in Burkina Faso, India, Malawi, and Tanzania, households where women were more included in decision-making on agricultural production produced more varied food-group crops with higher nutrient density. The question is how to strengthen women's decision-making ability. A review of 12 agricultural development projects with explicit aims for women's empowerment found that only 3 had a significant impact on women's participation in agricultural and livelihood decision-making. An evidence scan on programmatic approaches to increasing women's decision-making power found that the majority of such interventions focused on household- or community-level changes to social norms, technical training, or leadership, role models, and mentoring. The study notes the need for more contextualized studies of different programmatic approaches to increase women's decision-making power and outcomes associated with the interventions.

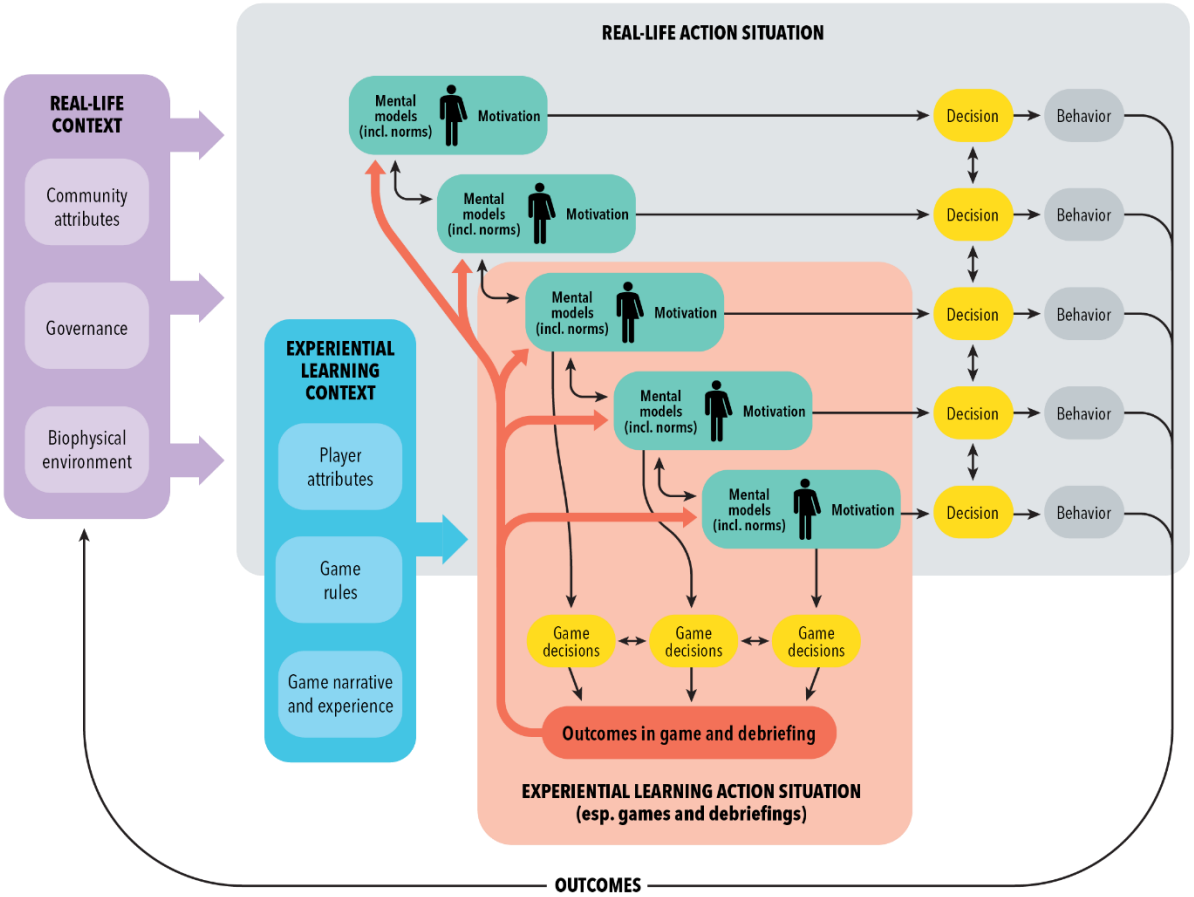
Experiential learning approaches, including games accompanied by debriefing sessions, show promise in shifting decision-making toward more sustainable agricultural and natural resource practices. Compared to conventional training approaches, experiential learning is more engaging and can be more effective for active learning, which may have particular advantages for women, who often have less formal education and access to extension than men. For example, in Ethiopia, few women were aware of how to improve groundwater availability through soil and water management activities, as they were less exposed to government-led soil and water conservation programs than men. However, there is relatively

little attention to the gender dimensions of experiential learning, particularly whether these learning activities can increase women's involvement in decision-making.

We examine whether experiential learning games accompanied with debriefing can strengthen women's participation in agricultural decision-making, using the impact assessment of a game designed to show the links between crop choice and groundwater availability in India.

Figure 1 shows a framework for how the experiential learning action situation is influenced by player characteristics, game rules, and game narrative and experience, and how these, in turn, relate to the real-life context. Games are more likely to influence the real-life behavior of individual players than that of their communities, because players have a stronger experience, and changes are easier to achieve at the individual level than the collective level. This may be particularly true for women players, because they build confidence from making choices in the game and may gain credibility with family and community members who know that they have played the game.

Figure 1: Conceptual framework **on** how experiential learning games can affect decisions



Source: Falk et al. (2023).

Women and men make different crop choices for various reasons, including differing access to inputs, markets, and information, but also whether the crop is grown for domestic or market consumption and

differential patterns of risk aversion. Decisions can be made separately or as part of joint decision-making at the household level, with women having varying degrees of influence.

It is likely that in the real-life action situation, the game's effects on learning would manifest differently depending on whether a man or woman household member participated in the game. While women could become more active in decision-making at the community level, our focus group discussions suggest weaker results at the community level than the individual level.

2. Methods

We used a collective action groundwater game developed and piloted by the International Food Policy Research Institute (IFPRI) and Foundation for Ecological Security (FES). This game was designed to address the depletion of groundwater in areas with falling water tables, where local collective action could be effective in addressing this serious problem. The research team identified crop choice as a key factor affecting water consumption and thus groundwater depletion.

To facilitate full participation, women and men played the game in separate groups. After two practice rounds, the game was conducted with up to 10 rounds with no communication, followed by up to 10 rounds with communication among the players.

In each round, players chose either a water-consumptive crop that yielded a high return or a water-conserving crop that yielded a lower return, with crops tailored to the local context. Each round was the equivalent of a *rabi* (dry) season. After each round, the facilitators recorded individual crop choices, gave each player their respective crop earnings in play money, and illustrated the effects on the water table.

The game sessions were followed by a community-wide debriefing, in which facilitators showed actual community trends in groundwater levels, players discussed their experiences with the game, and the attendees discussed implications for their community.

To evaluate the effects of this intervention on women's decision-making, we used an impact assessment from a total of 469 communities in India's Andhra Pradesh, Karnataka, and Rajasthan, where FES had been working. Baseline data, collected from November 2021 to February 2022, include: (1) key informant interviews (KIIs); (2) community focus group discussions (FGDs); and (3) a pregame survey of individual players. Endline data were collected from the same communities from January to June 2023, except for three communities that were excluded due to internal political conflicts. Endline data include the same instruments, with a postgame survey of individual players.

The primary impact assessment analysis compares endline outcomes in the treatment group with endline outcomes in the control group. Our secondary impact assessment analysis uses baseline and endline outcomes for those same individuals, meaning that these regressions only include individuals successfully interviewed at both baseline and endline.

For the individual-level analysis of women's participation in decision-making about crop choice, data come from the survey of individual women players, in which they were asked about who decides which crop to grow. For the collective-level involvement of women in crop decisions, data come from the FGDs and KIIs, both of which asked about how women are involved in decisions about crop choices in respondents' communities.

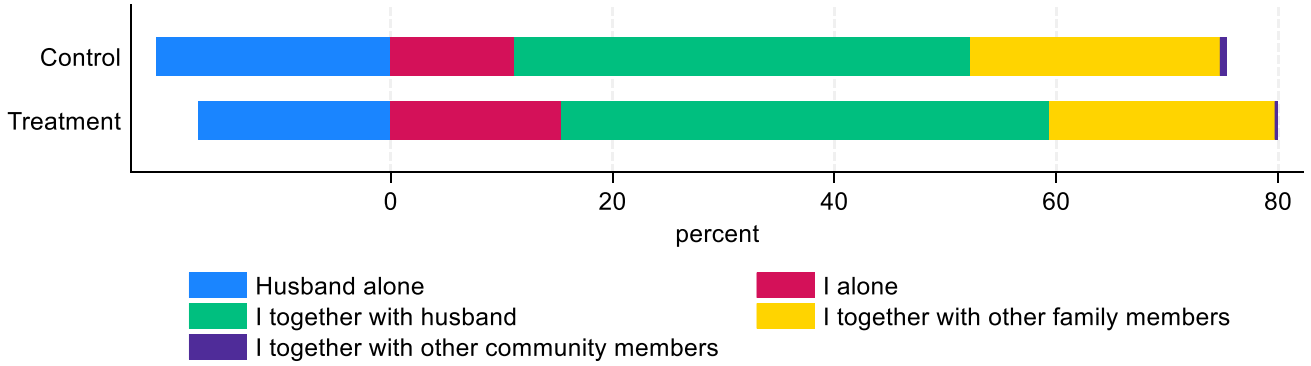
To account for partial knowledge and likely biases in the group-level interviews, we controlled for the gender composition of respondents in the FGDs and KIIs.

3. Results

We find that women who participated in the game were more likely to report participating in household decision-making about crops after playing the game (Figure 2). This effect is statistically significant, and the result is robust across all specifications: comparison of endline results and difference in difference, with and without controls.

Even when women are involved, most decisions are made jointly with the spouse or other family members. However, the proportion of women who report making decisions alone is significantly higher for those who played the game.

Figure 2: Women's response to question "In your household, who makes crop choice decisions?"



Source: Authors' analysis of individual survey data.

At the community level, Table 1 shows the treatment has no significant effect on whether key informants or focus groups report women's participation in decision-making on crop choice.

The robust findings—that women are more likely to report participating in decision-making about crop choice after playing a game that simulates the effects of crop choice on groundwater levels—indicate that experiential learning is a promising strategy to increase women's decision-making in agriculture. Further qualitative work is needed to explore how this effect occurs, but based on discussions with field teams, we suggest that the experience of the game builds women's confidence in choosing crops. During rounds that allowed discussion among players, many women created scenarios about why they needed high-income crops in some years and even offered to forgo planting crops in other years to allow the water table to recharge.

It is not surprising that community-level data collection showed the game had less of an effect on women's participation in decision-making. As noted in our conceptual framework, the effect is likely to be greatest on those who play the game and less on others in the community who are only influenced indirectly, such as by attending a debriefing session. Moreover, the key informants and focus groups reporting at the community level may not know how decisions on crop choices are made within households. Further research and adaptation of the approach is needed to strengthen the ability of experiential learning to change gender norms and practices at the community level.

Table 1: Community-level reporting on women's participation in decision-making on crop choice, from focus groups and key informant interviews

	Degree of women's involvement in crop choice (FGD)	Degree of women's involvement in crop choice (KII)
Treatment x endline	-0.013	-0.018
	(0.058)	(0.112)
Treatment assignation (1=treated)	-0.034	0.001
	(0.043)	(0.098)
Endline	0.009	0.073
	(0.047)	(0.102)
Percent of female participants in interview	-0.039	0.103
	(0.091)	(0.072)
AP—SW infrastructure	0.098^{+}	0.059
	(0.055)	(0.058)
KN—no SW infrastructure	-0.388***	-0.518***
	(0.057)	(0.064)
KN—SW infrastructure	-0.300***	-0.417***
	(0.060)	(0.070)
RJ—no SW infrastructure	0.231***	0.108^{+}
	(0.051)	(0.060)
RJ—SW infrastructure	0.213***	0.283***
	(0.052)	(0.056)
Observations	903	632

Source: Authors' analysis of individual survey data.

Note: AP= Andhra Pradesh; FGD=focus group discussions; KII=key informant interviews; KN= Karnataka; RJ= Rajasthan; SW=surface water.

4. Conclusions

Our findings indicate experiential games with debriefing offer a promising approach to increasing women's decision-making in agriculture. While our games were not designed primarily for this purpose, further research can explore ways to design games to strengthen women's knowledge, self-confidence, as well as external recognition of their expertise in making decisions about key agricultural and natural resource practices.

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