An examination of the suitability of PADev as a method for effective participatory assessment of the development of higher education institutions: the case of Eduardo Mondlane University (1976-2016)

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CHAPTER 3

Methodology

This chapter discusses the methodology employed in carrying out this study. It begins with the presentation of the research design, data collection methods, and analysis. The ethical considerations are discussed at the end of the chapter.

3.1. Research Design

This is a case study design employing mixed methods for collecting and analysing data. There is an indication in the literature that the participatory evaluation approach (in the form of PADev) has never been tried out in a university setting, although it has been applied with secondary school children (Dietz et al., 2013). Therefore, the PADev experiment at EMU was performed covering a period from 1976 to 2016 in order to establish the suitability of the method in measuring the impact of development interventions in a participatory way in a university setting.

Most PADev studies have been conducted in an African context, specifically in rural Ghana and Burkina Faso, employing participatory evaluation of development methods to get a holistic perspective of the local community on change and development.

Overall, the studies intended either to use the PADev method to address perceptions and beliefs on local development related issues (Schipper, 2012; Audet-Belanger, 2010; Bohmer, 2009, Oosterheerd, 2009; Marsais, 2009; Kazimierczuk, 2009; Lahai, 2009), and the weaknesses and shortcomings identified during the PADev experiments aiming to further improve the methodology (Bymolt, 2010), or to focus on the utilisation of PADev results and its empowerment capability (Vlaminck, 2011), and the integration of participatory methodologies into monitoring and evaluation within the frame of participatory development (Obure, 2008).

The PADev project started in 2008 in Northern Ghana - Sandema and Langbinsi - and Southern Burkina Faso - Tô - where local organisations received support from donor agencies. PADev involved representatives of the local population, divided into different categories which included men and women, young and old people, various ethnic and religious groups, and citizens and officials. The categorisation of the local population aimed to capture a broad view on development interventions implemented in the region. The whole list of interventions found in the study area was established, as well as a qualitative assessment of their success or failure. The impact of all the interventions was ascertained through discussions in separate groups to facilitate a free and open discussion, and to allow group comparisons. The order adopted to discuss the various issues was kept as the original design, which ranged from the one-dimensional time line

to the multi-dimensional list of interventions with impact on various capitals, and the valuation of the best and worst five projects, to the multi-dimensional method of assessing the impact of interventions per wealth class by various social groups (Zaal, 2009).

The PADev findings from Northen Gana and Southern Burkina Faso confirmed the effectiveness of the method in gathering information concerning the development initiatives from the standpoint of the various social groups in those societies. As the direct beneficiaries, the level of knowledge of these interventions the groups had was profound, and the quantity of recalled interventions showed the long-term, broad and intensive relationship the local population had with the outside world either through development aid or government assistance (Zaal, 2009).

The implementation of PADev design at Eduardo Mondlane University enabled the recollection and share of experiential and factual knowledge on institutional change and development based on participants' relationship with the institutional world, thus PADev data allowed the production of knowledge claims structured and organised based on participant's social interests and the way they positioned themselves in the institution.

Since social realism provides a perspective of knowledge as having a social basis, it is assumed to be grounded on the social activities, forms of life or practices of particular professional or other communities, thus translating their social origins and histories, values and interests. PADev configuration adopted to carry out the workshop departs from a round of introductions to familiarise both the facilitators with the workshop participants. From the introduction section, it was possible to gather comprehensive data on participant's individual stories or profiles, which included participants' institutional affiliation, academic training and qualifications, professional trajectory and position, and circle of influence. From the data, the individual social and historical context, and personal interests of each workshop participants were captured, and it provided an overview of the group profile and shared value and interest. These aspects alone were relevant to consider in the process of producing knowledge, that is reaching consensus and give meaning collectively. These data also allowed to build a timeline from where participants were positioned in the recollection of their memories on institution's change and development. Accordingly, PADev provides both social and historical context for knowledge production, as it relates to chronological recollection of events, changes and interventions, but it departs from participant's individual socio-professional trajectory and connections.

3.1.1. Study Population and Sampling Frame

The study population was heterogeneous, divided into two broad categories, namely the university community and the university external stakeholders. The university community included academic staff and non-academic staff, specifically university top managers (rectors, vice-rectors, and central management directors), deans and deputy deans (faculties, schools, centres, and services), managers (faculties, schools, centres), academic and non-academic staff (heads of departments, course coordinators, course directors, teachers, researchers, librarians, and technical and administrative personnel), and alumni.

The second category, the external stakeholders, included donor country representatives, embassy representatives, development agency representatives, representatives of the national education authorities (the Ministry of Education and the Ministry of Science and Technology, Higher and Technical Vocational Education), as well as representatives of professional organisations/associations.

The sampling design was non-probabilistic, employing purposive and non-proportional quota sampling for the selection of the study participants. A purposive sampling strategy was employed to select donor country representatives and foreign development agency representatives, based on partnership criteria. Moreover, former and current rectors, vice-rectors, central management directors, deans and deputy deans, and managers were also selected using the same strategy, given the peculiarity of their positions within the university. The alumni selection also followed this purposive strategy, based on the following criteria: course, reachability, and availability.

A non-proportional quota sampling strategy was employed for the selection of academic and non-academic staff. To do so, a prior stratification of the study population was performed based on the following criteria: diversity in demographic markers (gender), function (lecturer, researcher, and CTA; see further on in this study); (ii) teachers' occupational category; (iv) contractual regime (full-time and part-time). Afterwards, from each stratum, elements were selected in order to compose a heterogeneous group including lecturers, researchers, and technical and administrative personnel.

The study units included academic and administrative units, and were selected employing purposive sampling using the following criteria: (i) period of existence, (ii) the relevance of their study field, and (iii) the volume of external support received. In the original design, a total of 18 units from EMU were selected making a 'long list' of potential study units. The selected units were comprised of nine academic units, six administrative units, and three management units.

The academic units in the 'long list' included the Faculty of Education (FACED), the Faculty of Engineering (FENG), the Faculty of Sciences (FS), the Faculty of Agronomy and Forestry Engineering (FAEF), the Faculty of Economics (FE), the Faculty of Arts and Social Sciences (FLECS), the Faculty of Medicine (FMed), the Centre for Academic Development (CDA), and the African Studies Centre (CEA). Nonetheless, the Faculty of Agronomy and Forestry Engineering, the Faculty of Economics, the Faculty of Arts and Social Sciences, and the Faculty of Medicine, which were initially selected, were withdrawn due to two reasons, namely, time constraints, taking into account the field work period, and lack of resources to cover the field work in all 18 units, since the logistics to carry out the workshop was proven to be expensive, thus forcing the redistribution of the scholarship budget.

The study sample was thus refined and reduced to include five academic units out of the original nine, namely FACED, FENG, FS, CDA, and CEA.

The administrative units were the Human Resources Directorate (DRH), the Finance Directorate (DF), the Directorate of Documentation Service (DSD), the Scientific Directorate (DC), the Planning Office (GP), and the Directorate of Property Administration and Institutional Development (DAPDI). The management included the Rectorship, the Academic Vice-Rectorship (VRA), and the Vice-Rectorship for Administration and Resources (VRAR). For analytical purposes, the administrative and management units were aggregated in a single broad category called 'Central Services'.

The stakeholders selected to be part of the study included three professional associations, namely the Association of Psychology of Mozambique (APM), the Mozambique Engineers Association (OrdEM), and the Geological and Mining Association of Mozambique (AGMM). The two local education authorities included the Ministry of Education through the Directorate for the Coordination of Higher Education (DICES) and the Higher Education, Science and Technology (HEST), the Ministry of Science and Technology, Higher and Technical Vocational Education, through the National Directorate of Higher Education (DNES). Three donor countries were selected, specifically Sweden, the Netherlands and Italy. Therefore, Mozambique based representatives from Swedish International Development Cooperation Agency (Sida), Italian Agency for Development Cooperation (Italian Cooperation), and the Netherlands Organisation for International Cooperation in Higher Education (Nuffic). Other external stakeholders included the Centre for Applied Psychology and Psychometric Exams (CEPAEP) and National Council for the Assessment of Quality in Higher Education (CNAQ).

The number of study participants reached one hundred (100) individuals (see Table 2 below), and amongst them forty-five (45) were personally interviewed, five (5) were surveyed through questionnaires, and fifty (50) took part in 10 workshops. Concerning

the workshops, four (4) were carried out in the Faculty of Education, one (1) was performed at the African Studies Centre, one (1) was carried out at the Centre for Academic Development, three (3) were carried out in the Faculty of Sciences, and one (1) in the Faculty of Engineering.

Table 2: Number of Participants by Study Unit and Gender

EMU's Unities / External Stakeholder	Participants		Total
	Male	Female	
Faculty of Education (EMU)	18	8	26
Faculty of Sciences (EMU)	10	4	14
Faculty of Engineering (EMU)	5	2	7
African Studies Centre (EMU)	8	4	12
Centre for Academic Development (EMU)	4	3	7
Centre for Studies and Psychological Support	1	0	1
Rectors and former rectors (EMU)	4	0	4
Vice-Rectors (EMU)	1	1	2
Human Resources Directorate (EMU)	0	1	1
Finance Directorate (EMU)	1	0	1
Directorate of Documentation Service (EMU)	1	0	1
Directorate of Property Administration and Institutional Development (EMU)	0	1	1
Scientific Directorate (EMU)	0	1	1
Pedagogic Directorate (EMU)	0	1	1
Planning Office (EMU)	0	1	1
Cooperation Office (EMU)	1	2	3
Quality Office (EMU)	1	0	1
Directorate for Coordination of Higher Education (DICES)	2	0	2
National Directorate of Higher Education (DNES)	0	1	1
National Council for the Assessment of Quality in Higher Education (CNAQ)	0	1	1
Donor Counties (Ministry and Embassies)	2	2	4
Donor's Funding Agencies	2	2	4
Professional Associations and Organisations	4	0	4
TOTAL	65	35	100

In the field and taking into account the study object, several conditions needed to be fulfilled to make the PADev approach possible and useful. First, the need for participants who witnessed or experienced the various periods of the institutions' life. The coverage of the period under analysis, verified through participant's contractual bond and their inclusion in the sample, would provide a more comprehensive picture

of the university development path. There were gaps tracing back events, interventions and changes that needed to be fulfilled by institutional documentation due to the lack in the sample of individuals who could report each of the periods.

Second, the need for study population (university community) and study participants to be interested, deeply committed and available to take part in the study. This was not the case in all study units, despite prior planning and organisation of the data collection process from the researcher and support from EMU leadership.

Beside the Faculty of Education and some units from the university central management, the organisation of PADev sessions at other selected faculties and units often proved to be difficult. Hardly anyone was available and there were those who appeared to be very reluctant to give a free and frank assessment of the history of their units.

When it became clear that PADev would not always attain the desired outcome in terms of meaningful data gathering concerning EMU's development history and the impact of foreign assistance to that development, other additional sources to collect information were employed as specified below in the data collection instruments section. Hence the purposes of the study shifted to: (i) studying PADev and additional methods as means for understanding EMU's development; and (ii) to study EMU's development and the impact and appreciation of internal and external interventions (not only using PADev but also other methods: mainly written documentation and personal interviews.

The participants' profile both from university community and external stakeholders were summarised below in Tables 3 and 4. Given the nature of the institutions, the summary of participant's profile was based on their personal academic and professional story as such. The profile of participants from the university community was drawn based on professional variables such as academic qualifications, contractual regime, occupational category, professional experience, function and employment status.

Table 3: Profile of the University Community

Professional Variables	Categories of Professional Variables	Number of participants
Academic qualifications	PhD	31
	Master's	29
	Licenciatura	17
	Bachelor	0
	Secondary	0
	Primary	0
Contractual regime	Part Time	0

	Full time	74
	None	3
Occupational category (Lecturers, Researchers and Technical and Administrative Personnel)	Full Professor	2
	Assistant Professor	10
	Associate Professor	13
	University Assistant	29
	Probationer Assistant	4
	Coordinating Researcher	1
	Principal Researcher	1
	Auxiliary Researcher	0
	Assistant Researcher	8
	Intern Researcher	0
	Specialist	0
	Senior Technician level 1	9
	Technician	0
	Technical Assistant	0
	Assistant	0
Professional experience	Prior work experience	45
	Non-prior work experience	32
Function	Lecturer	48
	Researcher	10
	Technical and Administrative Personnel	15
	Non specified	4
Employment Status	Former Rector	3
	Rector	1
	Vice-Rectors	2
	Director of Central Services	5
	Former Dean	2
	Dean	2
	Deputy Dean	8
	Head of Department	8
	Head of Section	2
	Course Director/Coordinator	4
	Administrator	3
	Programme Officer/ Project Coordinator	6
	Alumni	6
Field of Expertise	Exact and Earth Sciences	8
	Biological Sciences	4
	Engineering/Technology	10

	Health Sciences	10
	Agricultural Sciences	1
	Social Sciences	13
	Humanities	30
	Linguistics	1
	Literature and Arts	0

The profile of the participants identified as university's external stakeholders was drawn based on variables such as country of origin, name of the organisation or institution, type of organisation or institution, and the position held by the participant.

Table 4: Profile of the EMU's External Stakeholders

Country of Origin	Name of Organisation/Institution	Type of organisation/ institution	Position	Number of participants
Mozambique	Geological and Mining Association of Mozambique (AGMM)	Professional Organisation	President	1
Mozambique	Centre for Applied Psychology and Psycho-metric Tests (CEPAEP)	Health Institution	Director	1
Mozambique	Association of Psychology of Mozambique (APM)	Professional Organisation	Vice-President	1
Mozambique	Mozambique Engineers Association (OrdEM)	Professional Organisation	Secretariat	1
Mozambique	National Council for the Assessment of Quality in Higher Education (CNAQ)	Quality Assurance Authority	President	1
Mozambique	Directorate for the Coordination of Higher Education (DICES)	Education Authority Directorate	Deputy-Director	1
Mozambique	National Directorate of Higher Education (DNES)	Education Authority Directorate	National Director	1
Mozambique	Ministry of Education - Higher Education, Science and Technology (HEST)	Education Authority	Project Coordinator	1

The Netherlands	Ministry of Foreign Affairs	Education Authority	MHO Programme Officer	1
The Netherlands	Ministry of Foreign Affairs - Inspection of Cooperation and Policies (IOB)	Foreign Affairs Authority	Programme Evaluator	1
The Netherlands	The Dutch Organisation for Internationalisation in Education (Nuffic)	Funding Agency	MHO Programme Evaluator	1
The Netherlands	The Dutch Organisation for Internationalisation in Education (Nuffic)	Funding Agency	NICHE Programme Officcer	1
The Netherlands	The Netherlands Embassy	Country Representative	Programme Officcer	1
Sweden	Sweden Embassy - The Swedish International Development Cooperation Agency	Country Representative - Funding Agency	Secretary Programme Officer and Programme Manager	1
Italy	Italian Agency for Development Cooperation	Funding Agency	Training Programme Officcer	1

3.1.2. Data Collection and Analysis

This section presents the data collection process and the type of data collection instruments and techniques were employed in the study, as well as the methods adopted to analyse the data gathered through the various instruments and techniques.

From the time the credential was issued by the Rector's Office, I started the implementation of the data collection plan, which included to send to the deans or directors of all study units (academic and administrative) and stakeholders, a copy of the credential and a cover letter accompanied by the summarised research project to allow the study to be carried out in their units. For individual participants and invitation letters was send, requesting their availability to be part of the study. In order to carry out the PADev workshop, additional preparations were made once acceptance was granted by the deans, who indicated focal points to organise the whole process. The list of the employees was requested by the researcher, in order to carry out the selection of

participants according to the indicated sampling design. From there, contacts were made via focal point to schedule the workshops according to the availability of the participants. This strategy proven to be effective in reaching the participants.

However, in some academic units regardless of the preparations made and participant's confirmation, the workshop was cancelled in the site, due to the absence of the participants. That was the case of the Faculty of Agronomy and Forestry Engineering, where, after two failed attempts, the data collections process was withdrawn, and the case of the Faculty of Engineering, where the workshop with the staff was first postponed in the site and later withdrawn. Two possible explanations for the absence of participants might be considered. It seems that there was little mobilisation on the part of the deans of the units to encourage participation of their employees in the workshop, and the use of workshop for collecting data might had mislead participants concerning the objective of the workshop. Perhaps the subject of the research and the nature of the information to be collected inhibited participants by not considering themselves to be authorised sources, even though they were informed to share their own memories and experiences. The project would probably have been well received if it had been of an institutional nature, requiring the involvement and engagement of the entire university community, and not simply a PhD project. In any case, its results could demonstrate the value and potential of the PADev methodology for deepening issues related to the evaluation of programmes and projects. A clear example was the workshop with the central managers, were despite all Central Services directors been invited, few sent representatives and others simply did not show up.

The field work was successful in the Faculty of Education, as well as in the Faculty of Sciences, at the African Studies Centre and Centre for Academic Development.

The data collection started in the Netherlands, in May 2013, where stakeholders, specifically participants from the Ministry of Foreign Affairs and from Nuffic were contacted and interviewed.

In Mozambique, the field work took place from October 2013 to February 2014, where different data collections instruments and techniques were employed, following a flexible schedule that was dependent upon the participant's availability.

3.1.2.1. Data Collection Instruments and Techniques

A combination of data collection methods and techniques was employed to carry out the study, specifically a review of relevant documentation, focus group discussions in PADev workshops, semi-structured interviews with key informants, open-ended questionnaires, along with organising a form of feedback called 'crowdwriting' to ensure the richness of the data and data triangulation.

The PADev Workshop

Ten PADev workshops were organised with the academic units and the Central Services so as to unfold and deepen the issues regarding the process of change and development at EMU. A team of three composed by the researcher, assistant and rapporteur was established to perform the workshops. In addition, the workshop programme containing the topics in question was sent in advance to contextualise the participants, along with the relevant documents, credentials, cover letter and the summary project. The intent was to carry out PADev workshop in all five units (academic and research units) that took part in the study with all categories of participants, including academic and non-academic staff. Within each academic unit, it was planned to perform four PADev workshops with the unit managers (dean, deputy deans, administrator), board of directors (which, apart from the unit managers, includes heads of departments, course directors or coordinators), regular staff (lecturers and technical and administrative personnel) and alumni. In the research units, two workshops were planned with the centre managers (dean, deputy deans, administrators), and staff (lecturers, researchers, and technical and administrative personnel). A successful PADev experiment was achieved in the Faculty of Education, as all four sub-categories were part of designated workshop. A minor change was made for practical reasons concerning the level of participation. Therefore, some members of the board of directors joined the regular staff group participants.

At the Faculty of Sciences, two workshops were performed, since, by request of the unit, two sub-categories were grouped together, and the unit managers took part in the board of directors' workshop and the staff workshop took place separately. The alumni workshop was not organised, as the contact with the alumni was not facilitated by the unit, and the ones contacted were only available for interviews. It is important to refer that the alumni community at EMU was established in 2014, and the Faculty of Sciences only created their own alumni association. The non-existing alumni organisations was a constraint to track them and properly engage them in a workshop session as intended.

At the Faculty of Engineering, one workshop was performed with the Board of Directors, which includes the faculty managers. Regardless of the previous schedule, the workshop with the staff was postponed due to the absence of the staff invited and that confirmed their availability to take part in the workshop, and later on withdrawn for lack of commitment from the faculty staff. Instead, crowdwriting and interviews were performed with those willing to take part in the study.

At the Centre for Academic Development, one workshop was performed with the staff (lecturers). The dean and the heads of sections were interviewed, since they were not

available do engage in a workshop session due to the long absence on part of the board at the time the data collection was scheduled.

At the African Studies Centre, a workshop was performed with the research staff. The board members were interviewed on their own request.

As originally proposed by Dietz and colleagues (2011), the PADev workshops' exercises (see Appendix X) were conducted at EMU to achieve the following goals: (i) to document relevant historical events as remembered by workshop participants; (ii) to list the perceived changes in the course of time; (iii) to assess the most important changes that have occurred at the university in the eyes of the various study participants; (iv) to discuss participants' perceptions of positive and negative changes; (v) to list all development initiatives and interventions implemented during the past four decades; (vi) to assess the usefulness of the initiatives and interventions; (vii) to measure the proclaimed and perceived impact of the interventions; (viii) to select the best and worst interventions and assess their impacts; and (ix) to relate changes and interventions to establish perceived cause-effect linkages amongst them.

Grouping participants enabled interaction and dialogue between participants, joint reflection, and the active participation of individuals with a different professional status. PADev focus groups also encouraged participants to engage in an open discussion by sharing their experiences and knowledge. The employment of the stick as a facilitation tool to shift turns between participants was crucial to elicit participation, demote manifestations of power relations amongst participants and the prevalence of dominant voices, ensuring balanced participation. The PADev method further facilitated triangulation between the information gathered from different exercises and cross-checking between different participant groups. The workshops were recorded using flipcharts, notebooks, and digital devices, and later transcribed and compiled. The raw data were systematised in a digital PADev's data template and processed using the NVivo 12, a computer software programme for qualitative data analysis, which enabled the analysis.

Interviews: Face-to-face and Online

In-depth face-to-face and online interviews through Skype software were applied with key informants, both from the university and external stakeholders (see Appendixes XI, XII, XIII and XIV). Specific questions on the perceived changes and impact of their intervention/participation on the institution, and the impact of the institution on the surrounding environment were addressed to external stakeholders. Data from the interview were recorded using a digital voice recorder and transcribed afterwards. The transcripts were imported, coded, systematised, and analysed using NVivo 12. Coding the data enabled the generation of relevant analytical categories through the occurrence

of important key words, and the identification of the emerging patterns and themes to sustain the interpretation. Follow-up interviews were carried out to fill in the gaps identified during the data processing.

Crowdwriting

The crowdwriting, was used to fill some inaccuracies and gaps detected in the data acquired through the workshop. In combination with follow-up (individual and group) interviews, crowdwriting enriched the data gathering process on the main issues discussed in the workshops and interviews. Through crowdwriting, participants were encouraged to provide additional information for the questions asked and/or correct any misleading information that had been recorded.

Questionnaires

Open-ended questionnaires were administered to members of the faculties and centres in order to: (i) assess the changes recalled and the development interventions, (ii) link changes and interventions, and (iii) determine the impact of the interventions. Data from the questionnaire were processed using the Excel database format and used for data triangulation.

Written Documents

A range of written documents (national and sectoral policies, laws, strategic plans, operational plans, annual reports, statistical directories, project/programme monitoring, evaluation reports, and others) produced by different sources, such as the government, the university, donor countries, funding agencies, etc., constituted the secondary data source, and its content has been analysed as such. The documents content enabled the corroboration of the participants' statements concerning the issues under investigation. Reviewing education policies and their implementation strategies, with special reference to higher education, made it possible to connect the development features of the university with the country's development agenda.

Although the combinations of PADev workshops, semi-structured interviews, open-ended questionnaires, and crowdwriting required a lot of preparation, it was necessary to ensure that the study was carried out successfully. The constraints encountered in carrying out the PADev workshops with all categories of participants mostly due to participation rates, largely determined the combinations of these instruments and

techniques. PADev exercise alone proved to be a robust and comprehensive instrument for collecting diverse and in-depth information.

3.1.2.2. Data Analysis: Methods and Procedures

Overall, content analysis was performed to all data set from workshops, interviews, questionnaires and crowdwriting. As stated previously, the content analysis was enabled managing the raw data by using NVivo 12, through which interviews, workshop and crowdwriting transcribed files were imported into the software and coded based on the PADev conceptual and theoretical structure with its focus on development interventions and their influence on changes at EMU. Six steps entailed the data processing that enabled the analysis as described in the following lines.

1st Step: Data Recording

The data collection process involved a team of three, which included the researcher, as the facilitator and coordinator of the whole data collection process, and the research assistants, who were responsible for the recording. It resulted in a set of information presented in the form of text, audio, documents and pictures. Data from workshops were recorded using a flip chart block (62 x 86cm) hung from a tripod to allow participants to visualize the information being collected, and at the same time serve as a visual reference to encourage further sharing. Simultaneously, writing pad (210 x 297 mm) and digital voice recorder were used to complement the recording and ensure that no data were missing from the session. In addition, pictures were taken to show the environment in which the workshops were held. Interviews' data were recorded using writing (210 x 297 mm) pad and digital voice recorder. Questionnaires' data were recorded in the questionnaire template. Crowdsourced data were recorded in a questionnaire template.

2nd Step: Data Processing

Following the dada collection, all the raw data were gathered, transcribed and compiled. Workshop data were afterwards compiled in a digital PADev data template created in the Microsoft Excel spreadsheet to provide an overview of the raw data and allow systematisation. In addition, text data from PADev and other data sources were transcribed and later introduced in a separated database also created in a Microsoft Excel spreadsheet. Al the audio was also transcribed and tabulated in the referred Excel database. At last, a PADev project was created in the NVivo 12 software for data entry and analysis, specifically to perform content analysis.

3rd Step: Coding and Data Categorisation

Once all the data set was introduced (interviews, workshops, questionnaires and crowdsourced data), open and manual coding was performed to the files, which led to identifying recurring themes and the automatic coding. Then grouping and

categorisation of units in categories was performed, following the definition of analytical categories and its validation against the study objective.

Open and manual coding was performed by reading the content of the files and raising context units, which is the smallest units of text or snippets with significance that described or represented a code, encoded in record units.

Following the open and manual coding, the identification of recurring terms and auto-coding was performed. Word frequency query showed a certain number of the most frequent words in the transcripts that were filtered in order to only remain words relevant for the research topic. The auto-coding themes and sub-themes were generated by the frequency of words, categories related to the research theme, and also categories and units that enabled the confirmation of the categories of context. The themes and sub-themes were afterwards filtered to keep only those related to development interventions and changes. The codes generated from the auto-coding and from the open and manual coding were compared in a separate file to find similarities and differences and validate the nodes from the open and manual coding.

The process of grouping and categorisations was performed from the list of units, using the filter and joining the codes to identify categories of the context. This operation enabled to refine and order the recurring themes and grouping them by similarities and significance to create big categories from units that are similar and renaming them to reach the final categories. The identification of final categories was based on the following criteria: semantic (thematic categories), lexical (grouping context units by sense, synonym and close significance), association and equivalences. At last, the analytical categories were defined, and they represented grouped units sharing similar characteristics

4th Step: Analysis

The functionalities implemented in NVivo 12 were the structural matrix, mind map, and word cloud. The structural matrix configured by codes allowed for a cross-referencing analysis of the aggregated information from different sources and participants around the same code and for comparisons of the results coded in the matrix. The word cloud showed the frequency of words that appeared in the codes related to events, which allowed for the events most cited by the participants to be highlighted due to the impact they produced. The mind map allowed for the codes to be shown in relation to changes and development interventions that support the PADev method.

The inferences and interpretation focused on the suitability of the method in assessing development and change in a participatory way, taking into account PADev

participatory analytical and methodological category in comparison with other participatory assessment methods that fall short of doing so.

In addition, reactive sequence analysis was performed to document path dependence for the EMU's developmental sequence, by reflecting back in history to uncover a point in time when initial conditions cannot predict the development state attained by the university. PADev approach provides the means to do so. As a result, it was produced a historical narrative of the causal paths that led to EMU's development.

The sequence analysis took into account that (i) path-dependent analysis involves the study of causal processes that are highly sensitive to events that take place in the early stages of an overall historical sequence 'the order of events makes a difference'; and 'when things happen within a sequence affects how they happen'; (ii) in a path-dependent sequence, early historical events are contingent occurrences that cannot be explained on the basis of prior events or 'initial conditions'; (iii) once contingent historical events take place, path-dependent sequences are marked by relatively deterministic causal patterns or what can be thought of as 'inertia'[45] – that is, once processes are set into motion and begin tracking a particular outcome, these processes tend to stay in motion and continue to track this outcome (Mahoney, 2000).

Three moments characterised the content analysis of relevant documents that entailed the pre-analysis, organisation and analysis. First, based on the study objectives, the documents were searched and sorted. Second, the documents were organised and classified based on specific categories (reports, projects, programmes, laws and regulations, and plans). Third, the previously identified thematic categories through NVivo 12, enabled the content analysis of documents of various nature which entailed its interpretation and from there to draw conclusions concerned the study objectives.

3.2. Reliability and Validity

According to Crishna (2007), the goal of evaluation studies in social development is to answer the question of whether a project achieved the proposed outcomes. However, that is not the case of PADev, since its holistic perspective allowed the tracing of multiple interventions as recalled by study participants. This holistic perspective also provided a comprehensive overview of the underlying values, concepts, and ideas involved in the context of development that the participants have (Morse et al., 2001, as cited in Crishna, 2007, p. 225).

[45] With self-reinforcing sequences, inertia involves mechanisms that reproduce a particular institutional pattern over time. With reactive sequences, by contrast, inertia involves reaction and counter-reaction mechanisms that give an event chain an 'inherent logic' in which one event 'naturally' leads to another event (Mahoney, 2020).

The PADev workshops enabled the setting of an environment in which participants and facilitator were able to learn by sharing personal experiences regarding institutional facts.

Efforts were made to ensure the study's reliability and validity in order to make the study results trustworthy. Permission to carry out the study at the university was requested and granted; invitation letters were sent to the study units and consent given. Following the sample design, staff from the study units were invited to participate either in workshops or in doing interviews and filling in questionnaires. The participants' involvement in the study was limited, as they were not involved in the design of the data collection tools and preparation of the workshop, neither did they engage in the data processing and analysis.

The raw data were transcribed using digital PADev data templates and later a systematised PADev format report entailing a timeline of the local history and important events, perceptions of the changes, an inventory of development interventions along with a description of each intervention, the relationship between changes and interventions, and a perception of what were the best and worst initiatives. In addition, data from interviews were categorised, as specific themes derived from the study objectives were identified during data processing.

Moreover, to ensure reliability, multiple data collection methods were used and efforts made to triangulate data from a range of sources. The data collection instrument, specifically the PADev tool, was tried out with a group of lecturers from the Faculty of Education to assess its efficacy, accuracy, and reliability, and was facilitated by a PADev expert. In addition, for the purpose of validating the language, structure, and contents of the interview script, these were submitted for evaluation by experienced researchers at EMU.

Data were collected in a consistent way but not limited to the period originally proposed, for reasons beyond the researcher's control. Some workshops were postponed, study units withdrawn, and beyond that, time (the field work schedule) was the major constraint. To ensure the internal validity of the data, respondents' validation was performed by workshop participants, as they received transcripts to verify the accuracy of the information gathered.

3.3. The Research Process

This section describes the research process as it was planned and carried out, outlining the adjustments made to the research proposal, and its challenges and limitations.

The study was authorised by the rector of the university, and afterwards the sampled units were invited and informed about the study and its objectives through a presentation letter. After the consent of the deans of the units, a staff database was requested as the starting point for the identification and selection of the study participants. Afterwards, their availability was checked, and the data collection schedule for the workshops was organised per unit.

The PADev workshops were not conducted as initially planned. After the try out at the Faculty of Education, two attempts to organise the workshops at the Faculty of Agronomy and Forestry Engineering (FAEF) failed. Accordingly, FAEF was dropped from the sampled units. To foster the study within the remaining fieldwork period, a practical decision was taken to leave out some other units such as the Faculty of Arts and Social Sciences, the Faculty of Medicine, and the Faculty of Economics, which had not yet been contacted at that time. Even though the preparations with the Faculty of Engineering and the Faculty of Sciences already were set and looked promising, the two attempts to carry out the workshop with the staff from the Faculty of Engineering also failed. To overcome this situation, it was applied questionnaires with a large group of faculty staff with not success, since no responses from the questionnaires were received on time. Despite these set-backs, the fieldwork was conducted successfully in the Faculty of Education, Faculty of Sciences, African Studies Centre, Centre for Academic Development, and Central Services.

The representatives of the Central Service's units that did not attend the workshop were interviewed, except the Pedagogic Directorate's and the Cooperation Office's, who were not available.

The study presents some design issues. As participatory evaluation is grounded in qualitative research principles (Crishna, 2007), the first limitation of the study is related to the qualitative design, which employs predominantly qualitative methods. A quantitative design was not suitable for the purposes of the study, since the main goal was to engage the university community to assess their own development history. Since the interviews, workshops, and the crowdwriting did not reach all the intended participants, a questionnaire was developed to target those specifically. Once combined, both approaches would confer a greater degree of objectivity in the study and increase the effectiveness of the PADev approach.

Another limitation that affected the research is the fact that the method employed – PADev – did not really incorporate participation in the preparatory and subsequent phases of data collection as recommended in the PADev Guidebook (Dietz et al., 2013a). Accordingly, stakeholders were not involved in defining the evaluation, developing the instruments, collecting and analysing data, and reporting and disseminating results.

A third limitation relates to the use of the results of the study to represent a larger population, since the unit of analysis was restricted to three faculties, two centres, and six central services' units. The specificity and circumstances of the units did not allow for the complete generalisation of the results to the university as a whole.

3.4. Ethics

Following the procedures for conducting empirical research at EMU, the research project was submitted to the local scientific council (Faculty of Education) and afterwards to the Scientific Directorate of the university. The institutional approval to carry out the research was expressed in a letter signed by the rector of the university.

Some ethical issues were considered and addressed in the process of carrying out the research. One of the major concerns was related to intellectual property, since the study might disclose institutional information contained in the official documents. There was a possibility that the study might reveal the weaknesses of the institution, if there were any, and therefore face pressure to disregard them all, along with the thesis, especially where sensitive information was obtained and used. To overcome this situation, some sources of information, particularly institutional documentation, was not publicly exposed.

Another concern was related to the confidentiality of the information, privacy of the sources, and informants' consent regarding their participation in the study. The confidentiality of the information might potentially be broken, and the study might reveal the identity of the sources and therefore expose them. This situation was addressed by considering the ethical norms applied in research involving human beings and placed in the Code of Ethics of Science and Technology of Mozambique (*Conselho de Ministros*, 2007) and in another international regulations tool, the Universal Declaration on Biomedical and Human Rights (UNESCO, 2006). The Code of Ethics of Science and Technology of Mozambique, approved by Decree No. 71/2007 of 24 December, regulates the ethical aspects of scientific research regarding the protection of research participants. It applies to all areas where scientific research is conducted, establishing the basic principles of research (Article 4), duties of researchers (Article 6), and issues concerning participants and sources (Article 7, 8, and 9). The Universal Declaration on Biomedical and Human Rights embodies the principles, which set out the rules that guide the respect for human dignity, human rights, and fundamental freedoms. It also addresses ethical issues applied to humans, taking into account their social, legal, and environmental dimensions. In this regard, the Declaration establishes, amongst others, the principles of consent (Article 6), and privacy, and confidentiality (Article 9) (UNESCO, 2006). Informants' consent was given orally and recorded by a digital voice recorder. Whenever possible, the names of respondents were not publicly

disclosed, unless study participants agreed to do so through a written consent. The stakeholder's identities were referred to in terms of their functions.