Received: February 2016 | Accepted: February 2017

DOI: 10.1111/dpr.12241

ARTICLE

# Project beneficiary participation and behavioural intentions promoting project sustainability: The mediating role of psychological ownership

**Deribe Assefa Aga**[1,2] | **N. Noorderhaven**[1] | **B. Vallejo**[1]

[1]Tilburg University, Tilburg School of Economics and Management (TiSEM), Tilburg, The Netherlands

[2]Ethiopian Civil Service University, Addis Ababa, Ethiopia

**Correspondence**
Deribe Assefa Aga
Email: deribeassefa@yahoo.com

**Funding information**
Dutch organization for internationalization in education (Nuffic), Grant/Award Number: NICHE/ETH/020

**Abstract**

It is of great importance that development projects (especially those projects that target improving the livelihood of rural communities) continue to deliver their intended benefits over their intended economic life—we call this "project sustainability." Applying an experimental design, our study reveals that active involvement of project beneficiaries during the needs assessment and planning stages has a significant positive influence on the behavioural intentions of the project beneficiaries toward project sustainability. Our study also finds that psychological ownership plays a mediating role in the relationship between project beneficiary participation and project sustainability. Implications for project sustainability and directions for future research are discussed.

**KEYWORDS**

community participation, project sustainability, psychological ownership

## 1 | INTRODUCTION

One of the most important areas of concern for both project management theorists and practitioners is project sustainability (Barasa & Jelagat, 2013; Bredillet, 2008; Olsson, Johansen, Langlo, & Torp, 2008). Many development projects at the grassroots level like irrigation and rural water systems face challenges of sustainability, often attributed to a lack of participation in project decision-making by

the intended beneficiaries (Mansuri & Rao, 2004; Olukotun, 2008). This necessitates the initiation of participatory planning and implementation of development projects (Marks & Davis, 2012). Studies show that community participation in project decision-making, particularly at the planning stage, contributes to project sustainability (Khwaja, 2004; Madajewicz, Tompsett, & Habib, 2014; Stiglitz, 2002). For instance, a study by Khwaja (2004) indicates that community participation in non-technical decisions that involve choosing what project to construct (i.e., what need is important) and deciding how to use and manage the project has a strong positive correlation with project sustainability as measured by the aspect of project maintenance. Similarly, a study by Dvir, Raz, and Shenhar (2003) shows that the origination and initiation phase, in which major decisions on project objectives and planning for a project's execution are made, has a significant influence on the project's success and sustainability.

This study will introduce the intermediary role of psychological ownership (PO) in terms of its effect on project beneficiary participation in the needs assessment and planning stages on development project sustainability. In other words, the study will explore whether PO partially or fully mediates the relationship between community participation and project sustainability. PO implies that people feel ownership for things that they create, shape or produce. Feeling that one owns something can have powerful motivational properties, as people care for and nurture their possessions (Avey, Avolio, Crossley, & Luthans, 2009; Liu, Wang, Hui, & Lee, 2012).

Though there is a rich literature on the benefits of PO in improving organizational commitment, job satisfaction, efficacy and social identity, there is little work on the role of PO in project contexts (Asatryan & Oh, 2008; Avey et al., 2009; Pierce & Jussila, 2010; Pierce, Kostova, & Dirks, 2001). This study attempts to extend the concept of PO to the context of projects and to empirically gauge its effect on project sustainability in an experimental study. The purpose of this article is twofold. The first objective is to investigate the impact of community participation on the PO of the project beneficiaries. The second objective is to test the mediating role of PO in the relationship between community participation and project sustainability.

## 2 | THEORETICAL FRAMEWORK

This section presents the theoretical framework of the study by discussing the constructs employed: participation, PO and project sustainability.

### 2.1 | Participation

In this study the emphasis is on community participation, which can be defined as the active involvement in development projects of a specific group with shared needs living in a defined geographical area. Through this social process, the community actively pursues identification of its needs, makes decisions and establishes mechanisms to have these needs materialize (Campbell & Jovchelovitch, 2000; Marschke, Szablowski, & Vandergeest, 2008; Shediac-Rizkallah & Bone, 1998). Referring to development projects, Paul (1987) indicates that communities should participate in all project stages that entail assessing the local situation, defining the local problems, setting priorities, making decisions, planning action programmes to solve the problems, sharing responsibility in project implementation, and evaluating and modifying the projects. Community participation is "an active process by which beneficiary/client groups influence the direction and execution of a development project with a view to enhancing their well-being in terms of income, personal growth, self-reliance or other values they cherish" (Paul, 1987).

According to Brett (2003), participation is an empowering process in which "people, in partnership with each other and those able to assist them, identify problems and needs, mobilize resources, and assume responsibility to plan, manage, control and assess the individual and collective actions that they themselves decide upon." Studies also show that financial contribution by the beneficiary during the implementation stage can be considered as a form of participation that positively influences overall project success and sustainability (Finsterbusch & Van Wicklin, 1987).

In the context of development projects, De Beer (1996) distinguishes between two approaches to participation: participation as involvement and popular participation. Participation as involvement emphasizes initiatives by external agents (like government, non-governmental organizations (NGOs) and donor agencies) that identify the needs of the community, decide the plan of action, manage the projects and mobilize communities or groups to become involved. This can be considered a top-down model of participation that involves the co-option of communities in the implementation of projects (Lyons, Smuts, & Stephens, 2001). On the other hand, popular participation emphasizes a people-centred approach in which the beneficiaries are the main actors and decision-makers (De Beer, 1996).

Although more refined categorizations are possible, we will assume that overall, community participation in development projects may take two main forms depending on the roles of outsiders and direct beneficiaries as key stakeholders in development projects: passive participation and genuine participation (Botes & Van Rensburg, 2000; Brett, 2003; Michener, 1998). In passive participation, external agents dominate the decision-making stages of projects, whereas genuine participation provides real opportunity for the direct beneficiaries to exercise control over development projects right from the initiation stage.

Passive participation and genuine participation conditions will be considered in this study in order to experimentally manipulate community participation. Passive participation relates to the conventional blueprint approach, where the basic assumption is that "projects introduced by outsiders are likely to be consistent with the local felt needs and less likely to have perverse social effects" (Tacconi & Tisdell, 1992). This process gives no role to the beneficiaries in the decision-making process. The key characteristic of this form of participation is that decision-making about needs assessment and planning a project is in the hands of outsiders and relates to externally predetermined objectives (Botes & Van Rensburg, 2000).

Genuine participation, however, assumes that the intended beneficiaries should take part in key decision-making for the project. This form of participation gives opportunities to local people to have control over the project (Madajewicz et al., 2014; Mansuri & Rao, 2004; Riddell, 2013). Similarly, Prokopy (2005) posits that genuine participation can only occur in situations where communities are given the chance to decide about what type of project they want, when they want it and how they want it. One form of genuine participation is to let the members of the community make all decisions without any interference from the external agents such as NGOs. This may, however, leave openings for dominance by elites in the community (Barasa & Jelagat, 2013; Madajewicz et al., 2014). In addition, community participation in technical matters of project decision-making may not have a positive impact on project sustainability (Khwaja, 2004). The other form is to let the external agents (like NGOs) act as facilitators in key decision-making for the project in a participatory approach. This is particularly important in order to minimize the risk of dominance by a few individuals in the community (Madajewicz et al., 2014). The latter modality will be used for the manipulation of genuine participation in this study.

Projects often pass through the five interrelated stages of the project life cycle: needs assessment, conceptual designs and feasibility, action planning, implementation, and operation and maintenance (McConville & Mihelcic, 2007). The involvement and participation of the beneficiaries in the first three stages (needs assessment, project design and planning) promote behavioural

intentions to sustain the project (Pollnac & Pomeroy, 2005). Some projects face challenges at later stages (implementation and operation and maintenance) because the community has felt left out during the design and planning stages (Cloete, Groenewald, & Van Wyk, 1996; Rifkin, Muller, & Bichmann, 1988).

## 2.2 | Psychological ownership

There is scant literature on the impact of PO in the context of project management. However, the concept has been employed in organizational behaviour settings. PO refers to "that state in which individuals feel as though the target of ownership (material or immaterial in nature) or a piece of it is theirs" (Pierce et al., 2001, p. 299). PO represents the feeling of possessiveness and of being psychologically tied to an object without the presence of formal or legal claims of ownership (Mayhew, Ashkanasy, Bramble, & Gardner, 2007; Olckers & Du Plessis, 2012).

Pierce, Kostova and Dirks (2003) elaborate the construct of PO into three distinguishing features. First, PO encompasses the concept of "mine," which represents a feeling of possession toward a particular object that can be either material (like work or tools) or immaterial (like organization or project or ideas). This feature answers the question: "What do I feel is mine?" Second, PO reflects a relationship between an individual and an object; this psychological link leads to a situation where the object is considered as a part of the extended self (Ozler, Yilmaz, & Ozler, 2008). Third, the state of PO has both cognitive and affective elements. The cognitive core reflects the awareness, beliefs and thoughts about the target of ownership. The affective core reflects that a feeling of possession in itself produces pleasure, which is accompanied by a sense of efficacy and competence. The affective component makes an individual develop a sense of personal ownership toward an object (for example, "this project is MINE!") or collective ownership shared with a group (for example, "the project idea is OURS!"). For the purpose of this study, PO refers to the community members' feelings of possession and psychological connection to a project as a whole.

The literature establishes three important routes through which PO emerges: (1) coming to know the target intimately, (2) self-investment in the target, and (3) exercise of control over the target of ownership (Pierce et al., 2001; Van Dyne & Pierce, 2004).

The first route for the development of a sense of PO involves having intimate knowledge of the target. The more information, the better the knowledge and the longer the association of an individual with the target, the stronger the experience of PO toward the target will be. In other words, people will form a closer bond with the target through obtaining intimate knowledge of it, and this will maximize the degree of perceived ownership (Pierce et al., 2001; Van Dyne & Pierce, 2004). In the context of development projects, an individual who has intimate knowledge of and familiarity with a project's initiation, design and mode of implementation would have strong psychological ties to that project.

The second route by which PO occurs is through investing oneself into the target. Investment is not necessarily in terms of financial aspects, but may instead take such various forms as energy, time, skill, ideas, values and effort. Literature shows that there is a positive relationship between the extent of the individual's personal investment in the target and the individual's feelings of PO toward that target (Pierce et al., 2001; Van Dyne & Pierce, 2004).

The third route relates to the control or power individuals have over a target. When people develop a level of perceived control over the target, this increases their PO toward it (Pierce et al., 2001; Van Dyne & Pierce, 2004).

Studies show that in organizational settings PO has a positive influence on the way individuals think and behave (Madajewicz et al., 2014). By the same token, the present study argues that project beneficiaries with stronger feelings of ownership will have more motivation to participate in

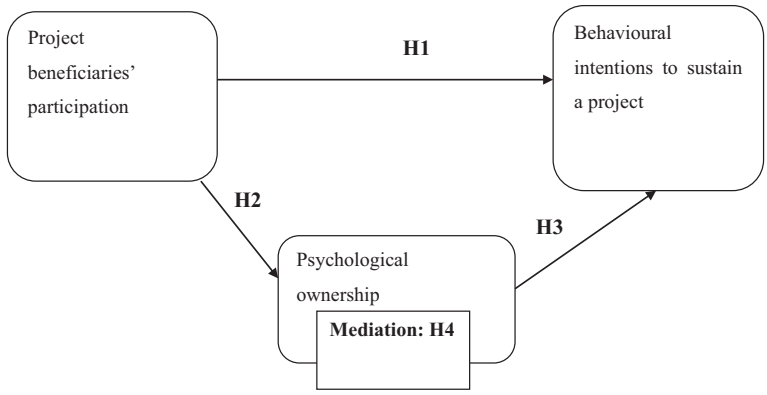


**FIGURE 1** Conceptual framework of the study
Source: Authors' own synthesis based on Barasa and Jelagat (2013), Madajewicz et al. (2014), Lyons et al. (2001) and Stiglitz (2002).

the activities contributing to project sustainability; they will have a higher willingness to share their money and labour for the protection and maintenance of the project. Conversely, where feelings of PO are lacking, we expect interest in and motivation to sustain projects to dwindle.

## 2.3 | Behavioural intentions for project sustainability

The focus of this study is on the (indirect) effect of PO on project sustainability. Project sustainability is critical for the long-term success of a project, but in practice it is often lacking, especially in development projects (Økland, 2015). For the purposes of this article, the meaning of project sustainability can be captured by the following two definitions. The first relates to the behaviours of the end users toward sustaining the operation of the project. Accordingly, Wood (1994, p. 133) defines [project] sustainability as "a [project] which is capable of being supported and maintained by a community or individual over an extended period of time with an absolute minimum of outside assistance." The second definition considers the continuation of the project's services and products after its completion. In this respect, Shediac-Rizkallah and Bone (1998) define project sustainability as the ability of development projects such as water facilities or irrigation schemes to continue a flow of benefits at a specified level for a long period after project inputs have ceased.

Though there are no universally accepted criteria for measuring project sustainability, the literature indicates that it can be measured from at least three perspectives: continuation of benefits after completion of the project, institutionalization of the project, and the creation of capacity building at the community level (Shediac-Rizkallah & Bone, 1998). Continuation of benefits is measured by the percentage of goods and services maintained and delivered. For instance, with water supply projects this can be expressed by measures such as the percentage of the water supply in good condition, the economic value of benefits, the percentage of the target population reached or equality of access. Institutionalization of the project can be assessed in terms of the extent to which the local organizations and local leaders are strong enough to maintain and protect the project infrastructure or systems. The capacity-building dimension can be evaluated by the level of community empowerment and project-related capacity and skills (Bossert, 1990; Paul, 1987; Vallejo & Wehn, 2016).

On the other hand, there are proxy measures related to factors that determine project sustainability as conceptualized in the three perspectives. Such an approach, which is also selected for this study,

entails assessing the behavioural intentions of the direct beneficiaries, such as whether or not they actively participate in the activities that help in sustaining the projects (Ajzen, 1991). Of particular importance are the behavioural intentions that include willingness to pay for recurrent costs, to contribute labour for maintenance, and to protect the project output after its completion (Lyons et al., 2001; Shediac-Rizkallah & Bone, 1998). We will investigate the extent to which PO stimulates such behavioural intentions.

## 3 | RESEARCH MODEL AND HYPOTHESES

This section presents the conceptual framework and hypotheses of the study. It also highlights the relationships between its constructs and variables. Figure 1 depicts this conceptual framework. The study argues that PO mediates the relationship between the participation of the project beneficiaries in project decision-making and behavioural intentions that promote project sustainability.

### 3.1 | Participation and behavioural intentions that promote project sustainability

Participation is considered a useful tool in enhancing the effectiveness, efficiency and coverage of project benefits. Although participation of different stakeholders is needed, the intended project beneficiaries are very important because these people are the ones who decide to continue or stop using the services created by development projects (Mansuri & Rao, 2004; Stiglitz, 2002).

Studies indicate that it is plausible that participation in decision-making by the intended beneficiary influences project outcomes like project sustainability (Isham, Narayan, & Pritchett, 1995; Khwaja, 2004; Mansuri & Rao, 2004). In line with this, Mansuri and Rao (2012) emphasize that participatory development could produce projects that are not only better aligned with the preferences and needs of the beneficiaries, but are also of higher quality and more likely to be sustainable. Other studies point out that community participation in project decision-making is essential to the sustainability of projects (De Beer, 1996; Finsterbusch & Van Wicklin, 1987; Lyons et al., 2001; Mansuri & Rao, 2004; McConville & Mihelcic, 2007; Olukotun, 2008; Stiglitz, 2002).

Though the literature above indicates the potential importance of project beneficiaries' participation for project sustainability, there is a lack of conclusive empirical findings in this area (Isham et al., 1995; Manikutty, 1997; Nagrah, Chaudhry, & Giordano, 2016; Prokopy, 2005). The present study aims to answer calls for more rigorous empirical testing of hypotheses about the effect of beneficiaries' participation on behavioural intentions promoting project sustainability.

As proposed in the literature, a high level of participation (genuine participation) by the intended project beneficiaries is considered a more effective option than a low level (passive participation), since the former provides both symbolic benefits and a sense of control over the outcomes (Brett, 2003; Hideg, Michela, & Ferris, 2011; Michener, 1998). This implies that the effect of participation on project sustainability may be greater when there is genuine participation, compared to passive participation. Hence, we put forward the following hypothesis:

> *Hypothesis 1: Project beneficiaries offered genuine participation in the needs assessment and planning stages of a project will be more likely to have behavioural intentions promoting project sustainability than those offered passive participation.*

## 3.2 | Participation and psychological ownership

As discussed above, the literature establishes that PO toward a certain object (material or immaterial) emerges through three key routes: perceived control, having greater knowledge of and familiarity with an object, and opportunity to create an object (Mayhew et al., 2007; Pierce et al., 2003). Community participation in a project's needs assessment and planning could create these antecedents of PO. Community members may participate, for example, in expressing their preferences to project performing organizations during the project needs assessment and planning stages. This interaction makes them experience PO and feel satisfied with the participation process (Asatryan & Oh, 2008). In this regard, Pierce et al. (2003, p. 92) posit that "people come to find themselves psychologically tied to things as a result of their active participation or association with those things." Therefore, our next hypothesis is as follows:

*Hypothesis 2: Project beneficiaries who are offered genuine participation in the needs assessment and planning stages of a project will be more likely to experience PO toward the project.*

## 3.3 | Psychological ownership and behavioural intentions for project sustainability

From the PO literature, three important outcomes of PO are worth mentioning: positive attitudes, positive self-concept and a sense of responsibility. People tend to evaluate objects and ideas more favourably when they feel a sense of ownership for the target. The sense of ownership is linked to people's conception of self, as people start to feel and act about certain targets that are theirs as they feel and act about themselves (Van Dyne & Pierce, 2004). Similarly, Mayhew et al. (2007) stress that a feeling of possession is a part of the extended self, and a loss of possession is equated to a loss of self. This indicates that individuals who experience PO toward a project should want to maintain their associations with it, resulting in behaviours that promote project sustainability. When people develop feelings of ownership toward a certain material or immaterial target, then they perceive that possession as a part of their extended self and have an increased sense of responsibility that triggers them to invest time and energy into cultivating it (Baer & Brown, 2012; Chung & Moon, 2011).

Overall, those who have high levels of PO are likely to experience the project as an extended part of themselves. As a result, PO will influence responsibility, commitment, pride, caring and protective behaviours directed toward the target of ownership (here, a development project). Therefore, PO helps to build positive attitudes about the project and a sense of responsibility among the beneficiaries in terms of ensuring its maintenance and protection (Olukotun, 2008). More importantly, PO enhances the behavioural intentions of beneficiaries to sustain the project, which would in turn maximize the likelihood of project sustainability (Prokopy, 2005). Thereby, the third hypothesis of the study is:

*Hypothesis 3: PO positively influences behavioural intentions of the project beneficiaries that increase the likelihood of project sustainability.*

## 3.4 | The mediating role of psychological ownership

Several empirical studies show that participation in project decision-making by intended beneficiaries has a positive impact on project sustainability (De Beer, 1996; Khwaja, 2004; Kleemeier, 2000;

Madajewicz et al., 2014; Mansuri & Rao, 2004; Stiglitz, 2002). However, studies of the relationships between participation and project sustainability have failed to specify the mechanism underlying this relationship. We propose that PO acts as a mediator for the effect of participation on project sustainability, since beneficiaries' participation in development projects enhances the sense of ownership (Mansuri & Rao, 2004; Olukotun, 2008; Stiglitz, 2002). In line with this, studies indicate that a high level of feeling of ownership can be obtained when the intended beneficiaries participate in and influence the conception, design and mode of implementation of a development project (Campbell & Vainio-Mattila, 2003; Marks & Davis, 2012).

Pierce and Jussila (2010) and Pierce et al. (2001) indicate that a sense of PO is promoted by the extent to which an individual has control over an outcome and intimately knows and invests in a target. Genuine participation provides a community with a degree of control, and when participating in the design and implementation of a project, people inevitably invest their time and effort and become more likely to contribute to the sustainability of the project. Compared to passive participation, genuine participation is particularly likely to promote a sense of PO. According to Olukotun (2008), when communities are involved in a project's initiation and mode of implementation, they have an interest in maintaining and protecting the project. This would in turn increase the likelihood of project sustainability. In contrast, passive participation would not enhance PO and therefore would be associated with less favourable attitudes and less willingness to promote project sustainability.

Studies indicate that effective participation may lead to increased feelings of ownership and commitment to a project on the part of beneficiaries. Hence, the feeling of possession would serve as an intermediate variable that contributes to the positive behavioural intentions of the beneficiaries to sustain the project (Finsterbusch & Van Wicklin, 1987; Manikutty, 1997). In this way, PO carries over the effect of participation to the sense of responsibility to the project (to nurture, provide for, protect and maintain it). The more individuals feel they own a part of the project through genuine participation, the more likely they are to have behavioural intentions to sustain the project.

Thus, in general, individuals who have an opportunity to participate in project planning would be more likely to experience higher levels of PO. Feelings of possession would create a sense of responsibility that influences behaviour (in this case, manifested by behavioural intentions that enhance project sustainability) (Olckers & Du Plessis, 2012). Accordingly, we examine PO as a mediator, which helps to explain how genuine participation influences behavioural intentions for project sustainability. Hence, we offer the following hypothesis:

> *Hypothesis 4: PO acts as a mediator in explaining the relationship between participation and behavioural intentions of project beneficiaries that promote project sustainability.*

## 4 | METHODS

The aim of the study was to investigate the role of PO (the moderating variable) in the relationship between project beneficiaries' participation (the independent variable) and behavioural intentions to sustain a project (the dependent variable). The study mainly sought to establish cause-effect relationships between the independent and dependent variables. According to Heckman and Smith (1995), there are two main approaches to addressing a research question related to policy evaluation: non-experimental design and experimental design.

Non-experimental design depends heavily on the use of a variety of micro-data sources, statistical methods and behavioural models to assess the effect of certain programmes or treatments on a given

expected outcome (behavioural intention to sustain a project, in our case). Though non-experimental design produces reliable estimates of the mean impacts of particular treatments (Cook, Shadish, & Wong, 2008), creating a treatment group and a control group that are similar in all characteristics (except the induced variable) is problematic (Agodini & Dynarski, 2004). Again, a simple comparison of beneficiaries of projects managed by a participatory approach and beneficiaries of projects managed by a non-participatory approach is likely to be misleading. This is mainly because differences in participants' behavioural intentions to sustain a project may come simply from differences in unobserved variables, such as motivation and project types, instead of participation per se. Therefore, experimental design was appropriate to eliminate other plausible causal variables by assigning participants to different experimental conditions. Further, the limited application of the concepts of PO and behavioural intentions in a project context makes an experimental design preferable to a non-experimental design (Babbie, 2010).

Next, we will present detailed methodological issues about participants and design, procedure and materials, manipulation of the independent variable (in our case, participation), measures of the variables, and data analysis techniques.

## 4.1 | Participants and design

Participants in our experiment were first-year undergraduate students who attended "Introduction to Management" in the Management Department of Micro Link Information Technology College, in Ethiopia. The researcher invited 100 students to participate in role-play exercises on the project identification and planning stages of a project cycle. Of the invited students, 92 attended the simulation exercise and filled out a questionnaire that assessed their perceptions about a sense of PO toward the project and their behavioural intentions toward project sustainability. Participants were randomly assigned to one of two experimental conditions: genuine (47 subjects) or passive participation (45 subjects). The participants received course credit for participation.

## 4.2 | Procedure and materials

Each participant was provided with a booklet containing the scenario for the exercise. The booklet describes a real site where the project is supposed to be implemented. Participants were asked to imagine that they personally have experienced the situation as described in the scenario. In other words, participants were instructed to immerse themselves in the role of a member of a household living in the area of the expected project. This was done to make the laboratory setting resemble an actual field setting. In addition to the experimenter and two assistants, the experimental setting was led by a facilitator who has an educational background in development projects and has rich experience in NGOs.

A week after the booklet had been distributed, participants followed a pre-experimental session that aimed to recapitulate the necessary information about the project context (local description) and the project performing organization (NGO). This pre-experimental session took around three hours.

Next, participants were randomly divided into two groups that were assigned the manipulations of genuine or passive participation, which were consistent with past operationalizations of a similar nature and level of participation (Aguinis & Bradley, 2014; Hideg et al., 2011; Hunton & Beeler, 1997). Drawing from the works by Cloete et al. (1996) and Rifkin et al. (1988), participation in project identification and planning activities involved the definition of project goals and activities, the mobilization of resources, and the methodology of project evaluation.

After this stage, questionnaires were distributed to the two groups of participants in order to measure their PO toward the project as well as their behavioural intentions toward project sustainability.

In addition, a section in the questionnaire had the function of a manipulation check. After having completed the questionnaire, the participants were debriefed.

## 4.3 | Manipulation of "participation"

Under the experimental group condition, the facilitator, with rich experience in the participatory approach in civil society projects, actively involved all participants in making key project decisions by using tools of the participatory approach such as Participatory Rural Appraisal (Tufte & Mefalopulos, 2009). The key decision-making areas in the project included, among other things:

- Conducting the needs assessment and planning stage of the project based on the problems in the stated local area.
- Prioritizing the problems and selecting one critical problem.
- Initiating the project idea (giving a name to the project, writing a brief project description).[1]
- Designing the implementation arrangements for the initiated project (e.g. project activities).
- Determining the share and contributions of the members of community households in terms of money, labour, etc. that would be invested during project implementation.
- Making an appointment to start the actual implementation of the project after the completion of technical work.

Under the control/passive participation group condition, the facilitator (from the project performing organization) dominated the decision-making process, after an extended period of information gathering from the members of community households.[2] Participants were told that their suggestions to improve the preparation of a new project (next-time project) in their locality were welcome, although the suggestions could not be incorporated into the focal project idea as it was already identified, designed and ready for implementation. This model is characterized by the "top-down" approach to development in which decisions are made by a centralized organization, such as a local government or an NGO (Madajewicz et al., 2014; Mansuri & Rao, 2004).

## 4.4 | Measures

### Dependent variable: Behavioural intentions for project sustainability

Behavioural intentions, the study's dependent variable, are indications of whether project beneficiaries intend to engage in behaviours that promote project sustainability. The theory of reasoned action indicates that behaviour can be predicted from intentions (in terms of action, target, context and time) that match directly with that behaviour (Ajzen, 1991; Baker & Crompton, 2000). Accordingly, this article considers the proxy measure of project sustainability in terms of the propensity of intended beneficiaries to achieve project sustainability (Finsterbusch & Van Wicklin, 1987; Mansuri & Rao, 2004). A six-item measure with a seven-point Likert scale (ranging from strongly disagree to strongly agree) was developed based on related studies (Lyons et al., 2001; Martland, 2012; Olukotun, 2008).

[1]An irrigation project idea was put forward by the participants in the "experimental group."

[2]For the "control group," the facilitator imposed a "clean water supply" project idea.

### Mediator variable: Psychological ownership

PO was measured using a nine-item measure developed by Van Dyne and Pierce (2004) and other scholars (Avey et al., 2009; Ozler et al., 2008). The measures of PO developed in the context of an organizational setting were reworded to reflect the project context (for example, "I feel like this is MY project"). Respondents were required to rate the extent to which they agree or disagree with a series of statements on seven-point Likert-type scales (1=strongly disagree; 7=strongly agree). The measurement items for each of the constructs in the questionnaire are printed in Appendix 1.

## 4.5 | Data analysis techniques

***Manipulation checks***: To check our manipulation of participation, we asked participants to indicate their degree of participation in the project needs assessment and planning stages on a seven-point measuring scale (1=highly uninvolved to 7=highly involved) using five questions. The questions centred on how participants rate their level of participation/involvement in the needs assessment and planning stages of the project.

To test the effect of participation on behavioural intentions that promote project sustainability (hypothesis 1), an independent t-test was conducted with the participation types (i.e., conditions: genuine vs. passive) as a grouping variable and behavioural intentions about project sustainability as the outcome variable. Similarly, we employed an independent t-test for hypotheses 2. To test hypothesis 3, we undertook a simple regression analysis. In order to investigate the mediator role of PO (hypothesis 4), the steps recommended by Baron and Kenny (1986) and Frazier, Tix, and Barron (2004) were followed. According to Baron and Kenny (1986), a mediation analysis entails four steps. In step 1 of the mediation analysis, the independent variable—in this case, project beneficiaries' participation—must be related to the dependent variable (i.e., behavioural intentions to sustain a project). In step 2, the independent variable must be related to the mediator variable, PO. In step 3, the mediator variable must significantly relate to the dependent variable. In the last step, when the mediator variable is controlled for, the relationship (i.e., the coefficient) between the independent variable and the dependent variable should be either no longer significant (full mediation) or substantially reduced (partial mediation). In a hierarchical regression analysis, the last two steps are performed concurrently. In addition to these four steps of mediation analysis, we further performed a test of significance of the indirect effect of the predictor variable following the procedures explained by Hayes and Preacher (2014).

# 5 | RESULTS

### Sample characteristics

Participants in our study have an average age of 27 (SD=5.39) and about 4.2 years of work experience (SD=3.20). Out of 87 total participants, 50.6% were female students.

### Manipulation check

Of the experimental group (genuine participation situation), three participants provided incomplete information for question items in the manipulation check. As a result, only the remaining 44 questionnaires were used for the analysis. Two participants of the control group (non-participatory approach) provided incomplete information for the manipulation check questions. As a result, 43 questionnaires were considered acceptable.

As indicated in Table 1, participants in the genuine participation condition perceived higher involvement in the project needs assessment and planning stages (M=6.0273, SD=0.65214) than participants in the non-participatory condition (M=1.4047, SD=0.44612, t (85)=38.502, p<0.001).

## Hypotheses testing

Hypothesis 1 is concerned with the effect of the level of participation (genuine vs. passive) on perceived behavioural intentions to promote project sustainability. Table 2 provides the means of the behavioural intention scores. The effect of project beneficiary participation on behavioural intention scores is significant, with *t* (85)=-22.88, p<0.001. Supporting hypothesis 1, participants who were assigned to the participatory condition expressed stronger behavioural intentions to promote project sustainability (M=5.992, SD=0.723) than participants in the non-participatory approach group (M=2.481, SD=0.710). Therefore, hypothesis 1 is not rejected.

Hypothesis 2 proposes that project beneficiaries' participation is positively related to PO toward a project. The results of an independent t-test (Table 3) reveal that those assigned to the participatory condition (M=6.154, SD=0.655) had significantly higher positive PO toward a project than those assigned to the non-participatory approach (M=1.861, SD=0.551). Thus, hypothesis 2 is not rejected.

Hypothesis 3 states that PO is positively related to behavioural intentions promoting the likelihood of project sustainability. The results in Table 4 show a strong and highly significant relationship between PO and behavioural intentions to sustain a project (β=0.806, p<0.001). This finding offers strong support for not rejecting hypothesis 3.

We next tested whether the relation between participation in the needs assessment and planning stages of a project and behavioural intentions toward project sustainability was mediated by PO (hypothesis 4). Following a four-step approach proposed by Baron and Kenny (1986), statistics of the simple mediation analysis of the data from the experimental study are shown in Table 5. In model 1, the result shows that project beneficiaries' participation has a positive significant influence on behavioural intentions to sustain a project (b=3.512, p<0.001). Thereby, step 1 of the meditational analysis is satisfied. In model 2, beneficiaries' participation is significantly correlated with PO, which is the mediator (b =0.4.294, p<0.001), meeting the second condition for mediation.

**TABLE 1** Descriptive Statistics for the Manipulation Check

| | Degree of participation in the project needs assessment and planning stages | |
|---|---|---|
| **Condition** | **Mean** | **SD** |
| Participatory approach (n=44) | 6.0273 | 0.65214 |
| Non-participatory approach (n=43) | 1.4047 | 0.44612 |

Source: Authors' survey data.

**TABLE 2** Project Beneficiary Participation as a Predictor of Behavioural Intentions to Sustain a Project

| | Behavioural intentions to sustain a project (Y) | |
|---|---|---|
| **Conditions** | **Mean** | **SD** |
| Non-participatory approach/control group (n=43) | 2.481 | 0.710 |
| Participatory approach (n=44) | 5.992 | 0.723 |

Notes. t (85)=-22.88, p<0.001). Source: Authors' survey data.

**TABLE 3** The Effect of Participation on PO Toward the Project

| | PO | |
|---|---|---|
| **Conditions** | **Mean** | **SD** |
| Non-participatory approach/control group (n=43) | 1.861 | 0.551 |
| Participatory approach (n=44) | 6.154 | 0.655 |

Notes. t (85)=-33.039, p<0.001. Source: Authors' survey data.

**TABLE 4** Unstandardized Coefficients of Regression Analysis for PO and Behavioural Intentions to Sustain a Project

| | (1) |
|---|---|
| | **Behavioural intentions to sustain a project** |
| Psychological ownership | 0.806*** |
| | (0.0290) |
| _Constant | 1.006*** |
| | (0.133) |
| *N* | 87 |
| $R^2$ | 0.901 |

Note. Standard errors in parentheses. *p < 0.05, **p < 0.01, ***p < 0.001

**TABLE 5** Summary Statistics for Unstandardized Coefficients of Simple Mediation

| | Model 1 (Step 1) | Model 2 (Step 2) | Model 3 (Steps 3 & 4) |
|---|---|---|---|
| | **Intention** | **PO** | **Intention** |
| Condition† | 3.512*** | 4.294*** | 0.691 |
| | (0.154) | (0.130) | (0.478) |
| Psychological ownership | | | 0.657*** |
| | | | (0.107) |
| Constant | 2.481*** | 1.860*** | 1.258*** |
| | (0.109) | (0.0924) | (0.219) |
| *N* | 87 | 87 | 87 |
| $R^2$ | 0.860 | 0.928 | 0.903 |

Notes. Standard errors in parentheses, *p <0.05, **p <0.01, ***p <0.001, †the conditions are [0=participatory approach; 1= non-participatory approach].Source: Authors' survey data.

Model 3 in Table 5 entails performing a hierarchical regression analysis by using both the independent variable (beneficiaries' participation) and the mediator (PO) as potential predicators of behavioural intention. The results indicate that PO is a significant predictor of behavioural intentions to sustain a project (b=0.657, SE=0.107, p<0.001). Moreover, project beneficiary participation was no longer a significant predictor of behavioural intentions to enhance project sustainability after controlling for PO (b=0.691, SE=0.478, p>0.05). Approximately 90% of the variance in behavioural

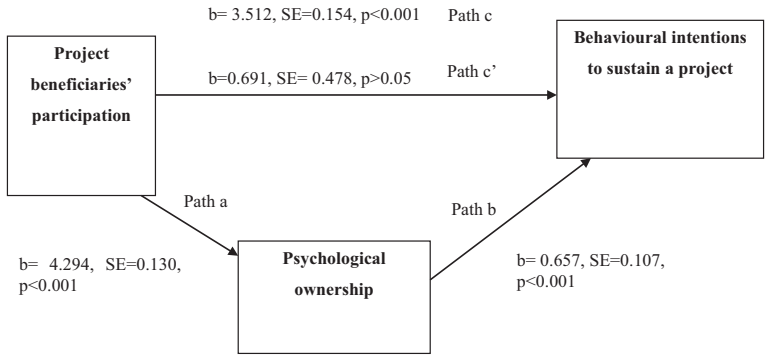


**FIGURE 2** Outputs from Mediation Analysis in Our Model
Source: The authors.

intentions to sustain a project was accounted for by the predictors ($R^2$=.903). Sobel's test confirmed the significant indirect effect of PO (Z=6.04, SE=.48, p<.001). Thus, Hypothesis 4 is not rejected.

In summing up the results from the mediation analysis, Figure 2 indicates the outputs from the regression analysis by taking the raw (unstandardized) regression coefficients and the corresponding standard errors for the above steps: (a) PO was positively related to participation (b=4.294, p<0.001), (b) participation was positively related to behavioural intentions (b=3.512, p<0.001), and (c) when both PO and participation were entered into the regression, the estimate of participation's effect dropped (becoming non-significant; b=0.691, ns) and PO remained significant (b=0.657, p<0.001).

## 6 | DISCUSSION

Our study investigates whether active involvement of project beneficiaries during the needs assessment and planning stages of a project affects PO, which in turn can enhance the behavioural intentions of project beneficiaries toward project sustainability. The study employed a mediation model with an experimental design on a sample of 87 students (44 in the experimental group and 43 in the control group) by letting the participants play the role of project beneficiaries in the project needs assessment and planning stages. In line with the expectations, the result showed that participants under the genuine participation condition (experimental group) elicited higher positive behavioural intentions to sustain development projects than those under the passive participation condition (control group). The finding indicated that PO mediates the relationship between project beneficiary participation and behavioural intentions that promote project sustainability.

Our study makes several contributions to the project management literature. First, our findings complement previous studies on PO (Mayhew et al., 2007; Olckers & Du Plessis, 2012) by indicating that PO, in the absence of formal and legal ownership, can improve beneficiary behavioural intentions, in our study those aimed toward project sustainability.

A second contribution of our study is the application of PO in the context of project management. Ours is, as far as we know, the first study to experimentally test the mediating role of PO in the project context. This research supports the hypothesis that genuine participation in the needs assessment and planning stages of development projects is positively related to behavioural intentions promoting project sustainability. PO appears to be an important aspect of the relationship between project beneficiary participation and the behaviours that determine project sustainability. The findings underline

the relevance of PO in explaining the strong positive effect of genuine participation on behavioural intentions promoting project sustainability.

A straightforward practical implication of our research is that the management of development projects should consider the genuine participation of the project beneficiaries in the stages of needs assessment and planning. Genuine participation can instil a sense of PO that further ensures the sustainability of a project, in the absence of any formal or legal ownership claims. In development projects the creation of feelings of possession toward the project is a necessary condition to improve the behavioural intentions promoting project sustainability.

The study underlined that community participation during the project needs assessment and planning stages can be a mechanism to improve the PO of the people toward a project. In the context of project management, organizations can instil a sense of PO for the project beneficiaries through a genuine participatory approach in the needs assessment and planning stages. This does not mean that project beneficiary participation at the later stages of a project is not important, but we could not test for this in our experimental design. The finding of this study is in line with previous studies on general management in organizations that propose three routes for PO to emerge: coming to know the target, self-investment in the target and exercise of control over the target (Pierce, Jussila, & Cummings, 2009). Applying this logic to development projects means that development projects should actively involve the target community (beneficiary) starting from the needs assessment and planning stages.

## 7 | LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Our study has several limitations. First, our participants were undergraduate students, raising questions about the extent to which the results are generalizable to the real beneficiaries of a project. However, despite being undergraduate students, the participants were relatively mature (27 years old on average) and had significant work experience (more than four years on average). Moreover, participants were led to assume the role of the project beneficiaries as if they lived in the environment explained in the vignette scenario (Aguinis & Bradley, 2014). Thus, the target participants were relevant in our study. The second potential limitation of this research is the use of a case scenario in manipulating the level of participation in the project needs assessment and planning stages. This poses the problem that participants may not perceive the manipulated social setting as real. In addition, a scenario study is characterized by weak external validity despite having strong internal validity (Leary, 2012). In this regard, we encourage researchers to test our model using a quasi-experimental design in a field setting.

The third limitation relates to the question of how well intentions predict behaviour. Our study builds on classical social psychological models—such as the theory of reasoned action and the theory of planned behaviour—that propose intention to perform as the most immediate and important predictor of a person's behaviour (Sheeran, 2002; van Hooft, Born, Taris, Van der Flier, & Blonk, 2005; Webb & Sheeran, 2006). Though the gap between intentions and behaviour is not negligible, a meta-analysis by Sheeran (2002) concludes that intentions remain the key predictor of behaviour for social and applied psychologists. In the context of our experiment, the likelihood that expressed behavioural intentions would be linked to actual behaviours in practices is strengthened by the extensive discussion of the case, which made the situation salient to the students.

The fourth limitation of this study is the fact that none of the study participants received any tangible benefit from the project simulated by the vignette approach. However, the literature on economic experiments shows that participants are relatively insensitive to the level of the reward they can gain

(Cameron, 1999). This makes us confident that the response behaviour of our participants is not qualitatively different from that in a situation with real benefits.

Finally, the present study identified PO as a factor mediating the interaction between project beneficiary participation and behaviours fostering project sustainability. Previous literature (Botchway, 2001; Brett, 2003; Lyons et al., 2001) documents such mediating variables as community capacity building and empowerment in the relationship between participation and project sustainability. Future research could attempt to identify other potential mediators and moderators.

## 8 | CONCLUSION

Development projects targeting rural communities for the purpose of alleviating poverty are essential in developing countries. But such projects face challenges of sustainability. To address this problem, organizations (mainly NGOs) need to find ways to enhance project sustainability. This research proposed and tested the viability of using a well-established project management tool—beneficiary participation—to help solve the sustainability issue in a development project context. We specifically found that genuine participation in the needs assessment and planning stages instils PO in project beneficiaries, which in turn leads to positive behavioural intentions that promote project sustainability. Therefore, development projects should consider demand-driven and management-for-stakeholders approaches, which seek to accentuate genuine participation by project beneficiaries, in the needs assessment and planning stages of the project life cycle.

## ACKNOWLEDGEMENTS

The authors are indebted to the insightful comments and suggestions provided by an anonymous reviewer. This research was financed by the Dutch organization for internationalization in education (Nuffic), under grant no. NICHE/ETH/020, and co-ordinated by Tilburg University.

## REFERENCES

Agodini, R., & Dynarski, M. (2004). Are experiments the only option? A look at dropout prevention programs. *Review of Economics and Statistics*, *86*, 180–194. https://doi.org/10.1162/003465304323023741

Aguinis, H., & Bradley, K. (2014). Best practice recommendations for designing and implementing experimental vignette methodology studies. *Organizational Research Methods*, *17*, 3513–3571. https://doi.org/10.1177/1094428114547952

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Asatryan, V., & Oh, H. (2008). Psychological ownership theory: An exploratory application in the restaurant industry. *Journal of Hospitality & Tourism Research*, *32*, 363–386. https://doi.org/10.1177/1096348008317391

Avey, J., Avolio, B., Crossley, C., & Luthans, F. (2009). Psychological ownership: Theoretical extensions, measurement and relation to work outcomes. *Journal of Organizational Behavior*, *30*, 173–191. https://doi.org/10.1002/job.583

Babbie, E. (2010). *The basics of social research* (12th ed.). Belmont, CA: Wadsworth.

Baer, M., & Brown, G. (2012). Blind in one eye: How psychological ownership of ideas affects the types of suggestions people adopt. *Organizational Behavior and Human Decision Processes*, *118*, 60–71. https://doi.org/10.1016/j.obhdp.2012.01.003

Baker, D., & Crompton, J. (2000). Quality, satisfaction and behavioral intentions. *Annals of Tourism Research*, *27*, 785–804. https://doi.org/10.1016/S0160-7383(99)00108-5

Barasa, F., & Jelagat, T. (2013). Community participation in project planning, management and implementation: Building the foundation for sustainable development. *International Journal of Current Research*, *5*, 398–401.

Baron, R., & Kenny, D. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Bossert, T. (1990). Can they get along without us? Sustainability of donor-supported health projects in Central America and Africa. *Social Science & Medicine*, *30*, 1015–1023. https://doi.org/10.1016/0277-9536(90)90148-L

Botchway, K. (2001). Paradox of empowerment: Reflections on a case study from Northern Ghana. *World Development*, *29*, 135–153. https://doi.org/10.1016/S0305-750X(00)00084-X

Botes, L., & Van Rensburg, D. (2000). Community participation in development: Nine plagues and twelve commandments. *Community Development Journal*, *35*, 41–58. https://doi.org/10.1093/cdj/35.1.41

Bredillet, C. (2008). Exploring research in project management: Nine schools of project management research (part 4). *Project Management Journal*, *39*(1), 2–6. https://doi.org/10.1002/pmj.20230

Brett, E. (2003). Participation and accountability in development management. *The Journal of Development Studies*, *40*(2), 1–29. https://doi.org/10.1080/00220380412331293747

Cameron, L. A. (1999). Raising the stakes in the ultimatum game: Experimental evidence from Indonesia. *Economic Inquiry*, *37*, 47–59. https://doi.org/10.1111/j.1465-7295.1999.tb01415.x

Campbell, C., & Jovchelovitch, S. (2000). Health, community and development: Towards a social psychology of participation. *Journal of Community & Applied Social Psychology*, *10*, 255–270. https://doi.org/10.1002/1099-1298(200007/08)10:4<255:AID-CASP582>3.0.CO;2-M

Campbell, L., & Vainio-Mattila, A. (2003). Participatory development and community-based conservation: Opportunities missed for lessons learned? *Human Ecology*, *31*, 417–437. https://doi.org/10.1023/A:1025071822388

Chung, Y., & Moon, H. (2011). The moderating effects of collectivistic orientation on psychological ownership and constructive deviant behavior. *International Journal of Business and Management*, *6*(12), 65–77. https://doi.org/10.5539/ijbm.v6n12p65

Cloete, P., Groenewald, C., & Van Wyk, M. (1996). *People first! A practical guide to community development*. Retrieved from Stellenbosch University Library and Information Services website: http://scholar.sun.ac.za/handle/10019.1/20435

Cook, T. D., Shadish, W. R., & Wong, V. C. (2008). Three conditions under which experiments and observational studies produce comparable causal estimates: New findings from within-study comparisons. *Journal of Policy Analysis and Management*, *27*, 724–750. https://doi.org/10.1002/pam.20375

De Beer, F. (1996). Reconstruction and development as people-centered development: Challenges facing development administration. *Africanus*, *26*(1), 65–80. http://hdl.handle.net/10520/AJA0304615X_192

Dvir, D., Raz, T., & Shenhar, A. (2003). An empirical analysis of the relationship between project planning and project success. *International Journal of Project Management*, *21*(2), 89–95. https://doi.org/10.1016/S0263-7863(02)00012-1

Finsterbusch, K., & Van Wicklin, W. (1987). The contribution of beneficiary participation to development project effectiveness. *Public Administration and Development*, *7*, 1–23. https://doi.org/10.1002/pad.4230070102

Frazier, P., Tix, A., & Barron, K. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology*, *51*, 115–134. https://doi.org/10.1037/0022-0167.51.1.115

Hayes, A., & Preacher, K. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, *67*, 451–470. https://doi.org/10.1111/bmsp.12028

Heckman, J. J., & Smith, J. A. (1995). Assessing the case for social experiments. *The Journal of Economic Perspectives*, *9*(2), 85–110. https://doi.org/10.1257/jep.9.2.85

Hideg, I., Michela, J., & Ferris, L. (2011). Overcoming negative reactions of nonbeneficiaries to employment equity: The effect of participation in policy formulation. *Journal of Applied Psychology*, *96*, 363–376. https://doi.org/10.1037/a0020969

Hunton, J., & Beeler, J. (1997). Effects of user participation in systems development: A longitudinal field experiment. *MIS Quarterly*, *21*, 359–388. https://doi.org/10.2307/249719

Isham, J., Narayan, D., & Pritchett, L. (1995). Does participation improve performance? Establishing causality with subjective data. *The World Bank Economic Review*, *9*, 175–200. https://doi.org/10.1093/wber/9.2.175

Khwaja, A. I. (2004). Is increasing community participation always a good thing? *Journal of the European Economic Association*, *2*, 427–436. https://doi.org/10.1162/154247604323068113

Kleemeier, E. (2000). The impact of participation on sustainability: An analysis of the Malawi rural piped scheme program. *World Development*, *28*, 929–944. https://doi.org/10.1016/S0305-750X(99)00155-2

Leary, M. (2012). *Introduction to behavioral research methods* (6th ed.). Pacific Grove, CA: Brooks/Cole.

Liu, J., Wang, H., Hui, C., & Lee, C. (2012). Psychological ownership: How having control matters. *Journal of Management Studies*, *49*, 869–895. https://doi.org/10.1111/j.1467-6486.2011.01028.x

Lyons, M., Smuts, C., & Stephens, A. (2001). Participation, empowerment and sustainability: (How) do the links work? *Urban Studies*, *38*, 1233–1251. https://doi.org/10.1080/00420980125039

Madajewicz, M., Tompsett, A., & Habib, A. (2014). *Community participation in decision-making evidence from an experiment in providing safe drinking water in Bangladesh*. Retrieved from https://cepr.org/sites/default/files/TOMPSETT%20-%20Participation%20in%20Decision-Making%20v4.pdf

Manikutty, S. (1997). Community participation: So what? Evidence from a comparative study of two rural water supply and sanitation projects in India. *Development Policy Review*, *15*, 115–140. https:/doi.org/10.1111/1467-7679.00029

Mansuri, G., & Rao, V. (2004). Community-based and -driven development: A critical review. *The World Bank Research Observer*, *19*, 1–39. https://doi.org/10.1093/wbro/lkh012

Mansuri, G., & Rao, V. (2012). *Localizing development: Does participation work?* Retrieved from World Bank website: http://documents.worldbank.org/curated/en/461701468150309553/Localizing-development-does-participation-work

Marks, S., & Davis, J. (2012). Does user participation lead to sense of ownership for rural water systems? Evidence from Kenya. *World Development*, *40*, 1569–1576. https://doi.org/10.1016/j.worlddev.2012.03.011

Marschke, M., Szablowski, D., & Vandergeest, P. (2008). Engaging indigeneity in development policy. *Development Policy Review*, *26*, 483–500. https://doi.org/10.1111/j.1467-7679.2008.00419.x

Martland, C. (2012). *Toward more sustainable infrastructure: Project evaluation for planners and engineers*. New York, NY: John Wiley & Sons Inc.

Mayhew, M. G., Ashkanasy, N. M., Bramble, T., & Gardner, J. (2007). A study of the antecedents and consequences of psychological ownership in organizational settings. *The Journal of Social Psychology*, *147*, 477–500. https://doi.org/10.3200/SOCP.147.5.477-500

McConville, J., & Mihelcic, J. (2007). Adapting life-cycle thinking tools to evaluate project sustainability in international water and sanitation development work. *Environmental Engineering Science*, *24*, 937–948.

Michener, V. J. (1998). The participatory approach: Contradiction and co-option in Burkina Faso. *World Development*, *26*, 2105–2118. https://doi.org/10.1016/S0305-750X(98)00112-0

Nagrah, A., Chaudhry, A. M., & Giordano, M. (2016). Collective action in decentralized irrigation systems: Evidence from Pakistan. *World Development*, *84*, 282–298. https://doi.org/10.1016/j.worlddev.2016.02.003

Økland, A. (2015). Gap analysis for incorporating sustainability in project management. *Procedia Computer Science*, *64*, 103–109. https://doi.org/10.1016/j.procs.2015.08.469

Olckers, C., & Du Plessis, Y. (2012). The role of psychological ownership in retaining talent: A systematic literature review. *SA Journal of Human Resource Management*, *10*(2), 1–18. https://doi.org/10.4102/sajhrm.v10i2.415

Olsson, N., Johansen, A., Langlo, A., & Torp, O. (2008). Project ownership: Implications on success measurement. *Measuring Business Excellence*, *12*(1), 39–46. https://doi.org/10.1108/13683040810864378

Olukotun, A. (2008). Achieving project sustainability through community participation. *Journal of Social Science*, *17*, 21–29. https://doi.org/10.1080/09718923.2008.11892630

Ozler, H., Yilmaz, A., & Ozler, D. (2008). Psychological ownership: An empirical study on its antecedents and impacts upon organizational behaviors. *Problems and Perspectives in Management*, *6*(3), 38–47. https://businessperspectives.org/journals/problems-and-perspectives-in-management/issue-20/psychological-ownership-an-empirical-study-on-its-antecedents-and-impacts-upon-organizational-behaviors

Paul, S. (1987). *Community participation in development projects*. Retrieved from World Bank website: http://documents.worldbank.org/curated/en/850911468766244486/Community-participation-in-development-projects-the-World-Bank-experience

Pierce, J., & Jussila, I. (2010). Collective psychological ownership within the work and organizational context: Construct introduction and elaboration. *Journal of Organizational Behavior*, *31*, 810–835. https://doi.org/10.1002/job.628

Pierce, J., Kostova, T., & Dirks, K. (2001). Toward a theory of psychological ownership in organizations. *Academy of Management Review*, *26*, 298–310. https://doi.org/10.5465/amr.2001.4378028

Pierce, J., Kostova, T., & Dirks, K. (2003). The state of psychological ownership: Integrating and extending a century of research. *Review of General Psychology*, *7*, 84–107. https://doi.org/10.1037//1089-2680.7.1.84

Pierce, J. L., Jussila, I., & Cummings, A. (2009). Psychological ownership within the job design context: Revision of the job characteristics model. *Journal of Organizational Behavior*, *30*, 477–496. https://doi.org/10.1002/job.550

Pollnac, R., & Pomeroy, R. (2005). Factors influencing the sustainability of integrated coastal management projects in the Philippines and Indonesia. *Ocean & Coastal Management*, *48*, 233–251. https://doi.org/10.1016/j.ocecoaman.2005.04.003

Prokopy, L. S. (2005). The relationship between participation and project outcomes: Evidence from rural water supply projects in India. *World Development*, *33*, 1801–1819. https://doi.org/10.1016/j.worlddev.2005.07.002

Riddell, R. (2013). Assessing the overall impact of civil society on development at the country level: An exploratory approach. *Development Policy Review*, *31*, 371–396. https://doi.org/10.1111/dpr.12011

Rifkin, S. B., Muller, F., & Bichmann, W. (1988). Primary health care: On measuring participation. *Social Science & Medicine*, *26*, 931–940. https://doi.org/10.1016/0277-9536(88)90413-3

Shediac-Rizkallah, M., & Bone, L. (1998). Planning for the sustainability of community-based health programs: Conceptual frameworks and future directions for research, practice and policy. *Health Education Research*, *13*, 87–108. https://doi.org/10.1093/her/13.1.87

Sheeran, P. (2002). Intention–behavior relations: A conceptual and empirical review. *European review of social psychology*, *12*, 1–36. https://doi.org/10.1080/14792772143000003

Stiglitz, J. E. (2002). Participation and development: Perspectives from the comprehensive development paradigm. *Review of Development Economics*, *6*, 163–182. https://doi.org/10.1111/1467-9361.00148

Tacconi, L., & Tisdell, C. (1992). Rural development projects in LDCs: Appraisal, participation and sustainability. *Public Administration and Development*, *12*, 267–278. https://doi.org/10.1002/pad.4230120305

Tufte, T., & Mefalopulos, P. (2009). *Participatory communication: A practical guide* (World Bank Working Paper No. 170). Retrieved from World Bank website: http://documents.worldbank.org/curated/en/682081468166154717/Participatory-communication-a-practical-guide

Vallejo, B., & Wehn, U. (2016). Capacity development evaluation: The challenge of the results agenda and measuring return on investment in the Global South. *World Development*, *79*, 1–13. https://doi.org/10.1016/j.worlddev.2015.10.044

Van Dyne, L., & Pierce, J. (2004). Psychological ownership and feelings of possession: Three field studies predicting employee attitudes and organizational citizenship behavior. *Journal of Organizational Behavior*, *25*, 439–459. https://doi.org/10.1002/job.249

van Hooft, E. A. J., Born, M. P., Taris, T. W., Van der Flier, H., & Blonk, R. W. (2005). Bridging the gap between intentions and behavior: Implementation intentions, action control, and procrastination. *Journal of Vocational Behavior*, *66*, 238–256. https://doi.org/10.1016/j.jvb.2004.10.003

Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, *132*, 249. https://doi.org/10.1037/0033-2909.132.2.249

Wood, M. (1994, August). *Are handpumps really affordable?* Paper presented at the 20th WEDC Conference on Affordable Water Supply and Sanitation, Colombo, Sri Lanka. Retrieved from http://www.watsan.org/docs/Wood—are-handpumps-affordable.pdf

**How to cite this article:** Aga DA, Noorderhaven N, Vallejo B. Project beneficiary participation and behavioural intentions promoting project sustainability: The mediating role of psychological ownership. *Dev Policy Rev*. 2018; 00: 1–20. https://doi.org/10.1111/dpr.12241

## APPENDIX 1

### Measurement items

**Psychological ownership:**

**1.** I feel like this is MY project.
**2.** I feel that I am one of the owners of this project.
**3.** Most people that directly benefit from this project feel as though they own the project.
**4.** I sense that this project is OUR project.

5. It is hard for me to think of this project as MINE.
6. I feel that this project belongs to me.
7. I am responsible for the project we designed.
8. I am totally comfortable being a part of this project.
9. I feel like I own this project.

**Behavioural intentions for project sustainability:**

1. I am very concerned about the proper functioning of the project for a long period of time.
2. I am very concerned whether the project will be properly maintained.
3. I am willing to contribute my money for the maintenance of the project, if the need arises.
4. I am willing to contribute my labour for the maintenance of the project, if the need arises.
5. I expect that there will be a fair distribution of the project benefits among the beneficiaries.
6. I expect that the infrastructure of this project will be protected and maintained by the community members.

**For manipulation check**:

1. Your level of involvement in the needs assessment of the project.
2. Your level of involvement in the selection of the project idea.
3. Your level of involvement in defining the project objectives and activities.
4. Your level of involvement in making decisions about the mobilization of resources for the project.
5. Your level of involvement in making decisions about the methodology of project monitoring and evaluation.