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Effect of Employing Mobile-Based Application Tools for Monitoring and Evaluation of Community and Social Development Projects in South West Nigeria

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Abstract:
The significant of monitoring and evaluation (M&E) in project management cannot be over-emphasised as M&E stands to improve the quality and efficiency of developing policies and implementations. This study was carried out to determine the effect of employing mobile-based application tools for monitoring and evaluation of community and social development projects (CSDPs) in South West, Nigeria from 2009 – 2014 using innovation in information technology (IIT). A total sample size of two hundred and ninety (290) respondents was purposively selected across the South West states. Data analytical tools (simple descriptive statistics such as frequency, percentage, mean and standard deviation) were used for the analysis of the data collected. Findings indicated that more than ninety percent (90%) of the respondents were directly involved in M&E of community development. The results further showed that, all the respondents' perception on the effect of employing mobile-based applications tools for monitoring and evaluation of community and social development projects (CSDPs) in the study area were significant, with all the mean scores above 3.00. High quality and dependable data (3.73) has the highest mean scores, followed by flexible and easy tracking of project's progress, impact and enabling participating, regular and timely feedback both have 3.70 each.The study recommended that government at all levels are advice to legislate, institutionalise and scale up Management Information System (MIS) in Ministries, Departments and Agencies (MDAs) for transparent, cost effective, timely, efficient and sustainable participatory Monitoring and evaluation of various projects.

Keywords: Project, Monitoring and Evaluation (M&E), Mobile-based applications Tools, CSDP and ICT

1. Introduction

Monitoring and Evaluation (M&E) of community and social development projects (CSDPs) are vital part in the developmental project of communities. The effective monitoring and evaluation of CSDPs determine the extent of its effects and further affirm where public services are most needed, and what approaches prove effective. However, mobile tools are technologies that allow the end user to take the technology solution with them wherever they go. The mobility of such devices and the hardware that is built into them such as camera, video and GPS allow the opportunity to track a user's context regarding their current situation with timeliness feedback. According to Haushofer and Neihaus (2013), mobile tools which include; hardware like mobile phones and tablets, applications with the capacity to create digital surveys, and software that allows users to upload data to storage facilities in real time, reduce the conventional challenges associated with remote data collection and projects monitoring and evaluation (PM&E). Mobile tools also enable regular feedback and early insights that can be applied immediately for greater impact, whether to correct course or address emerging issues. Using these tools also allows timely data mining to monitor trends and to inform programme design and direction (Raftree, 2012).

Data collection, monitoring and evaluation through mobile-based application are fast in taking over traditional methods of collecting and using information – and the results are impressive (Farmer and Boots, 2013). It is also an improvement on traditional monitoring and evaluation efforts with intensive data collection and analytical periods, such as baseline and end of project analysis. The data can now be collected iteratively and continuously throughout the project. Moreover, the use of a mobile-based application for monitoring and evaluation can pay dividends beyond a single project. However, monitoring periodic tracking (for example, daily, weekly, monthly, quarterly, annually) of project's progress by systematically gathering and analyzing data and information about what is done, and whether the activities are being

implemented as planned are of great important (USAID, 2012). Moreover, according to USAID, (2012), evaluation is the comparison of actual project impact against agreed-on plans. Evaluation looks at what was set out to do, what have been accomplished, and how it was accomplished. It is the periodic assessment of the relevance, performance, efficiency and impact of the project on people and the society. Reporting on the other hand is the systematic and timely provision of essential information at periodic intervals.

The Rockefeller Foundation (2014) put up mobile data collection tools to enable direct transfer of data to central database where data can be immediately analyzed and acted upon. As a result, data quality is improved because the transcription from paper surveys to an electronic data store is eliminated, significantly mitigating the opportunity for human errors in the data entry process. The mobile data entry forms offer numerous data validation options that can ensure that all required data are entered and that the data conform to the correct formats and value ranges, again reducing the effort required to clean data.

World Bank, (2006) opines that monitoring and evaluation is a management tool for those who manage minute part of a project component to the entire project. The purpose of using monitoring and evaluation is to improve the project implementation in order to both achieve and enhance the impacts of the project. Monitoring and Evaluation (M&E) provide the main source of performance information for internal management and validation of inputs to external reporting requirements. It is also to provide timely and relevant information on project implementation and to support effective decision making by all stakeholders. World Bank (2006) further stresses that, M&E gather and analyze the necessary information for tracking progress and impact, explain the reasons for success and failure, and agree on how to use this information to improve future actions. Moreover, according to World Bank, (2006), M&E further provide managers with information needed for day-to-day decisions, provide key stakeholders with information to guide the project strategy, provide early warnings of problems, help empower primary stakeholders, especially beneficiaries and involve them more in project implementation. M&E build understanding and capacity amongst stakeholders, promote discussion on project progress within funding agencies, and plan for any required remedial action or adjustment to the project and finally contribute to the accountability of project implementation to funding agency. World Bank, (2006) however maintains that the monitoring and evaluation framework for CSDP focuses on measuring the effectiveness and efficiency with a series of performance indicators.

Adeyemo (2014) emphasizes the outcome of monitoring as a continual and systematic process of collecting and analyzing data to measure the performance of interventions towards the achievement of outcomes at country level. Adeyemo (2014) opines further that, the process of outcome monitoring is continual in the sense that it is not a time bound activity; outcome monitoring must be periodic, so that change can be perceived. In other words, information will be accumulated on an on-going basis regarding progress towards the outcome to allow periodic comparison of the current situation against the baseline for outcome indicators and to assess and analyze the situation. However, Church, Diana, and Vanessa, (2014) also assert that, outcome monitoring is carried out by tracking the outputs and measures of the contribution to outcomes by assessing the change from baseline conditions. Tracking of outputs is necessary because they can indicate whether a strategy is relevant and efficient or not. Relevance in a results-based context refers to whether or not an intervention contributes to the achievement of a key outcome, supports national development priorities and targets appropriate groups (Church et al., 2014).

In addition, evaluation covers a set of related projects, programme and strategies which intended to bring about a certain outcome (USAID, 2012). Such evaluations assess how and why outcomes are or are not being achieved and the role a project or programme has played. They may also help to clarify underlying factors affecting the situation, highlight unintended consequences (positive and negative), recommend actions to improve performance in future programming, and generate lessons learnt. These periodic and in-depth assessments use "before and after" monitoring data. USAID, (2012) further buttresses the outcome evaluations that may fulfill different needs at different times throughout the programming cycle. If conducted early in the cycle, they can supply information about potential impediments; if conducted halfway through the cycle, they can suggest mid-course adjustments; and if conducted at the end, they can contribute to lessons learned that could guide work in the outcome during the next cycle.

World Bank (2013) puts both monitoring and evaluation to be management tools that is used in projects. In the case of monitoring, information for tracking progress according to previously agreed on plans and schedules are routinely gathered. Discrepancies between actual and planned implementation are identified and corrective actions taken. When findings are used to monitor the development results, it is sometimes referred to as formative evaluation. It is facilitated by monitoring but utilizes additional sources of information. Many of such sources are identified during project reviews when there is a need to understand why inputs did not lead to planned outputs. World Bank, (2013) maintains that evaluation focuses on specific questions related to effectiveness and impact in order to influence future projects or services. Impact assessment is often difficult because causality is difficult to determine, in addition to being costly and time-consuming. However, managers need to know the effects of project activities on the intended beneficiaries during implementation. Additionally, community monitoring projects can record impacts locally and use results to modify project activities. Impacts may be assessed informally, through conversations with beneficiaries, women's groups, village elders and others. This allows managers to adjust strategies during implementation.

Mobile based participatory project monitoring and evaluation is an increasing trend in using mobile technologies in the area of projects monitoring and evaluation. In particular, mobile phones, smart phones and tablet computers have witnessed the most uptakes. Using these technologies allow the end user to take the technology solution with them wherever they go. The mobility of such devices and the hardware that is built into them such as camera, video and GPS allow the opportunity to track a user's context regarding their current situation with timeliness feedback (GSA, 2018).

Data collection, participatory project monitoring and evaluation (PM&E) efforts take a great deal of time and methodical planning and implementation. In the past, these tasks were performed with paper and pen, which made them prone to error, difficult to conduct on a large scale, and high in transaction costs (GSA, 2018). Haushofer and Neihaus (2013) maintain that, information technology tools such as mobile phones, tablets and software that allow users to upload data to storage facilities in real time reduces the conventional challenges associated with remote data collection and PM&E. Haushofer and Neihaus (2013) stress further that, today, there are more than two billion smart phone and tablet PC users worldwide. Besides, there is a growing expectation that everything and anything will be available as a mobile application thereby provides information that can be made available at anytime, anywhere and on any platform to customers, prospects and project stakeholders through mobile applications (International Telecommunication Union, 2013).

Letouzé (2014) puts large data sets and improved data processing capacities that allowing researchers and evaluators to identify formerly unseen patterns that require further investigation. However, ICTs are also playing a role in enabling wider sharing and discussion of evaluative knowledge which, in turn, helps development practitioners avoid repeating mistakes and failures. It also allows dissemination of knowledge evaluated to a wide audience, outside of boardrooms and programme teams, in order to stimulate broad discussion and learning. New technologies are also being used to facilitate training of developing country evaluators, helping to build capacity and knowledge that will enable local evaluators and institutions to play stronger roles in the evaluation process in their own countries (Rodin and MacPherson, 2012). Much of the attention around ICTs in M&E focuses on enhancing the participation of programme participants in feedback loops that seek to improve transparency and accountability to aid development or government service programmes. According to Rockefeller Foundation (2014), ICTs are being used to increase voice and participation throughout the programme cycle – from diagnosis, through planning and implementation, to evaluation and the dissemination of evaluative knowledge. Gathering a wider perspective from a broad network, learning from experimentation through results testing, setting up and learning from lessons and feedback loops, and having the ability to capture the value of both successes and failures have been identified as key elements of organizations with strong capacity to innovate. ICTs can play a role in facilitating these capacities within organizations. This is especially important as development programmes and their accompanying evaluations are increasingly understood to be complex systems.

Furthermore, Raftree and Bamberger (2014) opine that, the search for workable and sustainable participatory monitoring and evaluation owing to greater competition for the limited resources available for international development assistance, combined with the broadening expectations of what development assistance should achieve, has heightened the demand for efficient systems to assess the performance and impact of international development programmes. Also, developing countries are also increasing their commitment to building systems that can assess the performance of national development plans, as evidenced by a steady growth in the number of developing countries that are implementing national evaluation policies. In addition, Raftree and Bamberger (2014) maintain further that, as civil society and local organizations gain greater voice, there is a heightened demand to assess the participatory, humanitarian and equity focused dimensions of development and to include programme participants more meaningfully in monitoring and evaluation (M&E) processes. Finally, the growing scope of human-made and natural crises has increased the demand for assessing the impacts of development during crises and in unstable environments. All these factors are creating a greater demand for more rigorous and at the same time more flexible systems to monitor and evaluate development and humanitarian interventions. Critical assessment of the strengths and limitations of current approaches to M&E has identified serious limitations of many existing approaches for addressing the changing structure of development assistance and the increasingly complex environment in which it operates. Besides, there are two broad sets of historical challenges in conventional M&E approaches. The first set is often referred to as "real-world" or operational challenges, while the second set can be categorized as methodological challenges. Emergent ICT tools and mobile-based applications may have potential to help address some of the overarching monitoring and evaluation challenges in the wider development space while, at the same time, contributing to overcoming real-world and methodological challenges (Raftree and Bamberger, 2014).

An innovation in M&E is the introduction of something new, new idea, method, or device. Rockefeller Foundation (2014) puts typical categories of innovations for participatory monitoring and evaluating the performance of public policies programmes or service delivery to be technological innovations, innovative products, innovative services, innovative processes, and innovative interactions or partnerships. Significant process innovations in PM&E are technologies, products, services, processes, or interactions that have shown a significant impact on how PM&E is done or have a clear potential to change PM&E in order to improve the value or usefulness of monitoring information and evaluation findings (Stahl, Heersmink, Goujon, Flick, Hoven, Kutoma, & Radar, 2010). According Stahl et al., (2010), typically, innovations with a great potential impact also address a core need or core challenge in PM&E. Catalytic change innovations in PM&E have to go beyond incremental change and reframe, re-imagine, or recombine different existing elements to yield a new pathway for PM&E. Concrete Innovations in PM&E must be sufficiently concrete. However, Rodin and MacPherson (2012) assert that, ideas and theoretical approaches are not innovations (although they can lead to innovations). Innovations are concrete if they are already being implemented (at least as pilots), and can be replicated and are potentially scalable across different contexts and regions. Organizations are increasingly using innovative approaches to manage the performance of public policies, programme, projects and service delivery. These approaches are fostering more inclusive, collaborative and responsive processes across the development cycle: from planning to implementation, to monitoring and evaluation (Kumar, 2002).

May (2013) affirms that, two critical commonalities among the innovations are the increased frequency of input, feedback and the expanded definition of an outreach to stakeholders, including those not traditionally part of the

development process. Meanwhile, according to IFAD (2003), many of the innovations are also characterized by their relatively low cost and lower degree of formality and rigidity according to the scholar. These innovations bring a significant benefit to the development process and facilitating timely course corrections based on evidence. By gathering frequent input on the building blocks of policies, programme, projects and service delivery from those most affected, hurdles and bottlenecks are more easily identifiable. When organizations are capable of absorbing this information and have systems flexible enough to respond to it, they are achieving better results, more relevant policies, more effective programme and improved service delivery. Innovations in monitoring and evaluating results in projects management are emerging and being adopted at such a rapid pace for a number of reasons. On the one hand, Muniz (2013) opines that, PM&E has to respond to the higher demands placed on it, and to the fast-changing environment. Besides, as technology moves forward, opportunities for innovation in PM&E are opening up. Muniz (2013) further puts a number of factors to be driving innovation in PM&E such as, need for flexible and faster PM&E, increased unpredictability, rapidly changing circumstances and a dynamic environment. Traditional approaches of diligently checking if a public policy, programme or service is 'on-track' in achieving a pre-defined milestone is often not sufficient anymore. Furthermore, feedback loops of traditional monitoring (with quarterly and annual monitoring, mid-term reviews, final evaluations, annual reporting, etc) have often proven to be too slow to influence decision-making in time. More timely real-time updates are required for better use of monitoring information and evaluation findings (World Bank, 1996).

The objective of the study was to establish the effects of employing mobile-based application tools for monitoring and evaluation of Community and Social Development Projects (CSDPs) in South West, Nigeria. The scope of this study was Community and Social Development Project (CSDP) participating States in South West, Nigeria. The states are: Ondo, Osun, Oyo and Ekiti from the year 2009 to 2014 respectively.

2. Statement of the Problem

Several programme, activities and projects are being executed at various levels including rural communities across the country, yet there is a lack of knowledge about how these services are monitored and evaluated (Lerner, 1995). Funding providers and the professionals who receive funds are obligated to work towards sustaining the proposed projects through effective monitoring and evaluation (M&E). Series of reasons might have been attributed to the cause of inabilities of M&E of such developmental projects. Among is, whether such projects originated from the benefiting community or not. If communities were not carried along in the identification and subsequent implementation of such services to a significant stage, the likelihood of failure is imminent (World Bank, 1996). The search for more efficient systems to improve capacities for monitoring and evaluation is rising from national and community-based organizations for meaningful participation in the evaluation process as well as for greater voice and more accountability from both aid and development agencies and government. However, according to International Telecommunication Union (2013), several strategies earlier adopted to monitoring and evaluation are unable to address the changing structure of development assistance and the increasingly complex environment in which it operates. It is in the light of these assertions that this study intends to analyze and establish the effects of an existing employing mobile-based application tools such as mobile phones, smart phones and tablet computers, for monitoring and evaluation of Community and Social Development Projects (CSDPs) in South West, Nigeria and to provide possible measures to solve or reduce the negative effects.

3. Methodology

Primary and secondary data were collected and used for this study. A structured questionnaire containing both closed-ended and open-ended questions was developed and adopted to gather relevant information from respondents with the help of trained research assistants (TRAs) in each of the selected state in the study area. The TRAs also collected the questionnaire from the field after which the respondents have administered the questionnaire. The population for this study consists of communities with constituted Community Project Management Committee (CPMC) (not clear) and stakeholders' that were directly involved in CSDPs across the selected participating states in the South-West, Nigeria, Local Government Desk Officer (LGDO), Ministry Department Agency Desk Officer (MDADO), Community and Social Development Project (CSDP) State staff, and Monitoring and Evaluation Consultant.

4. Sample Selection and Sampling Techniques for the Study

The respondents were selected based on the peculiarities of each state and this includes communities and stakeholders' that were directly involved in CSDP monitoring and evaluation in South-West, Nigeria across the four (4) states in the study area. They are: Ondo, Ekiti, Osun and Oyo respectively. Stratified sampling technique was adopted to group the stakeholders for the study due to their experience and roles in CSDP projects Monitoring and Evaluation. Also, two hundred and ninety (290) respondents among the stakeholders' (CPMC, LGDO, MDADO, CSDP State Agency staff, and Monitoring and Evaluation Consultant) were selected for the study across the four participating states. The characteristics interest criteria of the stakeholders' in each state were highlighted as follow: CPMC: those that fully completed their projects with proven M&E record; LGDO: functional and consistent; MDADO: active and relevant sector and consultant: Number of M&E Consultant Engaged.

The data analysis tool used for the study included simple descriptive statistics (frequencies, percentages, mean and standard deviation).

5. Results and Discussion

Table 1 showed that out of two hundred and ninety (290) questionnaires distributed to the respondents, two hundred and sixty-two (262) were recovered, which represents (90%). The 262 returned questionnaires were considered

suitable for the purpose of analysis. However, Mugenda and Mugenda, (2003) opines that a 50% response rate is adequate, 60% and above good, while 70% rated very well. This response rate was attributed to the data collection procedure, where the researcher administered questionnaire and waited for respondents to fill in, and picked the questionnaire when fully completed. The response rate demonstrates a willingness of the respondents to participate in the study.

State	Ondo	Ekiti	Osun	Oyo	Total
No. Distributed	70	62	70	88	290
No. Received & Used	70	46	64	82	262
Percentage (%)	100	74.2	91.4	93.2	90.3

Table 1: Response Rate
Source: Author's Field Work (2019)

Table 2 showed demographic information of the respondents. Based on the state of resident, respondents from Ondo State formed 26.7% of the valid sampled opinion, while respondents from Ekiti State formed 17.6%, Osun State (24.4%) of the valid sampled opinion and Oyo State (41.3%).

Table 2 also revealed the status of the respondents in CSDP. Majority of the respondents are community members that managed the projects in their various communities called "Community project management committee" (CPMC) which represented 52.6% of the total respondents while Local Government Desk Officers (LGDO) and Staff of the state agency for community and social development formed 24% and 14.5% of the respondents respectively. The least categories in the status are the Ministry Department Agency Desk Officers (MDADO) and the Monitoring and Evaluation Consultant with 7.2% and 1.5% respectively. The finding concurred with Insight Share (2012), that project monitoring and evaluation should be participatory by involving local beneficiaries in measuring, recording, collecting, processing and communicating information to assist local development project extension workers and local group members in decision-making.

The respondents' gender was important to ascertain whether there is any difference on levels of participation in the survey between the two sexes and to find out whether the study applies to both equally. It was established in Table 2 that 66% of the respondents were male and 34% female. The result showed that the male gender was more represented than their female counterpart. It also indicated that, male has more interest in activities that entails community development. This finding is in line with Ajayi (2008) who opined that male rural dwellers in the South-Western Nigeria are generally easier to mobilize for adoption of innovations and community development activities.

	Frequency	Percentage (%)
Respondent's State		
Ondo	70	26.7
Ekiti	46	17.6
Osun	64	24.4
Oyo	82	31.3
Total	262	100.0
Respondent's Status		
Community Member	138	52.6
L.G Desk Officer	63	24.0
MDA Desk Officer	19	07.2
State CSDP Staff	38	14.5
M&E Consultant	4	1.5
Total	262	100.0
Respondent's Gender		
Male	173	66.0
Female	89	34.0
Total	262	100.0

Table 2: Demographic Information of the Respondents
Source: Author's Field Work (2019)

Table 3 revealed that the respondents were of strong conviction that introducing Mobile-Based Application tools for project monitoring and evaluation will lead to eradication of data inconsistency and inefficiency, enhance data standardization and promote easy, faster and timely data collection as shown by mean score of 3.63, 3.62 and 3.73 respectively. This result conforms to the Rockefeller foundation (2014) that ICTs are being used to increase voice and participation throughout the programme cycle – from diagnosis, through planning and implementation, to evaluation and the dissemination of evaluative knowledge. The respondents also strongly agreed to the fact that using Mobile-Based Application tools for Project Monitoring and Evaluation will enhance quality and dependable data with the highest mean

scores of 3.73, followed by flexible and easy tracking of project progress and impact (3.70), enable participatory, regular and timely feedback among stakeholders (3.70), inform quick decision making (3.68), real time reporting of project (3.67), portable, accessible and fascinating to use (3.67) and enhance data standardization (3.65). From the findings also, the respondents attested to the fact that, making use of Mobile-Based Application tools for project monitoring and evaluation will eradicate data inconsistency and inefficiency with a mean score 3.63 and reduce human error in data collation and analysis with mean score of 3.63. These findings agreed with Haushofer and Neihaus (2013) who argued that information technology tools including hardware like mobile phones and tablets, applications with the capacity to create digital surveys, and software that allow users to upload data to storage facilities in real time, will reduce the conventional challenges associated with remote data collection and M&E.

Statement	Mean	S. D
High quality and dependable data	3.73	0.477
Flexible and easy tracking of project progress and impact	3.70	0.537
Enabling participatory, regular and timely feedback	3.70	0.500
Quick Decision taken	3.68	0.513
Real time reporting of project	3.67	0.553
Portable, accessible and fascinating to use	3.65	0.509
Enhance data standardization	3.65	0.539
Eradication of data inconsistency and inefficiency	3.63	0.565
Human's reduction error in data collation and analysis	3.63	0.565
Easy, faster and timely data collection	3.62	0.525
Promote transparency and accountability of project	3.62	0.567
Cost effective and sustainable project monitoring	3.62	0.566
Enhance timely delivery of project	3.58	0.612
Used to monitor several other projects	3.58	0.655
Promote unity and sense of belonging among stakeholders	3.53	0.665

Table 3: Effects of Mobile-Based Application Tools for Project Monitoring and Evaluation
Source: Author's Field Work (2019)

6. Conclusion and Recommendations

The study has analyzed the effects of employing mobile-based application tools for monitoring and evaluation of Community and Social Development Projects (CSDP) in South West, Nigeria. The results of the study showed that CSDP is an intervention programme (World Bank assisted) that was well embraced by all and sundry due to its participatory approach. The findings identified the effects of employing mobile based application tools for project monitoring and evaluation of CSDP to achieve high quality and dependable data, flexible and easy tracking of projects progress and impact, enabling participatory, regular and timely feedback, inform quick decision taken and effective real time reporting of projects. The outcome of the study was more effective as compared with other old tools earlier used in PM &E such as pen and paper through question and answer, interview and manually response writing, focus group and summarizing the opinion using pen and paper and manually drawing of graph, chart and tables. This aforementioned old tool has limitation and are prone to errors and manipulation, cover limited area and respondents, poor data quality, excessive cost and delay in data processing.

Therefore, the study made the following recommendations based on the findings that: government policy makers, donor agencies, and M & E stakeholders are encourage to embrace Mobile-Based Application tools for projects monitoring and evaluation of community and social development project as it enhances high quality and dependable data, easy tracking of project progress and impact on the participatory communities. Also, government at all levels are also advice to legislate, institutionalize and scale up Management Information System in Ministries Departments and Agencies (MDAs) for transparent, cost effective, timely, efficient and sustainable participatory monitoring and evaluation of various projects.

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