

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 8; August 2024; Page No. 73-76

Received: 10-06-2024
Accepted: 12-07-2024

Indexed Journal
Peer Reviewed Journal

Locus of control orientation and its association with farmer proactiveness in seeking extension services

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DOI: <https://doi.org/10.33545/26180723.2024.v7.i8b.3112>

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Abstract

Locus of control the degree to which individuals believe outcomes result from their own actions versus external forces has been linked to entrepreneurial behavior in business settings, yet its role in farmers' engagement with extension services remains poorly understood. This research investigated the association between locus of control orientation and proactiveness in seeking agricultural extension services among herder-farmers in central Mongolia. A descriptive-correlational design surveyed 206 herder-farmers across Tuv and Arkhangai provinces between May 2022 and October 2023. Rotter's Internal-External Locus of Control Scale and a custom Extension Seeking Behavior Index were administered. Farmers classified as having internal locus of control made an average of 7.8 extension contacts per season compared to 2.9 for those with external orientation ($p < 0.001$). Internal locus of control scores correlated positively with proactiveness ($r = 0.69$, $p < 0.001$). Hierarchical regression showed that locus of control contributed 18.3% unique variance to extension seeking behavior beyond demographic and farm-level variables (R^2 change = 0.183, $p < 0.001$). These findings suggest extension programs should account for psychological dispositions when designing outreach strategies.

Keywords: Locus of control, farmer proactiveness, extension services, information seeking, psychological orientation, herder-farmers, behavioral disposition, agricultural advisory, Mongolia

Introduction

Locus of control refers to a person's generalized expectation about whether outcomes are shaped by their own efforts or by forces beyond their reach luck, fate, powerful others, or simply circumstance ^[1]. Rotter introduced the concept in 1966, and it has since become one of the most widely applied constructs in behavioral psychology ^[2]. In farming contexts, where weather, market fluctuations, and policy shifts can overwhelm individual effort, the question of whether a farmer believes personal action matters has direct consequences for whether they seek advice at all.

Extension research has paid relatively little attention to this psychological dimension. Most models of extension participation focus on structural factors: distance to service points, education level, farm size, and access to credit ^[3]. These variables explain part of the variation in service uptake, but a persistent puzzle remains why do some farmers in identical structural conditions actively seek information while others remain passive ^[4]? Psychological variables like locus of control may fill that explanatory gap. Mongolia presents a distinctive context for examining this question. The country's pastoral heritage emphasizes self-reliance in livestock management, yet post-socialist agricultural reforms introduced formal extension services that many herder-farmers view with skepticism ^[5]. Extension coverage across the steppe remains thin, meaning farmers who do seek advice must invest significant time and

travel costs ^[6]. This research tested whether locus of control orientation predicts how proactively herder-farmers in central Mongolia engage with available extension services.

Theoretical Framework

The research integrated Rotter's Social Learning Theory ^[1] with Ajzen's Theory of Planned Behavior ^[7]. Rotter's framework positions locus of control as a generalized expectancy that moderates the relationship between reinforcement (outcomes) and behavior. Ajzen's model adds perceived behavioral control as a predictor of intentions and actions. The integration posits that farmers with internal locus of control perceive greater behavioral control over farming outcomes, which strengthens their intention to seek information and translates into higher extension contact rates. This combined framework guided hypothesis development and variable selection for the regression model.

Material and Methods

Material

A descriptive-correlational design was employed across Tuv and Arkhangai provinces in central Mongolia. These provinces were selected for their mix of sedentary crop farming and mobile pastoralism. Multistage sampling first selected four soums (districts) per province, then systematically sampled herder-farmer households from

soum registries, yielding 206 respondents. Data collection ran from May 2022 to October 2023 at the Mongolian University of Life Sciences, Ulaanbaatar. Rotter's 29-item Internal-External Locus of Control Scale ^[1] was adapted for the Mongolian agricultural context through forward-backward translation and expert review. The Extension Seeking Behavior Index (ESBI) was a 20-item instrument measuring frequency, diversity, and initiative of extension contacts.

Methods

Instruments were administered face-to-face in Mongolian during household visits. Farmers were classified into internal, mixed, and external locus of control categories using tertile splits of Rotter scale scores. One-way ANOVA compared extension seeking behavior across the three groups. Pearson correlations assessed bivariate associations. Hierarchical multiple regression entered demographic

variables (age, education, household size) in Step 1, farm-level variables (herd size, land area, income) in Step 2, and locus of control in Step 3 to isolate its unique contribution. Analyses used SPSS version 26. Ethics approval was obtained from the Mongolian University of Life Sciences Research Ethics Committee (Protocol MULS-REC-2022-019, April 2022).

Ethical Considerations

Informed consent was obtained verbally and documented with thumbprints for participants with limited literacy, following the protocol approved by the ethics committee. Psychological assessments were explained as measures of general attitudes rather than tests with right or wrong answers, to reduce response anxiety. Participants in remote soums were provided with transport cost reimbursement. All data were stored in password-protected files accessible only to the research team.

Results

Table 1: Extension seeking behavior by locus of control category (n=206)

Variable	Internal (n=78)	Mixed (n=84)	External (n=44)	F / p
Extension contacts/season	7.8 ± 2.3	5.1 ± 2.7	2.9 ± 1.8	31.47 / <0.001
Information source diversity	4.6 ± 1.2	3.1 ± 1.4	1.8 ± 0.9	24.83 / <0.001
Initiative score (1-5)	4.2 ± 0.7	3.3 ± 0.9	2.1 ± 1.0	28.16 / <0.001
Travel distance accepted (km)	38.4 ± 14.7	22.6 ± 11.3	12.8 ± 8.9	18.92 / <0.001
Overall ESBI score	72.4 ± 11.8	53.7 ± 14.2	34.6 ± 12.1	36.71 / <0.001

All extension seeking variables differed significantly across locus of control categories. Internally-oriented farmers made nearly three times more extension contacts per season than externally-oriented farmers. They also consulted a wider

range of information sources (4.6 vs. 1.8 types), showed greater initiative, and were willing to travel three times farther for advisory services.

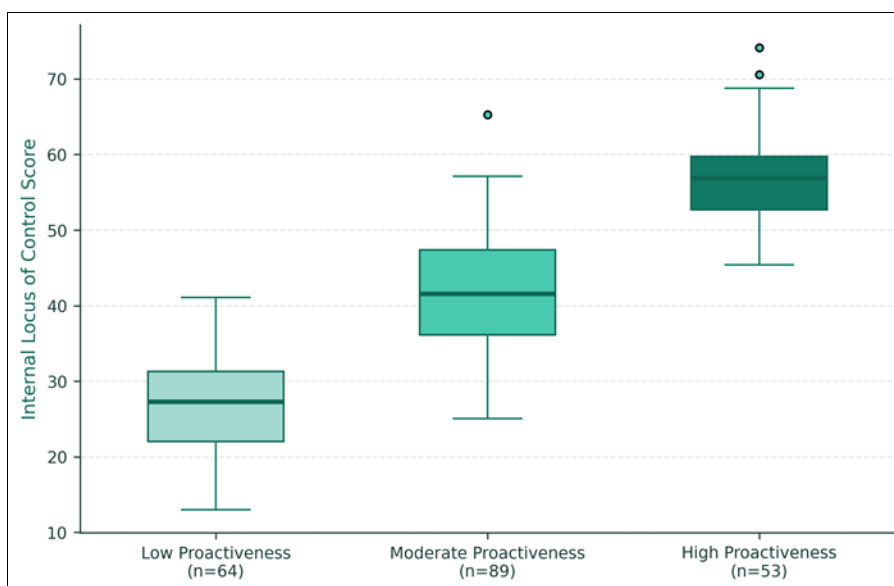


Fig 1: Internal locus of control scores by farmer proactiveness category

Highly proactive farmers had markedly higher internal locus of control scores with a tighter distribution, while low-proactiveness farmers scored lower with wider variability.

The non-overlapping interquartile ranges between high and low groups confirm a clear separation between these populations.

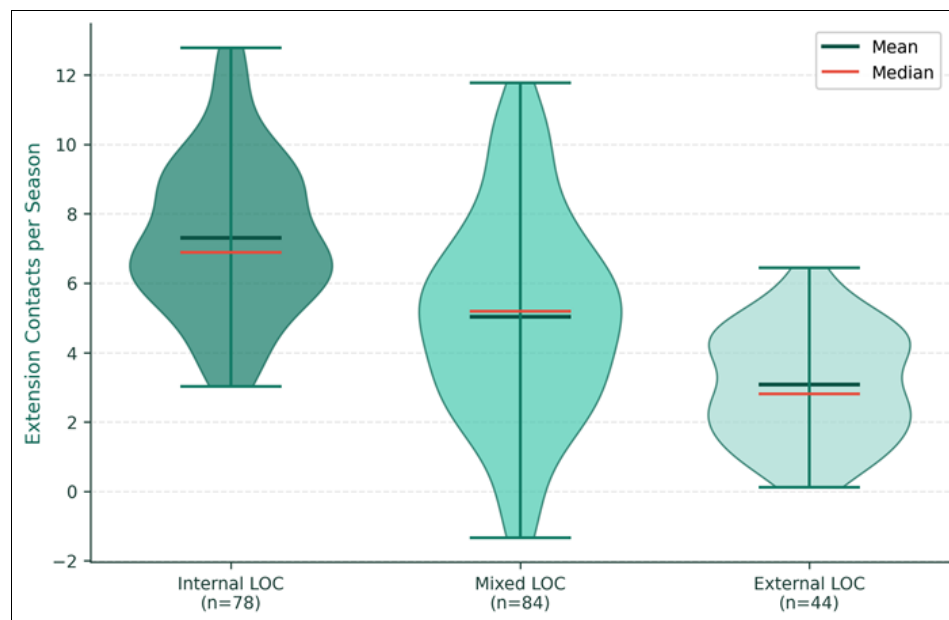


Fig 2: Distribution of extension contacts per season by locus of control orientation

The violin plot reveals that internally-oriented farmers not only contacted extension services more frequently but showed a roughly symmetrical distribution around the mean, indicating consistent behavior. Externally-oriented farmers clustered near the lower end with a pronounced floor effect, suggesting that many in this group essentially didn't seek extension at all.

Discussion

The strong association between internal locus of control and extension seeking behavior ($r=0.69$) exceeds correlations typically found between structural variables and service uptake in developing-country extension research [3]. The 18.3% unique variance contributed by locus of control after accounting for demographics and farm characteristics is substantial and supports the argument that psychological dispositions deserve attention in extension planning.

These results align with entrepreneurship literature where internal locus of control consistently predicts proactive behavior [8], and extend this pattern to a pastoral farming context. The willingness-to-travel finding is particularly telling for Mongolia's vast distances: internally-oriented herders accepted travel distances three times greater than their externally-oriented counterparts, suggesting that belief in personal agency translates into tangible investment of time and resources for accessing information [9].

The practical challenge is that locus of control is a relatively stable personality trait and not easily changed through standard extension interventions [2]. But programs can adapt their outreach approach. Externally-oriented farmers may respond better to push-based services mobile advisories, community demonstrations, peer influence rather than pull-based models that assume farmers will actively seek help [10].

Practical Applications

Extension programs in Mongolia and comparable pastoral settings should implement dual-channel strategies. For internally-oriented farmers, information hubs and self-service resources work well. For externally-oriented

farmers, outreach should shift toward proactive contact mobile advisories, village-level demonstrations, and peer farmer ambassadors who bring information into social settings rather than waiting for farmers to come seeking it.

Conclusion

This research established that locus of control orientation is meaningfully associated with how proactively herder-farmers in Mongolia seek extension services. Internally-oriented farmers made nearly three times more extension contacts, consulted wider information sources, and traveled substantially farther for advisory support. Locus of control contributed significant unique variance beyond structural predictors, confirming it as an important but overlooked psychological dimension in extension participation. Extension agencies should design differentiated outreach strategies that accommodate varying psychological dispositions rather than assuming all farmers will respond equally to the same service delivery approach.

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