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PARTICIPATORY COMMUNICATION, EMPOWERMENT, AND SME GROWTH IN RESOURCE-BASED ASIA-PACIFIC ECONOMIES: INSIGHTS FROM PAPUA NEW GUINEA

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Abstract

Purpose: *This study examines how participatory communication shapes small and medium-sized enterprise (SME) development in post-mining communities of Papua New Guinea (PNG). Drawing on empowerment theory, diffusion of innovations, and entrepreneurial ecosystem perspectives, it investigates how socio-demographic factors condition perceptions of participatory communication.*

Design/methodology/approach: *A mixed-methods design was employed, combining survey data from 382 respondents in Porgera District with qualitative insights from focus group discussions. Quantitative analysis used chi-square tests and binary logistic regression, while qualitative narratives were thematically analyzed.*

Findings: *Education, income, and age significantly predict positive perceptions of participatory communication, while gender differences were not statistically significant. Community voice emerged as the strongest participatory principle, although inclusiveness and gender equity remained weak. Focus groups revealed that education-built confidence, youth valued dialogue, low-income households felt excluded, and women's participation was often constrained. The results highlight a participatory paradox: communities value communication, yet systemic inequalities restrict equitable engagement.*

Practical implications: *Policymakers and development agencies should embed participatory communication into SME programs by prioritizing education-based training, financial inclusion, youth engagement, and gender-sensitive participation.*

Social implications: *Participatory communication can strengthen social cohesion by amplifying community voice, empowering marginalized groups, and building trust between communities, institutions, and development actors.*

Originality/value: *This paper contributes to entrepreneurship scholarship by positioning participatory communication as a strategic resource in resource-rich Asia-Pacific economies. It extends empowerment and ecosystem theories while providing rare empirical evidence from PNG, a setting underrepresented in entrepreneurship research.*

Keywords: *Participatory communication; Small and medium-sized enterprises (SMEs); Entrepreneurship ecosystems; Asia-Pacific; Papua New Guinea*

1. Introduction

Small and medium-sized enterprises (SMEs) are widely recognized as engines of economic growth, employment creation, and innovation across the globe. In the Asia-Pacific region, where resource-dependent economies coexist with rapidly industrializing states, SMEs account for over 90% of registered firms and contribute significantly to GDP and employment (ADB, 2021; OECD, 2022). In resource-dependent economies such as Papua New Guinea (PNG), the growth of SMEs often remains constrained by structural inequalities, institutional barriers, and limited access to entrepreneurial support systems. Post-mining communities in the Porgera District illustrate these challenges, while also providing a useful setting to explore how communication, participation, and empowerment influence enterprise development.

Much of the entrepreneurship literature has concentrated on ecosystems, institutions, and cultural influences (Acs et al., 2017; Stam, 2015). By contrast, the role of communication has received less systematic attention, especially in resource-dependent and post-mining contexts. Within development communication, participatory communication—grounded in dialogue, inclusiveness, and empowerment—has been widely theorized (Servaes, 2020), yet its application to entrepreneurship studies remains limited. Bringing this perspective into entrepreneurship is important, as participatory practices can enable marginalized groups to voice concerns, build skills through training, and establish legitimacy within entrepreneurial networks.

The present research has limitations in addition to its strengths. First, there is limited evidence on how participatory communication influences entrepreneurship outcomes in resource-dependent Asia-Pacific contexts. Second, studies often treat **socio-demographic characteristics** (age, gender, education, and income) as background controls, rather than as central factors that shape participatory engagement. Third, there is a lack of theorization on how communication processes intersect with empowerment theory, the **diffusion of innovations, and entrepreneurial ecosystem frameworks** to explain SME development.

This study addresses these gaps by examining participatory communication in SME development among post-mining communities in Porgera District, PNG. Using a mixed-methods design, we analyze quantitative survey data (N = 382) alongside qualitative focus group insights to assess the influence of participatory practices on entrepreneurial engagement. Specifically, we test how age, gender, education, and income predict perceptions of participatory communication, and we examine how community members interpret these processes in practice.

The paper makes three key contributions. First, it integrates **participatory communication theory into entrepreneurship research**, demonstrating how communication channels and inclusiveness affect SME development. Second, it extends the Asia-Pacific entrepreneurship literature by providing empirical evidence from PNG, a resource-based economies that is underrepresented in comparative studies. Third, it advances theory by linking socio-demographic factors to participatory communication through **empowerment and ecosystem perspectives**, offering insights into how marginalized communities engage with entrepreneurship.

The remainder of the paper is structured as follows: Section 2 reviews the literature on SMEs, participatory communication, and socio-demographic determinants of entrepreneurship. Section 3 outlines the theoretical framework and hypotheses. Section 4 presents the methodology, Section 5 reports the results, and Section 6 discusses implications for theory and practice.

2. Literature Review

2.1 SMEs in Resource-Dependent Asia-Pacific Economies

SMEs play a critical role in promoting inclusive growth and poverty reduction across the Asia-Pacific. In countries such as Indonesia, the Philippines, and Fiji, SMEs form the backbone of domestic economies and provide resilience during crises (ADB, 2021). Yet in resource-dependent states such as PNG, entrepreneurs face unique barriers: inadequate infrastructure, limited financial services, and dependence on extractive industries. Post-mining communities, in particular, experience sudden shifts in livelihoods and require entrepreneurial opportunities to sustain development. Research on PNG has shown that weak governance and concentration of benefits among limited actors often limit the effectiveness of SME programs (Imbun, 2006), yet community-driven initiatives can foster resilience if supported by participatory institutions.

2.2 Participatory Communication in Development

Participatory communication refers to two-way, dialogical processes that enable communities to engage actively in decision-making (Servaes, 2020). In the field of development studies, participatory approaches have been linked to empowerment, collective action, and sustainable outcomes. However, in entrepreneurship research, communication has often been reduced to information dissemination or marketing, overlooking its role in **capacity building and voice**. In resource-dependent contexts, participatory communication can bridge trust gaps between institutions and communities, facilitating SME development by ensuring inclusiveness, knowledge transfer, and accountability.

2.3 Socio-demographic Determinants of Participation

A growing body of literature highlights how socio-demographic characteristics shape participation. **Age** often predicts openness to innovation, with younger cohorts acting as early adopters (Rogers, 2003). **Education** enhances self-efficacy and the capacity to engage in entrepreneurial training (Zimmerman, 2000). **Income** determines access to resources and the ability to invest in SMEs (Stam, 2015). **Gender**, meanwhile, introduces complexity: while global evidence shows women often face barriers in entrepreneurial ecosystems, some participatory spaces can reduce these inequalities. In the

Pacific Islands context, women entrepreneurs face cultural and structural challenges, yet they also utilize collective forums for empowerment (UNESCAP, 2018).

2.4 Integrating Communication and Entrepreneurship

Although research has expanded on SMEs, socio-demographic determinants, and participatory communication, there is still limited theorization linking these areas. Few studies explore how education, income, age, and gender shape the way communities perceive communication processes within entrepreneurial development. Addressing this gap, the present study applies theoretical perspectives that connect resources, innovation adoption, and ecosystems to explain participation in SME development.

3. Theoretical Framework and Hypotheses

This study draws on empowerment, innovation adoption, and entrepreneurial ecosystem perspectives to explain how socio-demographic characteristics influence perceptions of participatory communication in SME development.

Empowerment Perspective

The empowerment literature stresses that access to education and financial resources enables individuals to participate more effectively in decision-making and enterprise activities (Narayan, 2005; Alsop & Heinsohn, 2006). In post-mining contexts, education helps individuals build confidence to attend training and contribute to forums, while higher household income provides the means to engage in entrepreneurial ventures.

- H1: Higher levels of education are positively associated with favorable perceptions of participatory communication in SME development.
- H2: Higher household income is positively associated with favorable perceptions of participatory communication in SME development.

Innovation Adoption

The diffusion of innovations framework highlights how younger people tend to adopt new practices more quickly, acting as change agents within their communities (Rogers, 2003; Dearing & Cox, 2018). In the case of SME development, younger groups may be more receptive to participatory forums and business training opportunities than older groups.

- H3: Younger age groups are more likely than older groups to perceive participatory communication as useful for SME development.

Entrepreneurial Ecosystems

Entrepreneurial ecosystems depend not only on institutions and financial capital but also on communication, trust, and inclusiveness (Isenberg, 2011; Mason & Brown, 2014). Participation within these ecosystems, however, is often shaped by gender. Studies show that women continue to face cultural and structural barriers in gaining voice and representation in entrepreneurship (Brush, et al, 2018; Henry, Foss, & Ahl, 2016). While participatory forums may create openings for women, inequalities remain an obstacle.

- H4: Gender differences are associated with perceptions of participatory communication in SME development, with women expected to report lower levels of perceived usefulness compared to men.

Based on empowerment theory, diffusion of innovations, and entrepreneurial ecosystem perspectives, the study conceptualizes the relationship between socio-demographic factors and SME development outcomes through participatory communication.

Figure 1 illustrates this framework: age, education, income, and gender are hypothesized to influence perceptions of participatory communication, which in turn drive SME-related outcomes such as capacity building, inclusiveness, empowerment, and community voice.

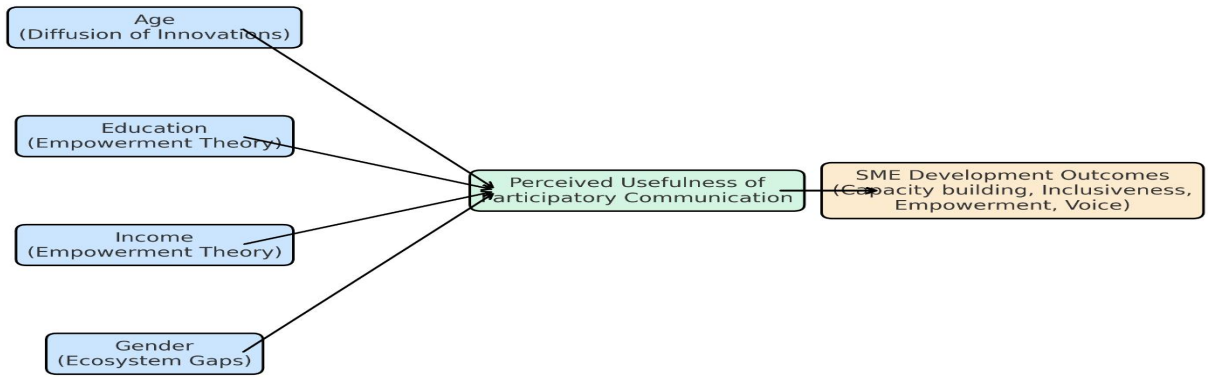

Figure 1. Conceptual framework linking socio-demographic factors, participatory communication, and SME development outcomes

Independent variables (age, education, income, and gender) influence perceptions of participatory communication, which in turn shape SME development outcomes (capacity building, inclusiveness, empowerment, and community voice).

4. Methodology

4.1 Research Design

This study employed a convergent mixed-methods design (Creswell & Plano Clark, 2018), integrating quantitative survey data with qualitative focus group discussions (FGDs). This design is particularly suited to resource-dependent economies, where statistical generalizations must be complemented with contextual insights. Quantitative analysis enables the testing of theoretically derived hypotheses (Section 3), while qualitative narratives illuminate the lived realities of post-mining communities, providing depth to the empowerment and ecosystem perspectives.

4.2 Study Context

The research was conducted in **Porgera District, Enga Province**, a community deeply affected by the closure of the Porgera gold mine in 2019 (Imbun, 2019). The mine's suspension triggered economic disruption, social instability, and renewed interest in SMEs as alternative livelihoods (Curry, Koczberski, & Imbun, 2021). This setting presents a unique opportunity to examine how participatory communication serves as a resilience mechanism in resource-dependent post-mining economies—an issue central to debates on entrepreneurship in the Asia-Pacific region.

4.3 Sampling Strategy

A **stratified random sampling** approach was employed to ensure representativeness across key socio-demographic categories, including age, gender, education, and income. This strategy was chosen because empowerment and diffusion theories suggest these characteristics systematically influence participation and perceptions. A total of **382 respondents** were surveyed, exceeding minimum sample size requirements for logistic regression with multiple categorical predictors (Tabachnick & Fidell, 2019).

4.4 Data Collection

Data collection occurred in 2023, using a structured survey instrument derived from validated participatory communication and entrepreneurship measures (Brush et al., 2018; Servaes, 2020). Items captured:

- Perceptions of participatory communication (Likert scales, five engagement principles).
- Socio-demographic attributes (age, gender, education, income, marital status, occupation).
- SME-related experiences (ownership, training, stakeholder interactions).

Surveys were administered face-to-face by trained local enumerators to reduce literacy barriers and enhance trust. Additionally, **three FGDs** were conducted with entrepreneurs, community leaders, and SME association representatives, providing qualitative depth. This triangulation strengthens validity by capturing both breadth and depth.

4.5 Data Analysis

Quantitative data were analyzed in three stages:

1. **Descriptive statistics** – to profile respondents.
2. **Chi-square tests** – to examine bivariate associations between socio-demographics and perceived usefulness of participatory communication.
3. **Binary logistic regression** – to test hypotheses H1–H4, estimating the relative effects of age, education, income, and gender, controlling for other factors. This method is appropriate given the binary dependent variable (useful vs. not useful).

Qualitative data were transcribed and analyzed thematically (Braun & Clarke, 2019). Coding focused on empowerment, inclusion, and ecosystem-related challenges, allowing theory-driven themes to emerge while remaining grounded in participants' narratives.

4.6 Validity and Reliability

Several measures ensured rigor:

- **Construct validity** – survey scales adapted from established sources.
- **Internal reliability** – Cronbach's alpha values (≥ 0.70) confirmed consistency of Likert items.
- **Triangulation** – combining survey and FGDs enhanced credibility.
- **Ethical clearance** – informed consent obtained; anonymity preserved, in line with university ethical protocols.

4.7 Ethical considerations

This study received ethical approval from the Academic Integrity and Ethics Committee of the Papua New Guinea University of Technology. In addition, permission for data collection was granted by the relevant local government authorities in Porgera District. All participants were informed of the research objectives, assured of confidentiality and anonymity, and informed that their participation was voluntary. Verbal informed consent was obtained before administering surveys and conducting focus group discussions.

5. Results

5.1 Demographic Background

The study surveyed 382 respondents from post-mining communities in Porgera District, Papua New Guinea, providing a diverse socio-demographic profile relevant to SME participation and perceptions of participatory communication. Gender representation was relatively balanced, with men accounting for just over half of respondents and women comprising a substantial minority. This balance allowed for meaningful comparison of perceptions across gender groups.

In terms of age, the sample was dominated by economically active adults. More than three-quarters of respondents were between 18 and 40 years old, indicating strong representation of youth and early middle-aged cohorts who are typically most engaged in entrepreneurial activities. A smaller proportion of respondents were aged over 40 years, reflecting the demographic structure of the local population and the age distribution of potential SME participants in the district.

Educational attainment varied considerably across the sample. A substantial share of respondents reported having no formal schooling, while others had completed primary or secondary education, and a notable proportion had attained post-secondary qualifications. This wide dispersion in education levels highlights significant differences in human capital, which are central to empowerment theory and are expected to influence engagement with participatory communication and SME development initiatives.

Occupational patterns reflected the resource-dependent nature of the local economy. Nearly half of respondents were engaged in subsistence or small-scale farming, while others reported wage employment, casual labor, or self-employment. Despite high levels of entrepreneurial interest, only a small minority of respondents reported owning a SME, underscoring the structural constraints facing enterprise development in post-mining contexts.

Household income levels were generally low. Most respondents reported annual incomes at the lower end of the income distribution, with only a small proportion earning at higher income levels. These income disparities are particularly relevant for understanding participation in SME programs, as financial constraints may limit access to training, capital, and participatory forums.

Overall, the demographic profile reveals a community characterized by economic vulnerability, uneven access to education, and limited formal enterprise ownership. These conditions provide a critical backdrop for examining how participatory communication and empowerment processes shape SME development in resource-dependent post-mining economies.

5.2 Chi-Square Associations

Hypothesis Testing (Chi-square)

The dependent variable—**perceived usefulness of participatory communication**—was dichotomously coded (0 = Yes; 1 = No). Table 1 summarizes the chi-square test results for four key hypotheses examining associations with socio-demographic variables.

The analysis shows that **age group, education, and household income** were significantly associated with perceptions of participatory communication ($p < 0.001$). Younger respondents (18–40 years), those with higher levels of education, and higher-income households were more likely to perceive participatory communication as useful for SME development. These findings are consistent with empowerment theory, which highlights the role of knowledge and resources in shaping individuals' capacity to engage effectively in participatory processes.

In contrast, **gender was not significantly associated** with perceptions ($p = 0.443$). This suggests that men and women in Porgera communities held broadly similar views on participatory communication. While this diverges from global evidence of gendered differences in entrepreneurial engagement, it may reflect the equalizing influence of collective forums, where opportunities to participate are less constrained by gender.

Overall, the chi-square results provide preliminary support for the hypotheses that age, education, and income are positively linked to favorable perceptions of participatory communication, while gender differences are less pronounced.

Table 1. Chi-square Associations between Socio-demographic Variables and Perceptions of Participatory Communication

Variable	χ^2 Value	df	p-value	Significance
Gender	2.685	1	0.443	n.s.
Age Group (years)	33.016	3	0.000	***
Education	63.753	3	0.000	***
Household Income (Kina)	65.523	3	0.000	***

*Note: Results based on survey data collected from 382 respondents in Porgera District, PNG. n.s. = not significant; *** $p < 0.001$.*

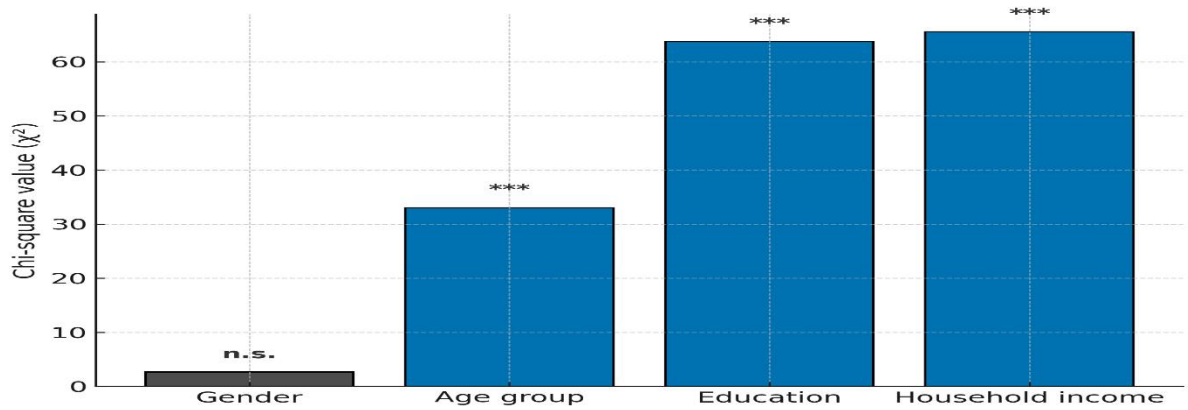

Figure 2. Chi-square test results for socio-demographic predictors of perceived usefulness of participatory communication (N = 382)

Age, education, and household income showed significant associations (p < 0.001), while gender was not significant (n.s.).*

5.3 Community Participation in SME Development

Table 2 presents community perceptions of participatory communication in SME-related activities, framed across five key engagement principles: capacity building, community voice, consultation and dialogue, gender inclusion, and inclusiveness.

The findings reveal that community voice emerged as the strongest dimension, with 73.8% of the respondents agreed or strongly agreed that they could express concerns about starting businesses. This demonstrates high levels of entrepreneurial motivation and recognition of the importance of collective input in decision-making.

By contrast, capacity building through business training programs showed only moderate support, with just over half of respondents (51.5%) in agreement. Although training is recognized as a valuable empowerment tool, nearly one-third (29.3%) were unsure, suggesting uneven access to or awareness of available training opportunities.

Consultation and dialogue with the Porgera Joint Venture (PJV) registered lower levels of agreement (42.4%). Qualitative discussions reinforced that many community members felt excluded from decision-making processes with corporate actors, indicating a trust deficit and limited space for genuine dialogue.

The weakest areas of participatory engagement were gender inclusion and broad-based inclusiveness. Only 27.8% of respondents agreed that women had equal opportunities to voice business-related concerns, while just 31.7% felt that all community members had equal access to training opportunities. These findings underscore the persistence of structural and cultural barriers that constrain equitable participation, particularly for women and marginalized groups.

Overall, the results demonstrate a participatory paradox: while entrepreneurial voice is strong, actual inclusiveness and equity in participatory structures remain limited. This reinforces theoretical arguments that participatory communication must move beyond token consultation to embed principles of empowerment, inclusivity, and gender equity (Servaes, 2020; Zimmerman, 2000).

Table 2. Community Perceptions of Participatory Communication in SME Development (N = 382)

Participatory Dimension	Principle of Engagement	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)	Agreement (%)
Capacity Building	Participation in business training programs	12 (3.1)	185 (48.4)	112 (29.3)	64 (16.8)	9 (2.4)	51.5
Community Voice	Expression of concerns about starting businesses	78 (20.4)	204 (53.4)	22 (5.8)	72 (18.8)	6 (1.6)	73.8
Consultation & Dialogue	Engagement in dialogue with PJV on business activities	15 (3.9)	147 (38.5)	99 (25.9)	112 (29.3)	9 (2.4)	42.4
Gender Inclusion	Women's opportunity to voice business-related concerns	9 (2.4)	97 (25.4)	134 (35.1)	103 (27.0)	39 (10.2)	27.8
Inclusiveness	Equal opportunity for all community members to participate in training	–	121 (31.7)	95 (24.9)	109 (28.5)	54 (14.1)	31.7

Note: Data obtained from household survey of 382 respondents in Porgera District, Papua New Guinea. No respondents selected 'Strongly Agree' for this item.

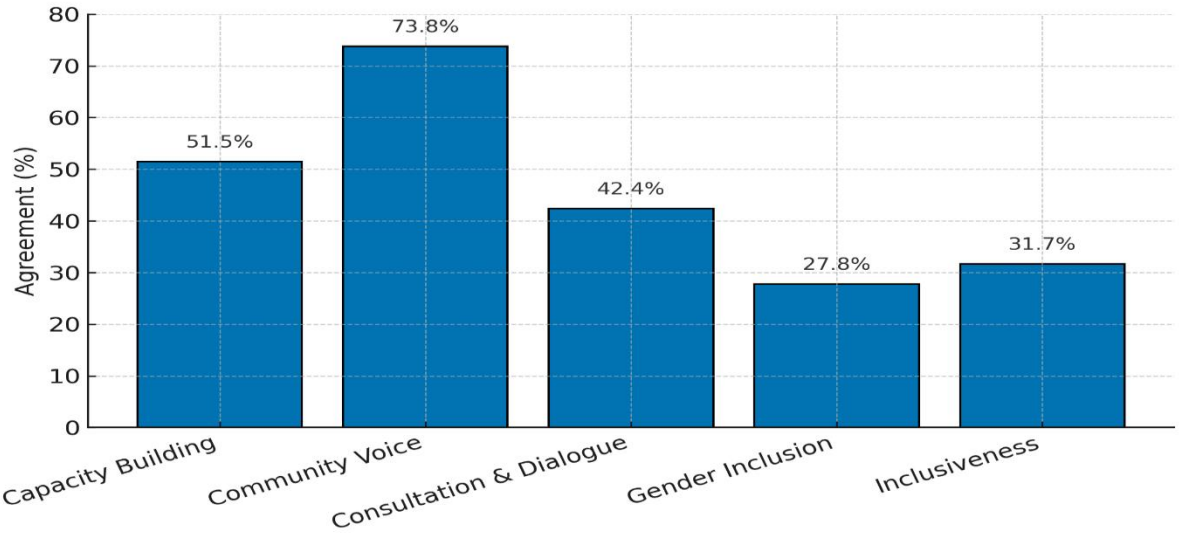

Figure 3. Community participation in SME-related activities based on participatory principles (capacity building, community voice, consultation and dialogue, gender inclusion, inclusiveness).
Community voice shows the highest agreement (73.8%), while gender inclusion (27.8%) and inclusiveness (31.7%) were lowest, illustrating a participatory paradox.

5.4 Stakeholder Engagement and Empowerment

The study also examined patterns of stakeholder engagement and empowerment mechanisms in SME development within post-mining communities. Findings are summarized in Tables 3a–3c.

Information-sharing methods (Table 3a) revealed a strong reliance on traditional, interpersonal communication channels. A majority of respondents (63.1%) identified **group meetings** as the primary method of information dissemination, followed by **face-to-face interactions (11%)** and public forums (3.9%). Only 1.6% cited **social media** as a channel, underscoring the digital divide and limited penetration of ICT-based communication in Porgera. Interestingly, 20.4% indicated that all methods were used, reflecting a hybrid model where multiple communication modes coexist. This aligns with participatory communication theory, which emphasizes the importance of contextually appropriate, trust-based channels in resource-dependent economies (Servaes, 2020).

Stakeholder engagement (Table 3b) demonstrates that community trust is concentrated in local institutions. Over half of respondents (51.6%) recognized the **Porgera Landowner Association (PLA)** as a key actor in SME-related communication, while provincial and development authorities played more limited roles (16.5% and 14.1%, respectively). Notably, 13.9% reported **no stakeholder engagement at all**, reflecting gaps in governance and institutional support. These findings reinforce the entrepreneurial ecosystem perspective, which highlights the significance of locally legitimate actors in facilitating entrepreneurial activity (Stam, 2015).

Empowerment through education (Table 3c) shows that **training (69.4%)** was overwhelmingly the most valued strategy for strengthening entrepreneurial capacity, far outpacing booklets (3.9%), conferences (3.1%), or external expertise (1.6%). This highlights the demand for **practical, skill-based interventions** over passive information-sharing approaches. It also aligns with empowerment theory (Zimmerman, 2000), which posits that active learning opportunities increase individuals' agency and capacity to engage in entrepreneurial processes.

Together, these findings revealed a **participatory imbalance**: while local institutions and traditional communication channels remained central, systemic weaknesses persist in government-led engagement, digital inclusivity, and equitable empowerment. For SME development programs in resource-dependent economies, this highlights the need to strengthen multi-stakeholder collaboration, expand digital communication access, and embed training-oriented empowerment as a core strategy for supporting entrepreneurship.

Table 3a. Information-Sharing Methods Used in SME-Related Activities (N = 382)

Method	Frequency	Percent (%)
Public forum	15	3.9
Group meetings	241	63.1
Face-to-face	42	11.0
Social media	6	1.6
All of the above	78	20.4
Total	**382**	**100**

Note: Findings drawn from household survey conducted in Porgera District, Papua New Guinea (N = 382).

Table 3b. Stakeholder Engagement in SME Development (N = 382)

Stakeholder	Frequency	Percent (%)

Stakeholder	Frequency	Percent (%)
Porgera Landowner Association	197	51.6
Porgera Development Authority	54	14.1
Enga Provincial Government	63	16.5
All of the above	15	3.9
None of the above	53	13.9
Total	**382**	**100**

Note: Findings drawn from household survey conducted in Porgera District, Papua New Guinea (N = 382).

Table 3c. Empowerment through Education in SME Development (N = 382)

Strategy	Frequency	Percent (%)
Distribute business information booklets	15	3.9
Provide training	265	69.4
Conduct conferences	12	3.1
Hire business expertise	6	1.6
Total	**382**	**100**

Note: Findings drawn from household survey conducted in Porgera District, Papua New Guinea (N = 382).

5.5 Logistic Regression Analysis

To further test the robustness of the chi-square findings, a binary logistic regression was conducted. The dependent variable—perceived usefulness of participatory communication—was dichotomously coded (0 = Yes; 1 = No). Independent variables included gender, age group, education, and household income, all entered as categorical predictors.

The regression results, presented in Table 4, confirm that education, income, and age remained significant predictors of perceptions of participatory communication when controlling for other variables. Respondents with secondary education or above are significantly more likely to perceive participatory communication as useful compared to illiterate respondents (OR = 2.37, $p < 0.01$). Similarly, respondents with higher household incomes (above K1000) demonstrated increased likelihood of favorable perceptions compared to those earning less than K500 (OR = 1.68–1.89, $p < 0.05$). Younger respondents (31–40 years) also exhibited significantly stronger positive perceptions than those aged 51 and above (OR = 1.86, $p < 0.01$).

In contrast, gender was not a significant predictor ($p = 0.62$), consistent with the chi-square results. This indicates that in the Porgera context, men and women share broadly similar perspectives on the usefulness of participatory communication in SME development.

Overall, the regression findings support the conclusion that human capital (education), economic resources (income), and generational factors (age) are key determinants of how participatory communication is perceived, while gender differences appear to be less influential. These results provide further support for empowerment theory, which emphasizes the enabling role of education and resources in promoting inclusive participation in entrepreneurial ecosystems.

Table 4. Logistic Regression Predicting Perceptions of Participatory Communication (N = 382)

Group (reference)	Variable	B	SE	OR (Exp(B))	95% CI for OR	p-value
	Gender (ref = Female)	0.11	0.22	1.12	0.73 – 1.72	0.620
Age group (ref = 18–30)	31–40	0.62	0.25	1.86	1.14 – 3.03	0.010**
	41–50	-0.44	0.31	0.64	0.35 – 1.18	0.140
	51+	-0.89	0.42	0.41	0.18 – 0.94	0.030*
Education (ref = Illiterate)	Primary school	0.25	0.28	1.29	0.74 – 2.22	0.370
	High school	0.74	0.26	2.10	1.26 – 3.49	0.004**
	Secondary and above	0.86	0.29	2.37	1.34 – 4.17	0.002**
Household Income (ref = <500 Kina)	500–1000	0.38	0.21	1.46	0.97 – 2.21	0.080+
	1000–2000	0.52	0.24	1.68	1.05 – 2.69	0.030*
	>2000	0.64	0.30	1.89	1.05 – 3.41	0.040*
	Constant	-0.72	0.33	0.48	–	0.020*

**Note: Logistic regression results based on survey data collected in Porgera District, Papua New Guinea (N = 382). OR = Odds Ratio; CI = Confidence Interval. Significance: $p < 0.01$; $p < 0.05$; + $p < 0.10$. 95% CIs calculated from B and SE; CI for the constant is omitted by convention.*

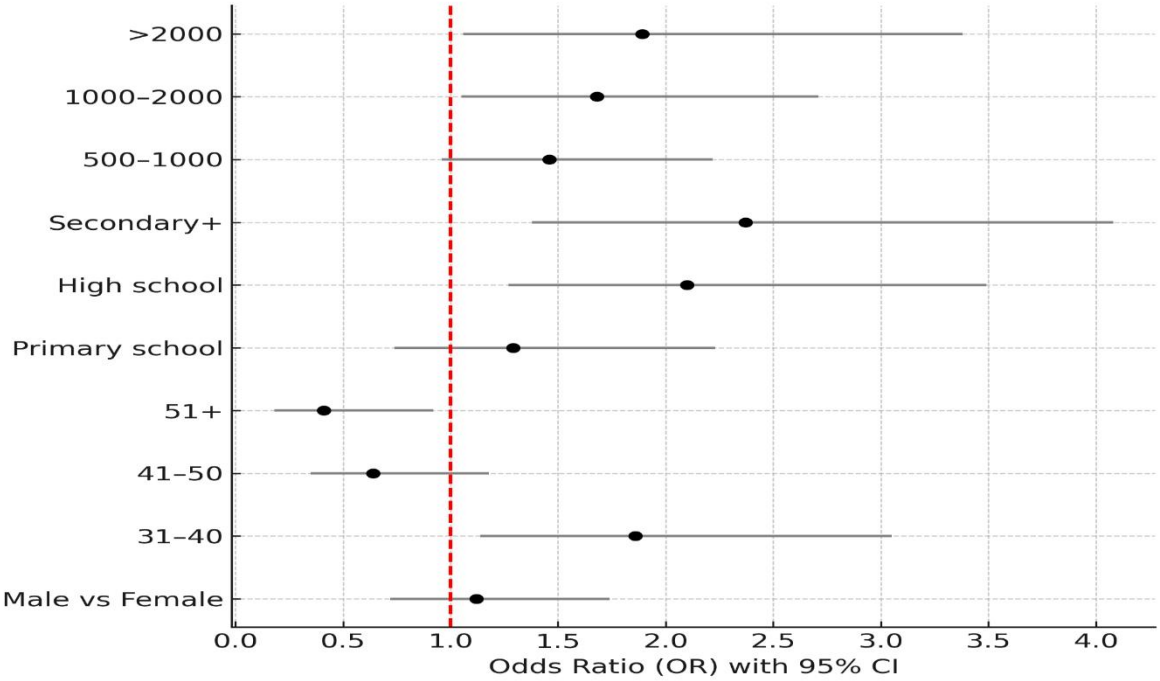

Figure 4. Logistic regression predictors of perceived usefulness of participatory communication (N = 382). Odds ratios (OR) with 95% confidence intervals are shown.

Education and income significantly increased the likelihood of perceiving participatory communication as useful, while gender was not significant. Odds ratios (OR) with 95% confidence intervals are shown.

5.6 Qualitative Insights

The focus group discussions (FGDs) provided contextual insights that complement the quantitative findings. Several key themes emerged.

Youth participation was particularly strong. Young respondents emphasized that dialogue created visibility and opportunities to shape entrepreneurial initiatives. This supports diffusion of innovations theory, which highlights youth as early adopters and change agents (Rogers, 2003).

Education emerged as a source of confidence. Tertiary-educated respondents reported greater ability to engage with SME training and communication forums, aligning with empowerment theory, which links knowledge with agency (Zimmerman, 2000).

Low-income households, by contrast, often reported exclusion due to resource constraints, such as limited funds for travel or participation. This illustrates how economic barriers reinforce inequalities in participatory processes, consistent with entrepreneurial ecosystem theory, which stresses the role of resource access (Stam, 2015).

Women's participation revealed a nuanced picture. While cultural expectations and household responsibilities constrained engagement, some women emphasized that collective forums created opportunities for recognition. As one female entrepreneur explained:

"When the leaders invite us to discuss SME issues, we feel recognized. Even if we don't always speak up, being present is important for building confidence."

This suggests that participatory communication may function as a gender-levelling mechanism, providing women with incremental pathways to voice and empowerment.

Together, these qualitative perspectives reinforce the quantitative findings: age, education, and income strongly shape participation, while gender dynamics remain complex. They highlight that participatory communication, when embedded in SME initiatives, not only informs but also empowers communities in resource-dependent economies.

6. Discussion

This study set out to investigate how participatory communication influences SME development in vulnerable, post-mining communities of Porgera District in the Enga Province of Papua New Guinea (PNG). The results demonstrated that age, education, and income are decisive in shaping perceptions of participatory communication, while gender differences were less significant. These findings extend entrepreneurship theory and provide actionable insights for resource-dependent economies in the Asia-Pacific region.

6.1 Theoretical Contributions

From an entrepreneurial ecosystem perspective, the results reinforced that ecosystems are not built solely on financial and institutional resources but also on social processes of communication (Autio et al., 2018; Stam, 2015). In Porgera, where formal institutions face capacity constraints, communication serves as a complementary mechanism for governance, **fostering** legitimacy and coordination (Imbun, 2006).

Drawing on empowerment theory, education and income strongly predicted positive perceptions, confirming Zimmerman's (2000) assertion that access to knowledge and resources builds agency. Similar findings from community entrepreneurship in the Philippines and Indonesia indicate that education-based capacity building strengthens entrepreneurial ecosystems (ADB, 2021; Santoso, 2019). This highlights the importance of training and literacy interventions as key pillars of entrepreneurship in resource-dependent economies.

In line with diffusion of innovations theory (Rogers, 2003), younger respondents were more receptive to participatory processes, confirming the youth's role as early adopters and drivers of innovation. Comparable evidence from Pacific Island entrepreneurship indicates that youth networks often lead the adoption of digital tools and participatory forums (Bruton et al., 2021; UNESCAP, 2018).

6.2 Interpreting the Gender Paradox

Contrary to much global literature, gender did not significantly shape perceptions of participatory communication (Brush et al., 2018; Minniti & Naudé, 2010). This may indicate that participatory forums in PNG act as equalizing spaces, allowing women to engage at least symbolically. However, qualitative evidence suggests that barriers remain: women's participation is often limited by cultural expectations and time constraints, similar to findings in other resource-dependent economies (Roomi, 2011; De Vita, Mari, & Poggesi, 2014). Evidence from the Pacific Islands also shows that women face structural and cultural barriers to entrepreneurship despite targeted participatory initiatives (UNESCAP, 2018). This duality highlights a participatory paradox: inclusiveness is valued, but equity in voice remains constrained.

6.3 Policy and Practical Implications

The findings have several practical implications:

- Education as empowerment: Literacy and entrepreneurship training must be scaled up, consistent with ADB (2021) evidence that training drives SME survival in resource-dependent Asia-Pacific economies.
- Bridging income barriers: Microfinance, subsidies, and targeted programs are needed to include low-income households, echoing evidence from rural cooperatives in Indonesia (Santoso, 2019) and small business survival strategies in African resource-dependent economies such as Ghana and Kenya (Chu, Benzing, & McGee, 2007).
- Youth-centered programs: Youth receptivity to participatory processes suggests the need for youth-driven innovation policies, as seen in Pacific digital entrepreneurship programs (UNESCAP, 2018).
- Gender-sensitive participation: Although gender differences were not statistically significant, interventions must create safe spaces for women's active engagement (Brush et al., 2018).
- Regional transferability: Lessons from PNG are relevant for other Asia-Pacific resource-dependent economies, such as Mongolia and Solomon Islands, where resource shocks require inclusive SME strategies (ADB, 2021).

7. Conclusion

This study has shown that participatory communication plays a pivotal role in SME development within resource-dependent economies. In Porgera, age, education, and income strongly influenced perceptions of its usefulness, while gender differences were muted. Together, these findings highlighted that inclusive communication is not peripheral but central to entrepreneurship in resource-dependent settings.

Theoretical Contribution: The study integrates participatory communication with empowerment, diffusion of innovations, and ecosystem theory, extending entrepreneurship research by positioning communication as a core entrepreneurial resource (Rogers, 2003; Stam, 2015; Zimmerman, 2000).

Practical Contribution: Policymakers and development agencies should embed participatory forums into SME support systems, focusing on education, financial inclusion, and youth engagement. This aligns with emerging policy recommendations across Asia-Pacific economies (ADB, 2021; UNESCAP, 2018).

Regional Contribution: Evidence from PNG demonstrates that resource-dependent Asia-Pacific economies can leverage participatory communication to foster more inclusive and resilient entrepreneurial ecosystems, extending the regional relevance of entrepreneurship scholarship (Bruton et al., 2021).

Future Research: Comparative studies across resource-dependent Asia-Pacific economies should examine how participatory communication translates into measurable entrepreneurial outcomes such as firm growth and innovation adoption. Longitudinal research is needed to assess whether participation today yields sustainable entrepreneurial capacity tomorrow (Autio et al., 2018). Overall, Participatory communication emerges as a strategic enabling mechanism for SME development in **resource-dependent** economies, reinforcing its **central role** in inclusive entrepreneurial ecosystems. This supports wider evidence that entrepreneurship in resource-dependent contexts depends on ecosystem resilience and inclusive innovation (Bruton, Zahra, & Cai, 2021). Embedding dialogue, empowerment, and inclusivity into SME development can help build resilient and equitable entrepreneurial ecosystems, advancing both regional policy goals and global theory on entrepreneurship.

Conflict of interest

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