
Andragogical Education in Mozambique from the perspective of phenomenological Geography

La Educación Andragógica en Mozambique desde la perspectiva de la Geografía fenomenológica

Educação Andragógica em Moçambique na perspectiva da Geografia fenomenológica

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Abstract

The experience of being part of a multidisciplinary team on an expedition to Mozambique to train an operational group of a multinational company allowed all those involved to experience the practical knowledge related to the risk perception in work activities. The team adopted the andragogic educational methodology, whose pillars are need, self-concept and previous experience of the learner; readiness and motivation to learn. From the phenomenological perspective in Geography, the phenomenon was observed during the work routine of the group, seeking the comprehension of the individuals about themselves and about their relationship with the imminent risks. The adopted methodological approach allowed the development of preventive experiences in the work environment and contributed to the reduction of accidents and the increase of safety in the work environment.

Keywords: Geography; Phenomenology; Education; Andragogy.

Resumen

La experiencia de formar parte de un equipo multidisciplinario en expedición a Mozambique para entrenamiento de un grupo operativo de una multinacional permitió vivenciar los conocimientos prácticos relativos a la percepción de riesgo en sus actividades laborales. La metodología adoptada partió de la ciencia educacional andragógica, cuyos

pilares son: necesidad, autoconcepto y experiencia anterior del aprendiz; disposición y motivación para aprender. Por la perspectiva fenomenológica en Geografía, se observó el fenómeno durante la rutina de trabajo del grupo, buscando la comprensión de los sujetos sobre si mismos y su relación con los riesgos eminentes. El enfoque metodológico adoptado permitió cultivar vivencias preventivas en el ambiente de trabajo y también contribuyó para la reducción de accidentes y el aumento de la seguridad en el ambiente laboral.

Palabras clave: Geografía; Fenomenología; Educación; Andragogía.

Resumo

A experiência de fazer parte de uma equipe multidisciplinar em expedição a Moçambique para treinamento de um grupo operacional de uma multinacional permitiu vivenciar os conhecimentos práticos relativos à percepção de risco nas suas atividades laborais. A metodologia adotada partiu da ciência educacional andragógica, cujos pilares são: necessidade, autoconceito e experiência anterior do aprendiz; prontidão e motivação para aprender. Pela perspectiva fenomenológica em Geografia, observou-se o fenômeno durante a rotina de trabalho do grupo, buscando a compreensão dos sujeitos sobre si e sua relação com os riscos eminentes. A abordagem metodológica adotada permitiu cultivar vivências preventivas no ambiente de trabalho e ainda contribuiu para a redução de acidentes e o aumento da segurança no ambiente laboral.

Palavras-chave: Geografia; fenomenologia; educação; andragogia.

Introduction

Nowadays, there is a discussion that the current educational processes should consider the phenomenological aspects in their application, either when pointed to the condition of methodology in qualitative research, or when they consider the environments that involve teaching and learning from the perspectives of teachers and students. student. In this condition, understanding the phenomena surrounding the environment in which these characters are inserted can lead both more assertively to the planned objectives.

The phenomenological approach is important with regard to understanding the difference between the modalities of intuition (for example, data from memory and perception). From this understanding, the description must resort to new dimensions, however there remains a general fact that is valid for all consciousness understood as “consciousness of something” (HUSSERL, 2001, p. 58).

In Brazil, Phenomenology has been allied to studies of the Geography of Perception, which seeks to describe the essences of the structures associated with the phenomenon (object) studied. It allows examining the various ways in which a given phenomenon presents itself or may appear, as well as the intentions of those who perceive it, leading to the exploration of the constitution of the phenomenon in consciousness.

In the focus on the perception of the lived space, we observe the intercession of Geography – which values perception in the face of the phenomenon considered – with Andragogy, a science that aims at education in the sense of expanding the perception of workers in the area of Health, Safety and Environment (HSE) in terms of risk.

Accidents involving Health, Safety and the Environment have been the subject of constant studies, monitoring and controls by different areas and specialties, despite the impacts they bring to those involved and to all interested parties, who may or may not be acting directly with the causal connection of the fact.

According to data from the Notifiable Diseases Information System (BRASIL, 2022), which involves the formal and informal sector of the economy, in Brazil, the number of serious work accidents reported grew by around 30% in 2021, pointing to a total of 571,800 accidents per year. In Mozambique, until the year 2022, the registered average was 525 per year.

These occupational accidents often lead to irreparable consequences in human, personal, work, institutional, political, legislative and economic instances, inside and outside the scope in which they occur. In search of constant solutions for these

occurrences, companies and other research and control institutions develop norms, procedures, regulations, laws so that these numbers are reduced.

The main factor of this set of preventive measures, with regard to avoiding accidents, is directly linked to the causal link, which is the human being, most of the time an adult and with certain experience and knowledge about the activity being carried out. However, even with all the safety measures created to avoid risks at work, there are often accidents, as human beings are subject to the constant influence of the environment, ending up not realizing the risks involved.

From the alignment of Andragogy with the Geography of Perception and Phenomenology, an educational work was carried out by the company PREV+ (which provides services in the areas of training, qualification and evaluation in Health, Safety, and Environment) in a multinational that develops activities of iron ore exploration for more than ten years in Mozambique, identified here by CVRDD .

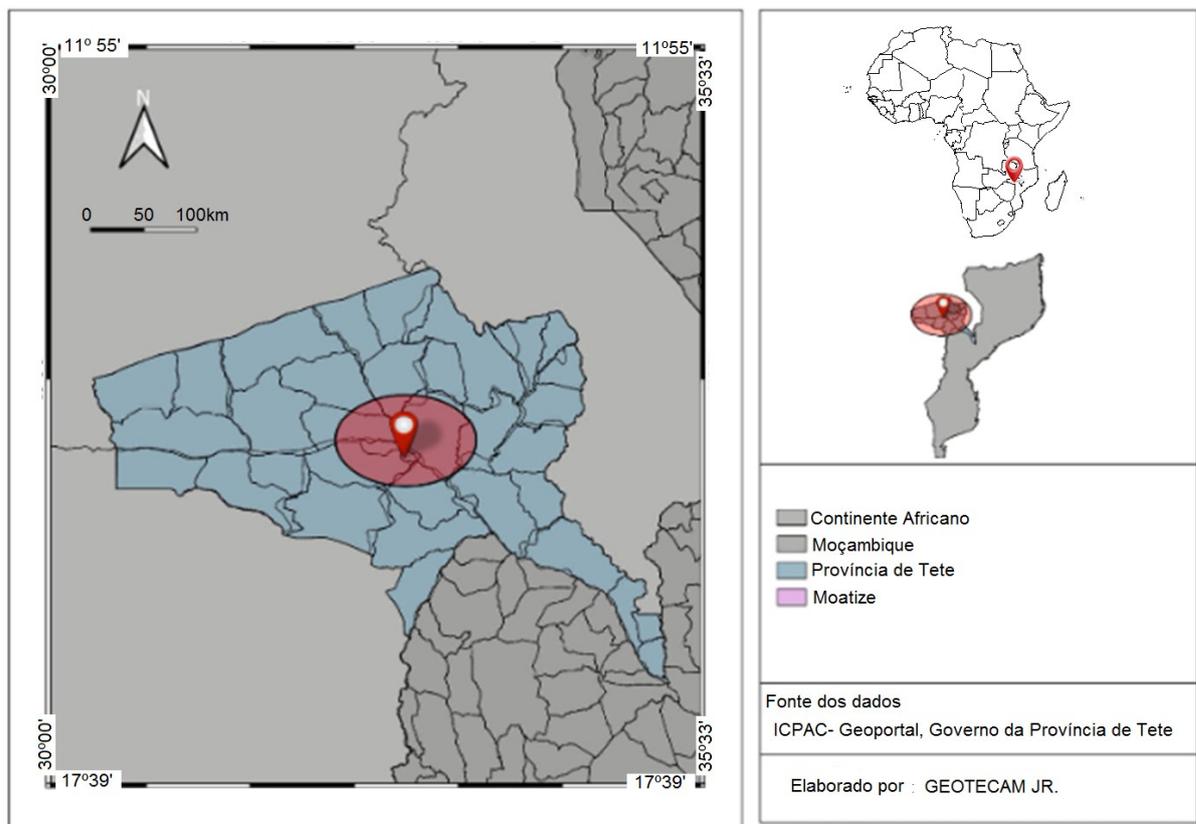
Considering the reality of the highlighted multinational and the educational method applied by the service provider company, the general objective of this article is to present the effects of the andragogical approach in the qualification and training process in the prevention of accidents and risk assessment in work activities, expanding the perception of those involved and reducing the possibilities of accidents in the work environment.

For the execution of this work, it was necessary to know the cultural reality in which work activities are linked to reflect on the object: the risks of accidents at work. To reflect, in the phenomenological sense, is to recognize the methodological possibility in geographic science, centered on the perception of the lived world, especially through human, individual and cultural experience, which can give meaning to the perceived space (CORREIA, 2021).

Methodology

The Andragogical education work described here, in line with Geography and Phenomenology, took place in a multinational company located in the province of Tete, in the district of Moatize, in the center of Mozambique. The country is located on the south-eastern coast of Africa (Map 1), organized into provinces (11), districts (154), administrative posts (444), localities and towns. In it, urban areas are structured in cities and towns.

Map 1 - Moatize, Tete Province, Mozambique - Africa



Source: TETE (2023)

Due to the growing number of accidents in work activities and the lack of perception of risk in the work experience, an attempt was made to observe the workspace in order to build a coherent methodology with the possibilities of risk perceptions.

Fifteen trainers and a coordinator from the company PREV+ participated in the experience, who developed and applied the method of andragogical education with 85 workers, aimed at the perception of risk in work activities. The sample used

represents 25% of the workforce in the field, in the operational area, assigned directly to the company. The level of education is generally technical or equivalent, with around 10% having only completed basic education.

Attentive to the risks and specific needs of workers at the Mozambican multinational, the service provider aligned the andragogical method with the Gemba philosophy (place where the problem occurs), derived from the 5G of Japanese philosophy, specialist in dealing with problem solving considering the living space.

According to this methodology, it is in the work area that one must be in order to solve problems. In this context, the look of the leader, with experience in the process, must be of an observer, without interfering in the way the work is carried out. Thus, he will be able to identify the failure and propose changes, avoiding conflict with the employees who carry out the work.

The understanding of Phenomenology, founded by Edmund Husserl (2012), was also essential for the described educational process, as it enables the study of human experience and “the ways in which things present themselves to us in and through this experience” (SOKOLOWSKI, 2004, p. 10). In Geography, this methodology has served as a theoretical-conceptual contribution since 1920, with a marked presence in the studies of Sauer (1925), Dardel (1939), Holzer (1993) and others (HOLZER, 1997).

We emphasize that in the development of the described educational work, only one of the 5G stages associated with Andragogy was used, understanding that going to the problem site, in the field, where the activity is developed, is one of the most important themes to be highlighted to understand the phenomenon What's happening.

The method of applying the andragogical education process is based on the following pillars and principles:

Chart 1 – Pillars of Andragogical Education

- | |
|---|
| <ol style="list-style-type: none">1. Learner's need;2. Learner's self-concept; |
|---|

3. Previous experience of the learner;
4. Readiness to learn;
5. Learning orientation;
6. Motivation to learn.

Source: Knowles (2009).

Table 2 - Principles of Andragogical Education

1. Need;
2. Applicability;
3. Autonomy;
4. Self-directivity;
5. Previous experiences;
6. Interactivity;
7. Climate of safety and respect;
8. Reflection and feedback..

Source: Knowles (2009).

The andragogical approach in the Gemba (workplace), broaden the perception of risks and awaken the workers of the multinational to the phenomenological awareness of risk prevention in the workplace in the district of Moatize. The application of this method was carried out by a team of technicians and specialists trained in these concepts, who guided the research in its foreseen stages.

Between teaching adults to learn and helping them in this process, there is Andragogy, which focuses on understanding the universe of these subjects and studying the appropriate means for teaching and learning to take place, considering all their specificities, whether of a social nature, cultural, historical or economic. This public has knowledge accumulated through experience and is capable of self-learning, having needs for training, knowledge, adaptation to the new demands of society and their safety (KNOWLES, 2009)

Results and discussions

In understanding the issues related to perception, from the geographic and andragogical character, in a phenomenological perspective, during the application of the Gemba methodology, with interactive interventions carried out in daily activities

during the research period, it was observed as a result a greater perception by the teams of the risks measured along with the data collected during the time the method was applied.

In addition, based on the company's indicators, an increase in the value of adherence to the preventive culture was noted, which shows the maturity in HSE in the activities of an organization. The results also showed that this methodology can be applied in other areas of the company such as maintenance, operation and engineering.

Experience and experience: work routine

During the entire period of the experience, the team was installed in the province of Moatize, within one of the facilities complexes for the company's foreign workers. In this environment, there were Brazilians, Portuguese, North Americans, French and Africans. Workplaces were divided between coal mines, storage, safety systems, maintenance, control room and indicators, in interaction with groups of engineers, operators, maintainers and area leaders who adapted the research procedures to the work of the employees, considering the working day, for six days a week.

To access the site, it was necessary to know several procedures and training, according to the contract. Safety inspections (verification of Personal Protective Equipment, proof of mandatory training, access authorizations to areas) and tests (breathalyzer, pressure measurement) were constantly carried out to monitor the physical and mental state of workers.

In order to carry out the application of a method based on the andragogical model and geographic perception, it was necessary to divide the entire work into three large blocks of action and development, the third of which was divided into five sub-stages, also including knowledge of the culture place and the behavior in face of the social habits of that community.

Chart 3 - Stages of action of the multidisciplinary team

1. Preparation of the Technical Project;
2. Preparation of didactic material to be worked with the teams;
3. Training of the Brazilian team in concepts and applied techniques;
 - 3.1 Definition of indicators and better evaluation and control instrument;
 - 3.2 Leadership training in the program;
 - 3.3 Presentation of the intervention process to the field teams;
 - 3.4 Application of the method in the area;
 - 3.5 Evaluation and dissemination of results. Preparação do Projeto Técnico;

Source: Knowles (2009).

The first challenge to be solved was the elaboration of didactic material based on the Andragogical proposal and that was easy to understand, without negatively interfering in the daily lives of workers. The solution found was the creation of three distinct work dimensions to act sequentially at different levels of the body of work, defined as follows: Training dimension, for training the Brazilian team in the fundamentals and concepts of the andragogical method and geographic perception; Monitoring dimension, to address the interfaces between team members and workers; and Apprentice dimension, which tried to explain to workers the structure and stages of research activities.

For each dimension and people involved, specific didactic material was created, adapting, in the defined dimensions, the needs of each public: Team working in the field; Training team; Team of apprentices (employees). The didactic material produced consisted of concepts about geographic perception, andragogy, its applications, approach methods, evaluation criteria, monitoring and control, as well as the main indicators defined for this project together with the workers.

Implemented procedure

In rotation among the teams, Brazilian professionals, proven to be experienced, monitored all the tasks performed by the employees, applying an

approach based on geographic perception and the andragogical method, which allowed for greater interaction and learning of new knowledge in the face of discussions and consensus reached during the course of the activity, always observing the phenomenon and the environment in which it was inserted.

The survey form was filled out daily, creating a history and database with information about the process and advances in relation to the indicators and objectives addressed

Training of the multidisciplinary team

The Brazilian team selected to participate in the project consisted of 20 people, men and women, including technicians and engineers in the field of Industrial Safety, with different specialties in this area, but all with experience in industrial areas and training. This team was trained in the concepts of Andragogy, its application and objectives. This training was based on the studies of Malcom Knowles (2009), who is considered the "father of Andragogy", such was his influence in disseminating the perspective on how adults learn.

The evaluation instruments: perception of risk at work

To ensure the monitoring of research advances and the results obtained, it was discussed which would be the best proposal for Key Process Indicators (KPI) of advances, as well as the most appropriate instruments for application. At these meetings, it was decided that the following indicators would compose the research follow-up table:

Chart 4 – Key progress process indicators (KPIs)

- Effectiveness of adopted strategies;
- Adequacy of didactic resources;
- Participation and interest of trainees in the proposed activities;
- Degree of acceptance of contents and practices;
- Impacts of training on work processes;

- Employees' actions in a more preventive manner with regard to preserving their health and safety in accident prevention..

Source: Silva (2023)

These indicators were placed in a specific form, within the application created for this purpose and implementation of the methodology.

Final considerations

Based on geographic phenomenology, linked to the application of a specific scientific method, Andragogy, in a work environment located in the province of Tete, in the district of Moatize, in Mozambique, where workers are exposed to the possibility of accidents at work, there was an intervention of an educational nature with the aim of expanding this group's perception of the risks involved in their activities.

Experience has shown that, after applying the andragogical method, with a focus on increasing perception, there was an evolution in the risk perception power of each member. The chosen indicators, associated with adherence to the prevention culture in the work environment, which did not exist before the intervention, showed the viability of the method, as it increased the perception of risk in work activities.

Experiencing the method gave the necessary credibility to recommend its dissemination in other work environments as a way of preventing the risks characteristic of the type of activity carried out. In observing the andragogical method, it was also found that the long working day, the environmental conditions, such as heat, a large amount of aerosols, the different languages, the area covered by the company, are conditioning factors that can interfere with the identification of the danger that there is in every desktop.

In consultation, through a form about the methodology, 95% of the participants agreed that there was a degree of acceptance of the methodology

regarding the usefulness of the educational process based on geographic perception and andragogical method for prevention and risk perception in work activities.

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Authors' contribution

Author 1 – Conception, data collection, data analysis, manuscript preparation, review, methodology

Author 2 – Conception, elaboration of the manuscript, revision, supervision and final approval of the work.