DATA & METADATA

Check for updates

Analysis of academic research data with the use of ATLAS.ti. Experiences of use in the area of Tourism and Hospitality Administration

Análisis de datos de investigación académica con el uso de ATLAS.ti. Experiencias de uso en el área de Administración de Turismo y Hotelería

Miriam Viviana Ñañez-Silva[1] ✉, Julio Cesar Quispe-Calderón[2] ✉, Patricia Matilde Huallpa-Quispe[1] ✉, Bertha Nancy Larico-Quispe[1] ✉

[1]Universidad Nacional de Cañete, Facultad de Ciencias Empresariales. Lima, Perú.
[2]Universidad Privada San Juan Bautista, Facultad de Derecho. Lima, Perú.

ABSTRACT

Qualitative data analysis in academic research is a challenge. In this context, the use of tools such as ATLAS.ti has emerged as a potential solution to improve the understanding and management of data in the analysis of in-depth interviews. The main objective of the research was to analyze the perspectives of Tourism and Hospitality Management students on the use of ATLAS.ti in the analysis of interviews in qualitative research. The methodology employs a qualitative approach and a descriptive-interpretative design. Data were collected through in-depth interviews and focus groups directed to 40 students of the X cycle who conducted this approach in their research to opt for the bachelor's degree in Tourism and Hospitality Administration during the years 2022 and 2023. The findings reveal that the use of ATLAS.ti in qualitative data analysis is highly beneficial, facilitating the coding, organization, and identification of emerging patterns in in-depth interviews. The relevance of its effective use in qualitative analysis is highlighted, improving data management, and understanding of participants' perspectives. It is concluded that it is a valuable and effective tool in this context, although the need for researchers to acquire a deep understanding of the tool and receive adequate training is emphasized. It is suggested that they focus on continuous training in its use and constant practice of its advanced functionalities, especially in areas such as coding and code creation, to achieve a deeper interpretation of qualitative data.

Keywords: ATLAS.ti; Qualitative Analysis; In-Depth Interviews; Qualitative Interpretation; Student Perspectives.

RESUMEN

El análisis cualitativo de datos en investigaciones académicas representa un desafío. En este contexto, el uso de herramientas como ATLAS.ti ha surgido como una solución potencial para mejorar la comprensión y gestión de datos en el análisis de entrevistas a profundidad. El objetivo principal de la investigación fue analizar las perspectivas de estudiantes de Administración de Turismo y Hotelería sobre el uso de ATLAS.ti en el análisis de entrevistas en investigaciones cualitativas. La metodología emplea un enfoque cualitativo y un diseño descriptivo-interpretativo. Se recopilaron datos a través de entrevistas a profundidad y grupos focales dirigido a 40 estudiantes del 10mo ciclo que llevaron a cabo este enfoque en sus investigaciones para optar el Título de Licenciado en Administración de Turismo y Hotelería durante los años 2022 y 2023. Los hallazgos revelan que el uso de ATLAS.ti en el análisis de datos cualitativos es altamente beneficioso, facilitando la codificación, organización e identificación de patrones emergentes en las entrevistas a profundidad.

Se destaca la relevancia de su uso efectivo en el análisis cualitativo, mejorando la administración de datos y la comprensión de las perspectivas de los participantes. Se concluye que es una herramienta valiosa y eficaz en este contexto, aunque se enfatiza la necesidad de que los investigadores adquieran un profundo entendimiento de la herramienta y reciban una formación adecuada. Se sugiere que se enfoquen en la capacitación continua en su uso y la práctica constante de sus funcionalidades avanzadas, especialmente en áreas como la codificación y la creación de códigos, para lograr una interpretación más profunda de los datos cualitativos.

Palabras clave: ATLAS.ti; Análisis Cualitativo; Entrevistas a Profundidad; Interpretación Cualitativa; Perspectivas Estudiantiles.

INTRODUCTION

The constant evolution of Information and Communication Technologies (ICT) has reconfigured the dynamics of communication and teaching in university institutions. This change has generated a growing interest in understanding student participation in this new academic environment, as well as their reactions to using ICT for educational purposes.[1] In response to this context, the current university environment requires the use of various tools that promote student autonomy and collaboration, as well as the practical application of the knowledge acquired in the classroom, including the use of new technologies and software.[2]

Qualitative research has become a scenario where the right choice of software can provide significant advantages. This translates into greater speed, consistency, and access to analytical methods that would be difficult to achieve manually, always taking into account the needs and working style of the researchers.[3] In the field of scientific interviews, an essential focus lies in the effective exploitation of the data provided by the interviewees. For this purpose, many researchers resort to content analysis programs, commonly known as CAQDAS, which facilitate the coding of qualitative data, including textual data generated in interviews, thus contributing to raising the quality of research.[4]

Qualitative research involves a constant exchange between existing knowledge and what is discovered in the reality studied. In this process, researchers often experience uncertainties and doubts, especially during the data analysis and interpretation phase. The main recommendation in this regard is to combine the analysis process with the ATLAS.ti computational tool, allowing the researcher's creativity to play a fundamental role in the exploration and understanding of the data.[5] Likewise, ATLAS.ti, by incorporating elements such as hermeneutic unity, coding, code families, emergent categories, citations, memes, and semantic networks into the data, stands as a valuable tool for researchers engaged in qualitative research projects.[6]

ATLAS.ti exceeds expectations by providing researchers with the ability to visualize their thought processes and thoughts from various perspectives. This visualization not only improves the organization and understanding of data, but also enriches the cognitive experience, stimulating more reflective thinking.[7] Taken together, these perspectives and tools reveal a rich and challenging landscape for qualitative research in a world increasingly influenced by ICTs.

LITERATURE REVIEW
Creative use of Atlas.ti in qualitative research analysis

The background highlights the importance of applying qualitative techniques and the use of ATLAS.ti in similar studies. It demonstrated the effectiveness of ATLAS.ti in the analysis of geographical, social, and economic aspects in the context of sustainable tourism.[8] It used ATLAS.ti to combine quantitative and qualitative variables, highlighting the challenges of seasonality in tourism.[9] International studies, underline the usefulness of ATLAS.ti in identifying challenges in sustainable rural livelihoods.[1,10] Authors highlight how ATLAS.ti is employed in policy and strategy analysis, and in qualitative data management, respectively. [2,9,11] In addition, It highlight the opportunity to build rigorous processes in theoretical construction with ATLAS.ti. This international background supports the focus of the article and its contribution to the creative use of ATLAS.ti in qualitative research.[11]

The use of Atlas.ti in qualitative research analysis has emerged as a widely recognized practice due to its potential to streamline the processing and interpretation of qualitative data. Atlas.ti, a specialized software, is designed to manage vast amounts of textual and multimedia information, giving researchers the ability to explore patterns, themes, and relationships within their datasets. However, it is imperative to understand the dimensions of creative use of Atlas.ti and how they apply in qualitative analysis.

The creative use of Atlas.ti involves exploring new avenues beyond the tool's traditional functions. Researchers can introduce innovative techniques, tailor software to their specific requirements, and experiment with various approaches to qualitative analysis. This leads to greater flexibility and adaptability in a variety of research

contexts. In addition, the creative use of Atlas.ti can involve the integration of several types of data, including text, images, audio, and video, with the aim of gaining a deeper and richer understanding of the phenomena studied.[7] In this sense, stresses that the use of this tool involves the application of unconventional or unusual approaches in qualitative analysis. These approaches range from the use of data visualization techniques to the incorporation of innovative theories and conceptual frameworks, and even the adoption of mixed methods that combine qualitative and quantitative analyses. These creative approaches have the potential to engender new knowledge, unveil previously unexplored perspectives and open new lines of research in the field of sustainable tourism development.[12]

According to the research, mastering the skills needed to use Atlas.ti in qualitative analysis involves a deep understanding of the advanced functionalities and tools that the software offers. Researchers who possess these advanced skills can conduct qualitative data analysis of greater sophistication, including identifying patterns and trends, thematic analysis, and creating conceptual models. These competencies allow them to perform more rigorous comparative and exploratory analyses, thus contributing to a deeper understanding of the data and the generation of meaningful findings.[13]

On the other hand, adaptability, and the ability to learn new skills are key aspects in the effective use of Atlas.ti. As software is constantly evolving and updated, researchers must be willing to acquire new expertise and stay up to date with the latest versions and features of Atlas.ti. The ability to quickly learn and adapt to changes expands the possibilities of analysis and allows them to take full advantage of the capabilities of this tool.[14] Whereas emphasizes that the application of these advanced skills allows researchers to conduct comparative and exploratory analyses more systematically and accurately. The software provides tools that make it easy to compare text fragments, identify connections and relationships between categories, and generate graphical visualizations of coded data. These basic functions expand the possibilities of analysis and allow you to gain a deeper and more detailed understanding of qualitative data.[8]

Mastery of advanced tools, such as network analysis, data segmentation, graphical visualization, and conceptual modeling, gives researchers the ability to go beyond superficial analysis and explore the complex relationships between elements of their qualitative data. By using tools such as network analysis, researchers can identify hidden connections and patterns in their data, enriching the understanding of the phenomenon under investigation.[15] Likewise, underline that the ability to apply these advanced skills provides researchers with the opportunity to conduct more in-depth and sophisticated thematic analyses. The software allows for the exploration of relationships between codes and categories, the identification of subtopics, and the performance of more detailed content analysis. These advanced features make it easier to generate new perspectives and make more complex interpretations in qualitative analysis.[16]

The application of innovative coding techniques fosters flexibility and adaptability in qualitative analysis. This allows researchers to experiment with different approaches and adapt to the particularities of each dataset. An example of this flexibility is metaphor-based coding, which can bring a more symbolic and figurative perspective to the coding process.[17] This technique is especially useful in studies that deal with complex or abstract topics. The ability to apply these innovative techniques expands the possibilities of interpretation and enriches the understanding of qualitative data, allowing researchers to explore deeper dimensions of their investigations.

These coding techniques go beyond traditional methods, providing researchers with new perspectives and tools to explore and represent qualitative data. In addition, they contribute to transparency and reproducibility in qualitative analysis. Documentation and clear presentation of the analysis processes and the results obtained provide an opportunity for other researchers to examine and evaluate the validity of the findings. The visualization of results also stands out as an effective tool to convey complex information in an accessible and engaging way, thus facilitating the understanding and exchange of knowledge in the academic and professional field.[18]

METHOD AND MATERIALS

The research was based on a qualitative approach aimed at understanding the current reality in the analyzed context. This paradigm focuses on extracting the essence of people's experiences and revealing the most deep-rooted aspects.[18] In addition, a descriptive-interpretative approach was employed, which seeks to obtain detailed and accurate data on human experiences related to sustainable tourism development. Interpretation involves understanding and making sense of phenomena according to the meanings they have for the people involved.[17]

Case study design, an important focus in qualitative research, was used to gain meaningful knowledge.[14] Detailed and in-depth data from cases were collected to examine in depth the experiences, perspectives and practices related to the topic of study.

The research used two techniques: the interview and the focus group. The interview made it possible to interpret the social reality, values, customs, ideologies, and worldviews that are constructed from a subjective

discourse, where the researcher assigns a specific meaning and meaning to the interviewee's experience. [9] On the other hand, the focus groups allowed the researchers to access the collective imagination of the participants in a dynamic and horizontal way, generating discussions that offer a closer and more authentic interpretation of reality before being artificially constructed.[16]
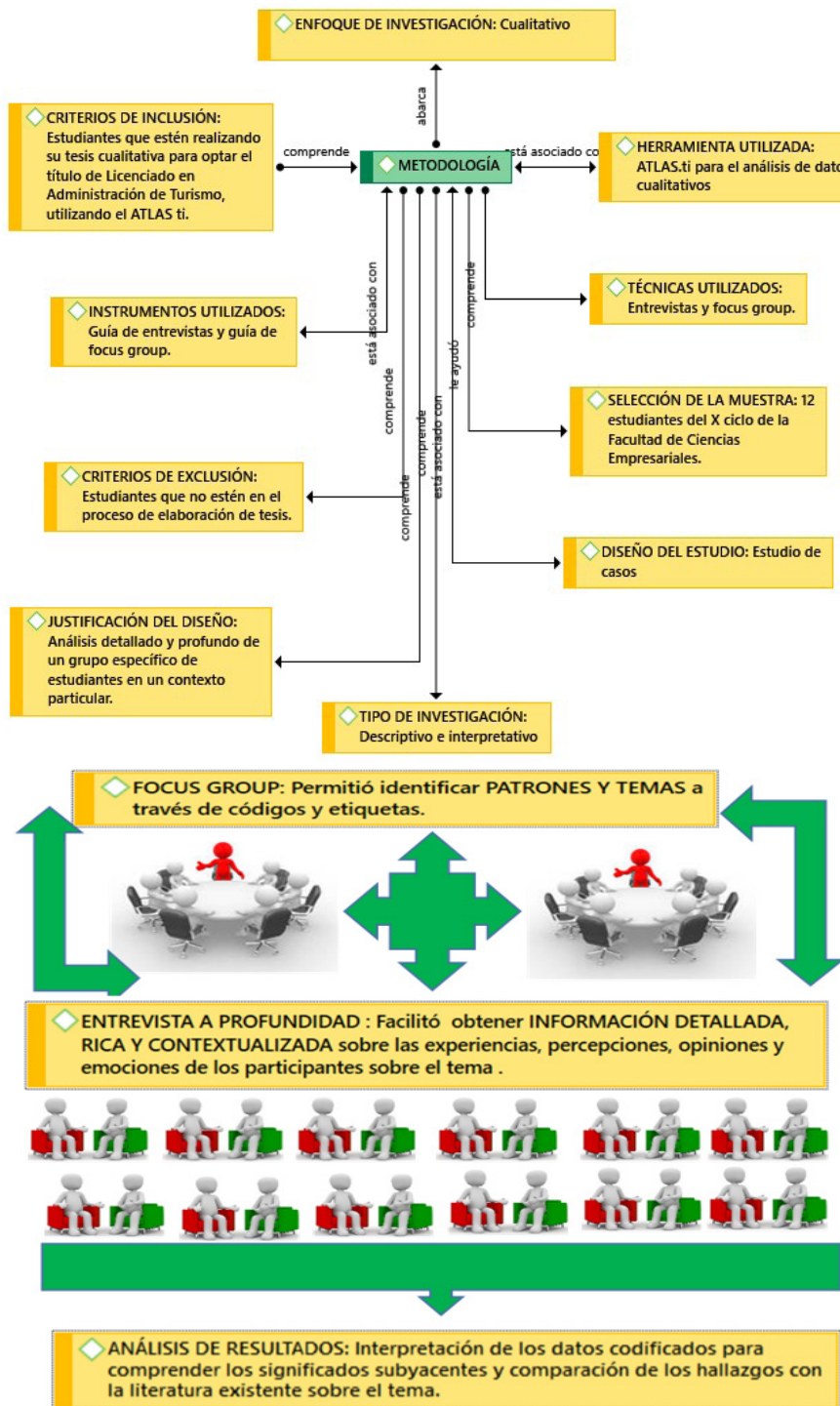
Figure 1. Methodological process of the research

The instrument was an interview guide, which was subjected to content validation by researchers and experts. This ensured that it adequately encompassed all variables of interest in the research. Open-ended and directed questions were used to stimulate discussion and allow participants to freely share their views. The information collected through these techniques complemented the data obtained in the individual interviews, providing a more complete and richer view of the students' experiences and perceptions in the process of preparing their theses. These methods allowed for a deeper and more varied understanding of participants'

perceptions and opinions on the topic. The sample included 40 students from the X cycle of the School of Tourism and Hospitality Management who had conducted qualitative research, of which 18 belonged to the period 2022 and 22 to 2023.

For the analysis of qualitative data, the ATLAS.ti software was used, which facilitated the efficient organization and analysis of the information collected. This program made it possible to codify tasks such as coding and identifying patterns and emerging themes in the data. In addition, it allowed the construction of code networks for theoretical generation and obtaining results.[12,19]

Figure 1 represents the methodological process followed throughout the research.

RESULTS

Proficiency in ATLAS.ti and experience in analyzing in-depth interviews.

Effective in-depth interview analysis with ATLAS.ti requires a solid understanding of the tool.[19] The research revealed that to explore the experiences of the participants in the use of ATLAS.ti, training, and practice to acquire knowledge about this tool is essential. Some participants (EADT1, EADT5, EADT12, EADT17, EADT23, EADT28, EADT31, EADT48) stated that they had a solid understanding, highlighting the importance of acquiring skills in its use. Overall, students had a very favorable experience using it in the analysis of in-depth interviews, reinforcing its usefulness in qualitative research. Its basic functions, such as data coding, code creation, annotations, and memos, were fundamental in the analysis process, according to the participants (EADT3, EADT6, EADT8, EADT10).

In addition, word cloud generation stood out as an especially useful technique. Participants mentioned how they selected codes related to the topics of interest and used ATLAS. You can use it to create visual representations (EADT4, EADT7, EADT10, EADT13, EADT17, EADT21, EADT28, EADT33, EADT40). The tool not only simplified data organization, but also allowed researchers to manage large volumes of qualitative information efficiently (EADT7, EADT3). They stated that it became an essential tool for the analysis of their data, significantly improving their ability to understand and communicate the results of their research (EADT8, EADT5, EADT10).

ATLAS.ti's proficiency and expertise in analyzing in-depth interviews go hand in hand, backed by a solid understanding of the tool and an appreciation of its basic and advanced features. Participants recognized it as a valuable tool in the analysis of qualitative data, highlighting its effectiveness in managing and understanding research results. In Figure 2 we can see that, when applying the word cloud technique to the information obtained through the interviews, it was observed that some words were mentioned more frequently. These keywords include "interviews," "codes," "ATLAS.ti," "analytics," "data," "words," and "categories." Other relevant words such as "functions", "research", "information", "depth", "challenge" and "experiences" were also identified. In addition, less frequent, but still significant words were found, such as "generation", "quality", "memos", "emerging", "organization", "knowledge" and "trends", among others. The presence of these terms in the word cloud indicates their importance in the context of research.

The most frequent words reflect the core elements of the analysis, such as interviews, codes, and the use of ATLAS.ti. On the other hand, less frequent words can represent more specific or less common aspects, such as generating emerging ideas, data quality, organizing information, and identifying trends. In summary, the word cloud reveals the main themes and concepts that emerged from the interviews, providing an overview of the key elements in the analysis of the qualitative data collected.

The process of in-depth interview analysis has been greatly benefited by the basic functions of ATLAS.ti, an essential tool in qualitative research. According to EADT1, "The basic functions of the Atlas.ti help us to organize the information from an interview, to analyze it and to interpret qualitative research." This highlights its fundamental importance in the organization and analysis of qualitative data.

The use of ATLAS.ti involves the application of various functions, including the creation of codes, the construction of networks and the generation of word clouds (EADT2, EADT4, EADT12, EADT23, EADT25, EADT27, EADT36, EADT38). The creation of codes and subcodes allowed for a deeper categorization of the data, which proved essential for exploring specific themes within the interviews. Emphasis was also placed on the effectiveness of word clouds as a visual tool for summarizing key findings and communicating them effectively (EADT3; EADT4, EADT9, EADT11, EADT13, EAD39). In our in-depth interview analyses with ATLAS.ti, several core functions proved critical to the management and understanding of qualitative data. (EADT5, EADT17, EADT8, EADT9, EADT22, EADT27, EADT30, EADT32, EADT35, EADT37, EADT39, EADT40). This strategy allowed the researchers to explore patterns and trends in the data, which was crucial for understanding the respondents' responses (EADT6, EADT35, EADT39).

One participant highlighted the versatility of ATLAS.ti, mentioning: "To this day I have been able to use two basic functions, the first one that helped me with the descriptive analysis of my research is the construction of the word cloud and on the other hand it is also for inferential analysis..." (EADT4). This underscores the ability of this medium to adapt to various stages of analysis, from description to inference.

Note: Word cloud display of the most frequently presented codes in the processed material.
Figure 2. ATLAS.ti: Word Cloud Reveals Key Concepts

Word clouds stood out as one of the most visual and effective tools of ATLAS.ti (EADT2, EADT4, EADT6, EADT7 and EADT8, EADT15, EADT28, EADT38, EADT39). These visual representations provided a snapshot of key concepts within the interview data and were used to summarize and communicate key research findings effectively (EADT1, EADT5, ADT7. EADT16, EADT19, EADT22, EADT30, EADT34, EADT35, EAD38).

In summary, the basic functions of ATLAS.ti play an essential role in the analysis of in-depth interviews. From organizing data to generating word clouds, it has proven to be a versatile and effective tool in qualitative research. The shared experiences highlight its importance in interpreting qualitative data and communicating key findings.

Mastering the advanced features and new versions of ATLAS.ti in in-depth interview analysis

During the in-depth interviews, participants highlighted the use of ATLAS.ti as a valuable tool to understand and explore qualitative data more deeply. "As a researcher, my experience with this platform has been rewarding and enriching, marked by a process of continuous adaptation. Along this path, I've figured out how to make the most of its advanced features (EADT33).

The findings of Focus Group 1 revealed that, at first, they were faced with the challenge of familiarizing themselves with a completely new program, something they had never used in previous research. This initial adaptation was challenging, but over time and thanks to the help of digitalization, the process became considerably simpler (Focus group 1, 09/12/2022). It was highlighted that dedication and research were key to overcoming the first barrier when familiarizing oneself with ATLAS.ti. The digitization of information has facilitated the most effective learning of the tool, making it a fundamental tool for their work (Focus group 2, 08/12/2023).

"At first, I was faced with the challenge of familiarizing myself with a program that was completely new to me, something I had never used in previous research" (EADT1). "This initial adaptation was challenging, but over time and thanks to the help of digitalization, the process became considerably simpler" (EADT39). "As is often the case in research, dedication and research were key to overcoming this first barrier" (EADT24). "The digitization of information has paved the way for learning more effectively, and today, ATLAS.ti has become a fundamental tool for my work" (EADT4).

In focus group 1, it was highlighted that code networks are the most relevant functions in their experience. These allow the creation of interconnections between the selected codes, even incorporating the citations into them. This feature is particularly valuable, as it allows them to visualize the relationships clearly and attractively between concepts and topics in their data (Focus group 1, 09/12/2022). It was concluded that the use of code networks, in combination with concurrent codes, allowed them to summarize in a precise and concise way all the results obtained. Despite the complexity and the need for skill in its application, with practice, this function has become a powerful tool in our analysis (Focus group 2, 08/12/2023).

"My commitment to research led me to explore and utilize several of ATLAS.ti's advanced features, which significantly enriched my in-depth interview analysis. The dating network, for example, allowed me to track and analyze the connections and context of interviewees' statements, which added an additional dimension to my research" (EADT5). As for the updates and new versions of ATLAS.ti, our experience has been positive overall. Staying on top of updates and learning to master new features was a gradual process. Staying informed and exploring what's new in collaboration with the user community was essential. Adapting to these updates contributed significantly to the effectiveness of our qualitative data analysis and, ultimately, to the robustness of our research. (EADT6, EADT7, EADT12, EADT13, EADT17, EADT20, EADT23, EADT32, EADT36, EADT39).

In summary, the path of adaptation and learning in the use of ATLAS.ti for informants has been an enriching journey. Through the application of advanced features and adaptation to updates, they have strengthened their ability to explore and understand qualitative data in their in-depth interview investigations more deeply. These advances have ultimately contributed to more effective analysis and more robust research.
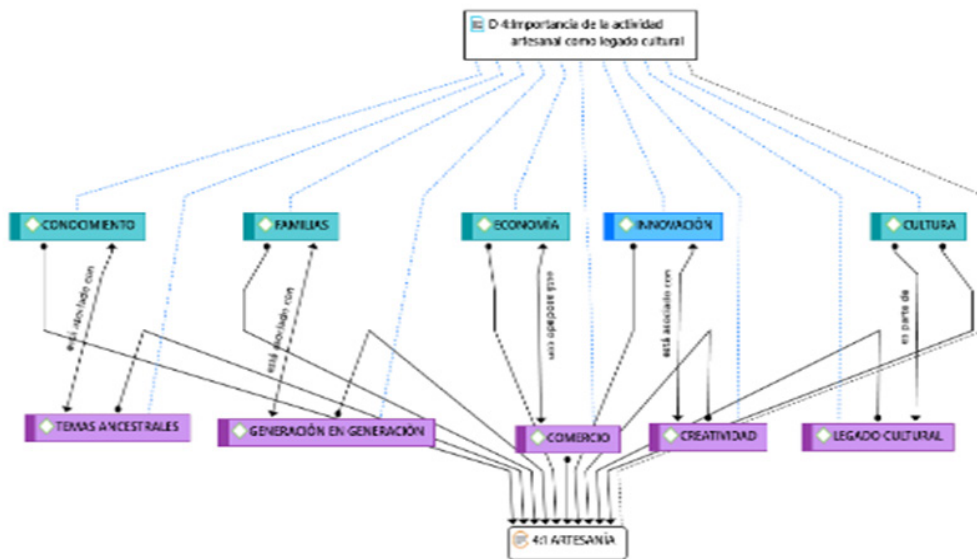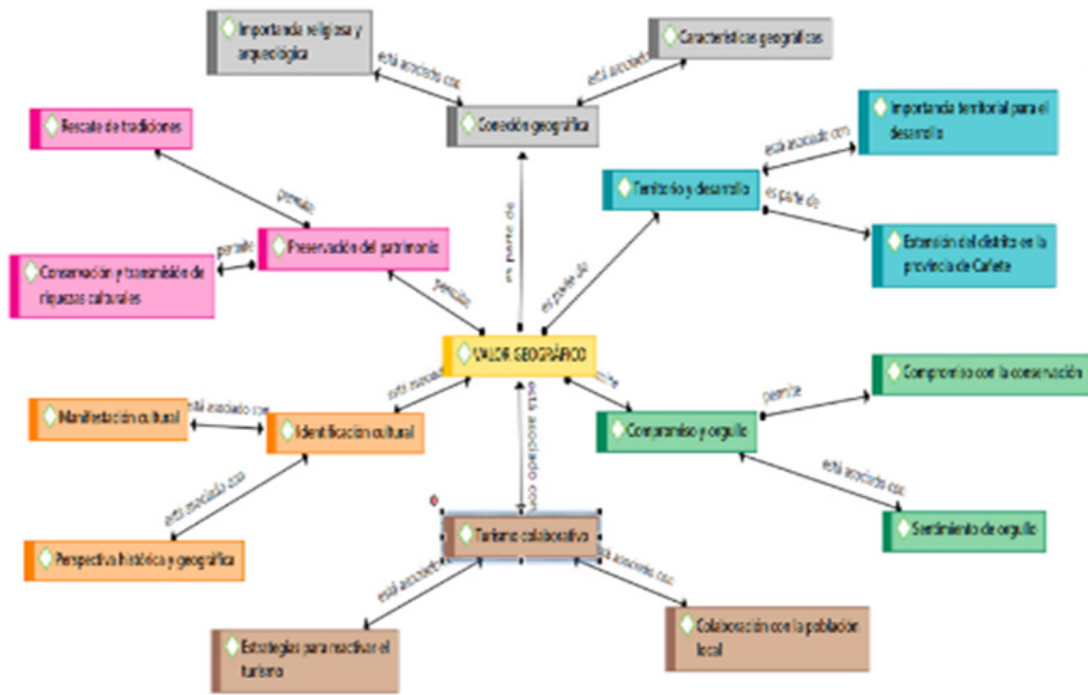
Figure 3. Thematic exploration by means of a network of codes in the theses of informants

Figure 3 highlights the topics and papers included in the theses, using the code network as the main tool in data processing. Each diagram represents a specific subcategory of the topics addressed in the theses, such as the prevention and control of personnel, artisanal activity, and cultural legacy, as well as the geographical valorization of Coayllo. These diagrams show the complexity and interconnectedness of the concepts and themes explored in the research, reflecting the depth and breadth of the analysis conducted. The use of the code network as a data processing method allows for a detailed and structured understanding of the topics investigated, facilitating the identification of significant patterns, relationships, and connections within the collected data. Taken together, these visual representations provide a comprehensive view of thesis findings and results, highlighting the importance of the code network as an effective tool in qualitative data analysis.
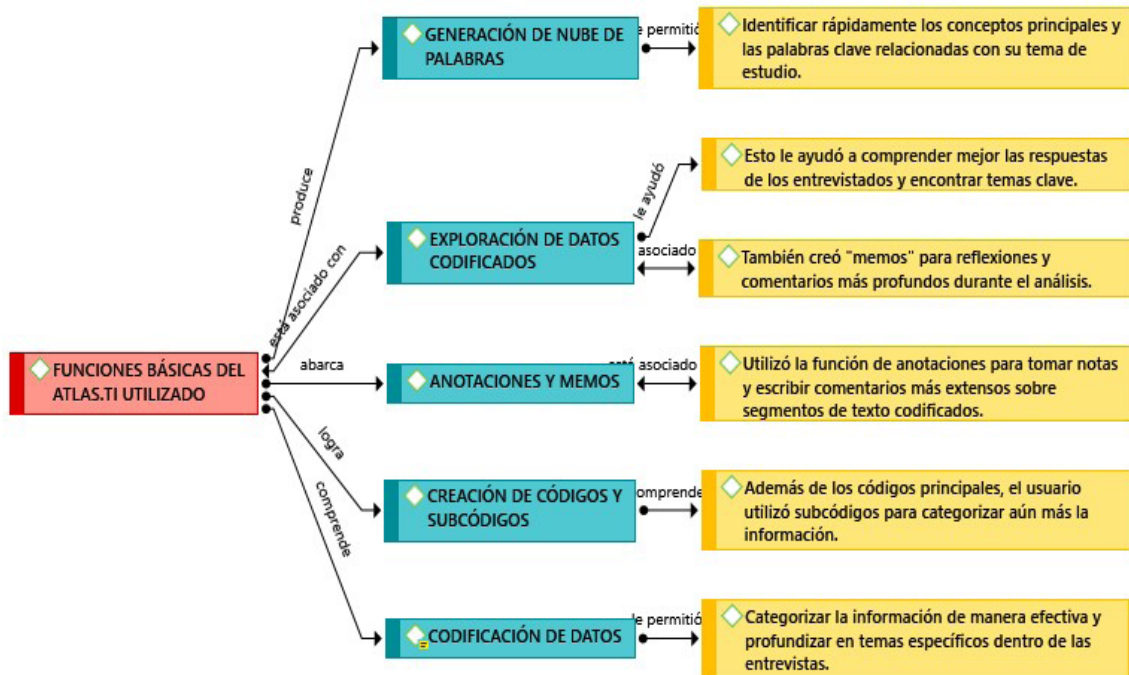

Figure 4. Main functions used by informants

Qualitative data analysis plays a fundamental role in contemporary social research, providing a deep and contextualized understanding of the phenomena studied. In this context, ATLAS.ti software has become an

indispensable tool for researchers seeking to explore and understand qualitative data in a systematic and effective manner. In Figure 4 it can be inferred that the interviewees have highlighted the importance of the basic functions of the ATLAS.ti software in their qualitative analysis processes. Generating word clouds, exploring encoded data, as well as creating codes and subcodes, have allowed researchers to quickly identify key concepts, better understand respondents' responses, and categorize information effectively. In addition, the use of annotations and memos has facilitated further reflection and analysis during the research process.

These findings suggest that researchers value the ability of ATLAS.ti software to organize and analyze qualitative data efficiently and systematically. The data coding feature has been instrumental in effectively categorizing information and delving into specific topics within interviews. Taken together, these results highlight the importance of ATLAS.ti software as an indispensable tool in qualitative research, providing researchers with the necessary tools to effectively explore, understand, and interpret the information collected in their research projects.
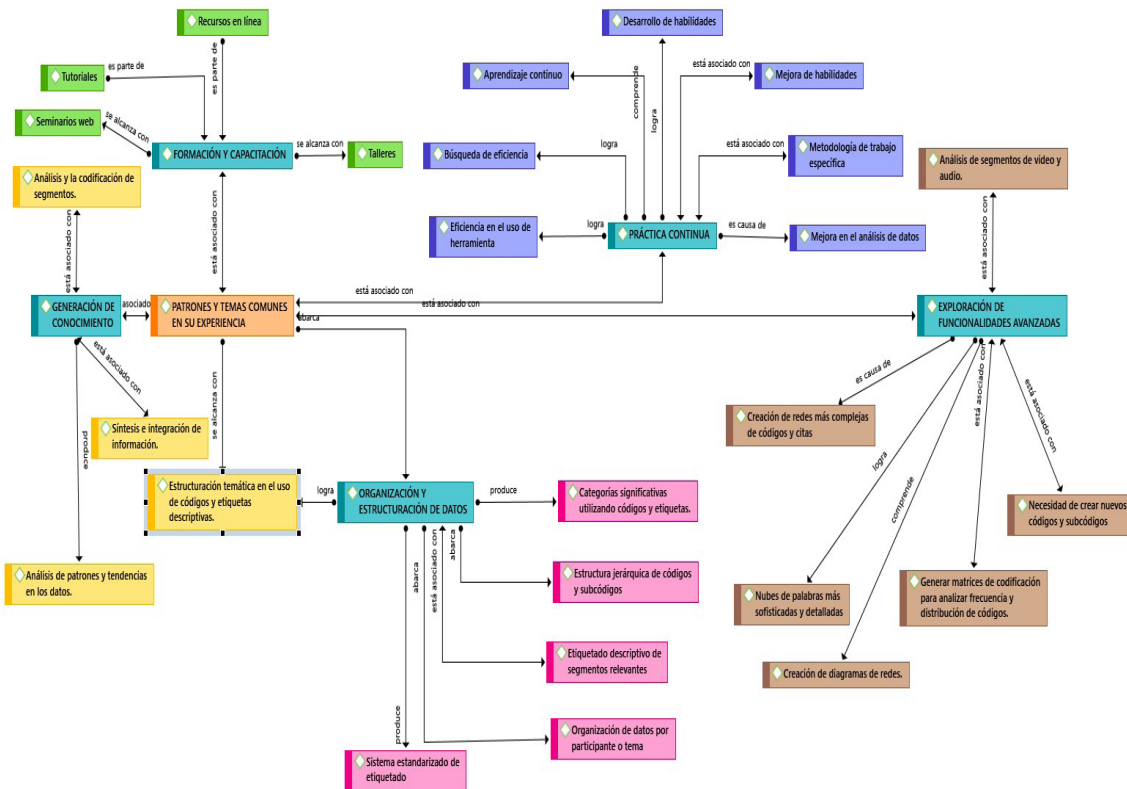

Figure 5. Patterns and Emerging Themes Identified in Interview Analysis

Based on Figure 5, several patterns and emerging themes that emerged during the analysis of the interviews can be identified. First, the importance of continuous training and training is highlighted, represented by the need to develop skills, and improve efficiency in the use of specific tools. This theme reflects the concern to stay up-to-date and competent in an ever-evolving environment, where continuous learning is seen as crucial to improving skills and professional practice.

Another significant pattern that emerges is the organization and structuring of data, evidenced by the creation of meaningful categories using codes and labels, as well as the need to generate coding matrices to evaluate the frequency and distribution of codes. This topic highlights the importance of efficient data management, where proper structuring and systematic organization facilitate the synthesis and integration of information, allowing researchers to extract meaningful knowledge from their data. Taken together, these patterns reflect the need for a thoughtful and organized approach to qualitative data management and analysis, where ongoing training and proper data structuring are key components for success in qualitative research.

Innovative Coding and New Perspectives at Atlas.ti.

In the analysis of in-depth interviews, the advantages of code linkage (EADT1, EADT3, EADT5, EADT8, EADT11, EADT16, EADT21, EADT25, EADT32, EADT36, EADT38, EADT40) are highlighted. This technique makes it possible to identify relationships between both codes and coexisting co-existing codes. Often, these links shed light on previously unrecognized patterns and connections in qualitative data, significantly enriching the analysis.

One of the main objectives in the analysis process was to integrate the results of the interviews (EADT2, EADT18, EADT33). This involved gathering the information gathered and achieving a more coherent understanding. This integration was conducted according to the categories and subcategories previously established in the study, which allowed to enrich the existing information and obtain a more complete perspective (EADT5, EADT8, EADT22, EADT32, EADT40).

From a personal perspective, the significant support provided by Atlas C (EADT3) software stands out. This software facilitates the organization of information by creating graphs, which allows the researcher to describe and provide detailed information to analyze the data obtained from the interviewees (EADT4, EADT9, EADT11, EADT17). This visualization capacity has enriched the final conclusions in the discussion section, results, conclusions, and recommendations in each research, becoming a key advantage in the context of qualitative research (EADT20, EADT24, EADT29, EADT33, EADT38).

The process of organizing and categorizing data in ATLAS. Ti follows a methodical approach involving several steps (EADT4, EADT11, EADT28). Through coding, relevant text segments are labeled, allowing for effective categorization of data. This methodology is essential for a comprehensive analysis of in-depth interviews (EADT6, EADT8, EADT9, EADT20, EADT21, EADT23, EADT26, EADT28, EADT37).

To obtain an initial overview of the key themes and most frequent concepts in the data, word clouds (EADT5, EADT6, EADT10, EADT14, EADT19, EADT21, EADT27, EADT33, EADT38) were used. These clouds were generated from the relevant codes and text segments, providing a quick overview of the highlights in the interviews. The creation of a code network in ATLAS.ti facilitated the visualization of relationships and connections between codes and categories (EADT1, EADT3, EADT18, EADT21, EADT34, EADT38, EADT39). This approach made it possible to uncover interconnected patterns and themes in the qualitative data.

Comparisons between specific citations, related to codes, played a key role in identifying patterns and trends (EADT7). This approach helped highlight the similarities and differences in the interviewees' responses, which enriched the analysis. Finally, emerging categories were identified through the coding process and incorporated into the data analysis (EADT1, EADT2, EADT26, EADT34). These unexpected categories offered new perspectives and significant findings in the in-depth interviews.
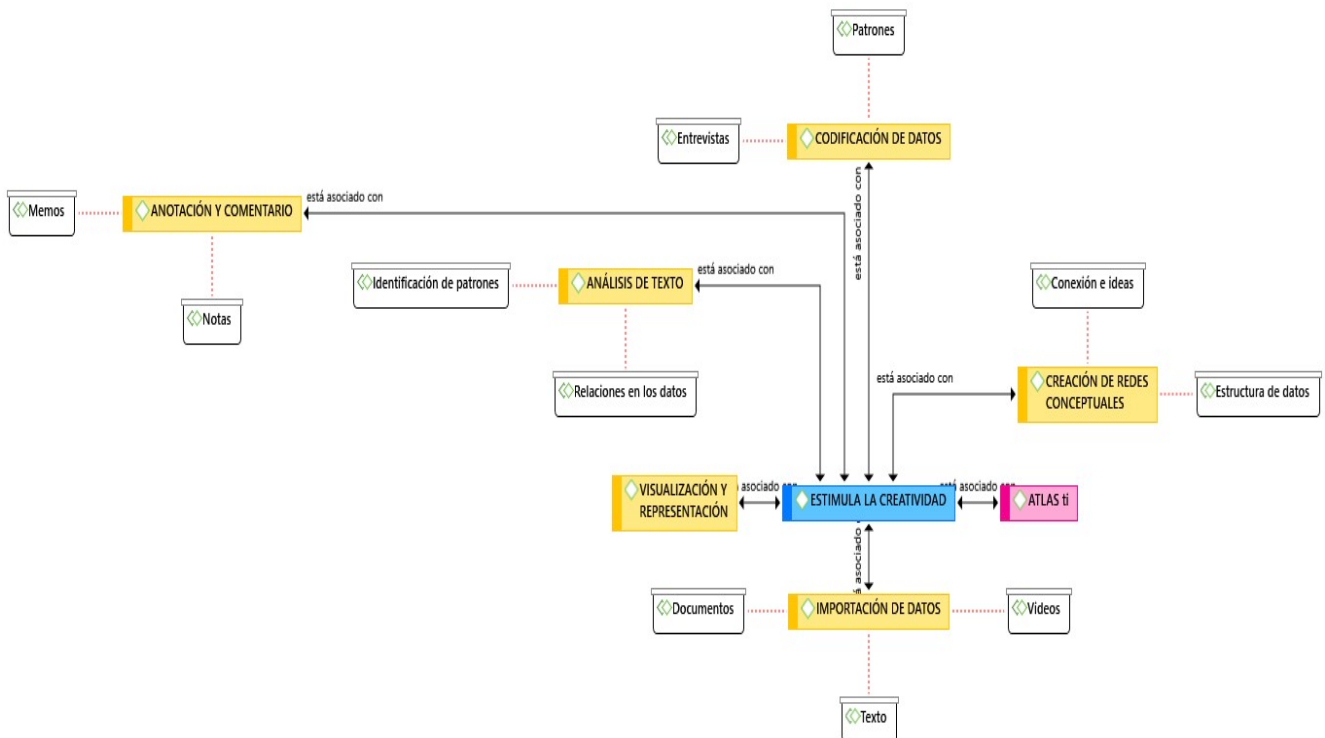

Figure 6. Stages of the data analysis process

Figure 6 presents a diagram highlighting the various stages of the data analysis process using ATLAS.ti software, based on inferences processed from the database obtained during the interviews, as well as the data collected through the focus group. The importance of annotation and commentary to contextualize the data collected, as well as the identification of patterns and relationships in the text, is emphasized. These stages are associated with text analysis, where relationships in the data are explored and creativity in the interpretation of information is stimulated. In addition, data visualization and representation are highlighted as a crucial step in better understanding emerging patterns and trends in data.

The diagram also shows the import of these from various sources, such as documents and videos, highlighting the versatility of ATLAS.ti software in managing diverse types of qualitative data. In addition, data coding is approached as a fundamental process to organize and categorize the information collected, facilitating the connection of ideas and the creation of conceptual networks. Taken together, this diagram provides a comprehensive overview of the qualitative data analysis process using ATLAS.ti, highlighting the importance of each stage in interpreting and understanding the information.

DISCUSSION OF RESULTS

The general objective of this study was to evaluate the effectiveness of ATLAS.ti in the analysis of interviews of students from the School of Tourism and Hospitality Management for their qualitative theses. According to the participants, the software enriches qualitative analysis by facilitating the creation of codes, networks, and word clouds, as well as in the code-occurrence matrix and in the writing of memos. These features make this an essential tool for effectively exploring, organizing, and understanding the data collected. These findings coincide with those of Rojano (2021)[6], who highlights its usefulness for understanding complex phenomena by converting information into codes, categories, and semantic networks. In addition, Rodríguez (2020)[1] concludes that ATLAS.ti is viable and changes the theorizing process, redefining scientific work from the perspective of trans complexity.

In relation to specific objective 1, which seeks to explore how the ATLAS.ti domain contributes to the qualitative analysis, the results indicate that, although the basic knowledge of the tool allowed initial analyses to be carried out, it was the active search for information through videos, tutorials and courses that made it possible to use it more efficiently. This increased understanding of ATLAS.ti's functions led to a deeper categorization of data and a clear visualization of key findings, which has made this process viable and timely. It argues that programs such as ATLAS.ti go beyond the simple organization of data, as they allow a multidimensional view of ideas and mental processes. Its sophisticated interface makes it easy to use and offers a variety of interrelated forms of visualization, enabling researchers to think visually, turning thoughts into manipulable, storable, rememberable, and meaningful items. This visualization ability not only represents mental concepts, but also allows for their physical manipulation, making thinking more tangible and educational.[7]

In relation to specific objective 2, which seeks to evaluate how the organization of data in ATLAS.ti contributes to the qualitative analysis, it is concluded that its use facilitates the understanding of research results by organizing data effectively. This tool contributes significantly to qualitative analysis, allowing researchers to manage information systematically and efficiently, which favors a deeper and more accurate interpretation of the results. These findings are consistent with Soratto et al. (2020)[12], who highlight ATLAS.ti as a valuable strategy for content analysis, allowing all relevant information to be securely managed in one place, saving time on manual tasks, and facilitating data analysis. Despite offering sophisticated tools for exploring data, ATLAS.ti does not perform automated analysis, with the researcher making decisions throughout the process, highlighting the critical role of the researcher at all stages of the investigation. In addition, it concludes that, while this tool provides basic elements as software, its specific use in this research demonstrated that the dynamic application of "colors and numerical logic sequences" contributed to remembering specific themes emerging in the study, developing a sequential approach that generated greater coherence in the organization of ideas when writing final reports.[6,9,11] This meticulous logical and chronological integration supported the emergence of the core category conclusively, obtained through practice and the search for more information about its use.

CONCLUSIONS

This study strongly demonstrates that the effective use of ATLAS.ti in the qualitative analysis of research is essential to obtain quality results. The researchers highlighted the importance of a solid understanding of the tool, supported by appropriate training, to fully exploit its potential. The basic functions of ATLAS.ti, such as data coding and code creation, were revealed as fundamental pillars in the analysis process, along with the generation of word clouds. This tool facilitates the efficient management of qualitative data and significantly improves the understanding and communication of research results. In summary, ATLAS.ti stands out as a valuable tool in the analysis of qualitative data, consolidating its relevance in the academic and scientific community. It is important to prioritize education and training in the use of ATLAS.ti for researchers, emphasizing the need for a solid understanding of the tool; encourage continuous practice to improve skill in its use and make the most of its functions; stimulate creative exploration of the tool's advanced capabilities, such as code networking, co-occurrence tables, and memos; consider its application in other fields of qualitative research, building on its proven effectiveness; and finally, to facilitate the exchange of experiences and best practices among researchers using ATLAS.ti to enrich its use and develop common standards in the qualitative research community.

BIBLIOGRAPHIC REFERENCES

1. Rodríguez Aguirre YD. Reflexiones del uso de ATLAS.ti en el análisis de información cualitativa: indagando sensibilidades. Rev ciencias la Educ [Internet]. 2020;56(1):708–26. Available from: https://dialnet.unirioja.es/servlet/articulo?codigo=7861036

2. Sancho-Esper F, Rodríguez-Sánchez C, Ostrovskaya L, Campayo Sánchez F, Romero-Ortiz A, Fernández Díaz FM, et al. Investigación cualitativa en marketing mediante Atlas.ti: desarrollo, aplicación y evaluación en una nueva asignatura del grado en Marketing [Internet]. Tesis de maestría - Universidad de Alicante; 2021. Available from: http://hdl.handle.net/10045/121365

3. Weitzman EA. Analyzing qualitative data with computer software. Health Serv Res [Internet]. 1999;34(5):1241–63. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089062/

4. Lopeza C. ChatGPT y software CAQDAS para el análisis cualitativo de entrevistas: pasos para combinar la inteligencia artificial de OpenAI con ATLAS.ti, Nvivo y MAXQDA [Internet]. Tesis de Licenciatura, Universitat Pompeu Fabra; 2023. Available from: https://repositori.upf.edu/handle/10230/55477

5. Varguillas C. El uso de atlas.Ti y la creatividad del investigador en el análisis cualitativo de contenido upel. Instituto pedagógico rural el mácaro. Rev Educ Laurus [Internet]. 2006;12(1):73–87. Available from: https://www.redalyc.org/articulo.oa?id=76109905

6. Rojano Alvarado YN, Contreras Cuentas MM, Cardona Arbeláez D. proceso etnográfico y la gestión estratégica de datos cualitativos con la utilización del aplicativo Atlas.Ti. Saber, Cienc y Lib [Internet]. 2021 Aug 2;16(2). Available from: https://revistas.unilibre.edu.co/index.php/saber/article/view/6500

7. Konopásek Z. Making Thinking Visible with Atlas.ti: Computer Assisted Qualitative Analysis as Textual Practices. Forum Qual Sozialforsch Forum Qual Soc Res [Internet]. 2008;9(2):420. Available from: https://www.qualitative-research.net/index.php/fqs/article/view/420

8. Arias Sánchez R. Algunos apuntes sobre los grupos focales en la investigación cualitativa. GnosisWisdom [Internet]. 2022 Mar 14;2(1):20-8. Available from: https://journal.gnosiswisdom.pe/index.php/revista/article/view/27

9. González-Vega AM del C, Sánchez RM, López Salazar A, López Salazar GL. La entrevista cualitativa como técnica de investigación en el estudio de las organizaciones. New Trends Qual Res [Internet]. 2022 Jul 26;14:e571. Available from: https://publi.ludomedia.org/index.php/ntqr/article/view/571

10. Rodriguez R. El ATLAS TI, una alternativa para teorizar en la sociedad líquida. Cienc ergo-sum [Internet]. 2023 Jun 8;31. Available from: https://cienciaergosum.uaemex.mx/article/view/19225

11. Rojano Alvarado YN, Contreras Cuentas MM, Rojano Alvarado A. Uso del aplicativo ATLAS.ti. para la gestión estratégica de datos en la aplicación del método de la Teoría Fundamentada. Sist Cibernética e Informática [Internet]. 2021;18(1):9–17. Available from: https://www.researchgate.net/publication/353293184_Uso_del_aplicativo_ATLASti_para_la_gestion_estrategica_de_datos_en_la_aplicacion_del_metodo_de_la_Teoria_Fundamentada

12. Soratto J, Pires DEP de, Friese S. Thematic content analysis using ATLAS.ti software: Potentialities for researchs in health. Rev Bras Enferm [Internet]. 2020;73(3). Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672020000300403&tlng=en

13. Ariza Ariza LG. Relación metodológica entre ATD y el uso de Atlas.ti como herramienta en la investigación cualitativa en un estudio contextualizado. Rev Pesqui Qual [Internet]. 2020 Dec 22;8(19):991–1009. Available from: https://editora.sepq.org.br/rpq/article/view/375

14. Canta Honores JL, Quesada Llanto J. uso del enfoque del estudio de caso: Una revisión de la literatura. Horizontes Rev Investig en Ciencias la Educ [Internet]. 2021 Jul 1;5(19):775-86. Available from: http://revistahorizontes.org/index.php/revistahorizontes/article/view/257

15. San Martín Cantero D. eoría fundamentada y Atlas.ti: recursos metodológicos para la investigación

educativa. Rev Electrónica Investig Educ [Internet]. 2014;16(1):104–22. Available from: https://redie.uabc.mx/redie/article/view/727/891

16. Sanchez RA. Qualitative data analysis with ATLAS.ti. J Innov Res Educ [Internet]. 2014;8(2):20–8. Available from: http://revistes.ub.edu/index.php/REIRE/article/view/reire2014.7.2728

17. Giesecke Sara Lafosse MP. Elaboración y pertinencia de la matriz de consistencia cualitativa para las investigaciones en ciencias sociales. Desde el Sur [Internet]. 2020 Jul 24;12(2):397–417. Available from: https://revistas.científica.edu.pe/index.php/desdeelsur/article/view/669

18. Guzmán V. El método cualitativo y su aporte a la investigación en las ciencias sociales. Gest Rev Empres y Gob [Internet]. 2021 Dec 31;1(4):19–31. Available from: https://revistagestionar.com/index.php/rg/article/view/17

19. Cipollone MD. Atlas. IT as a methodological resource in educational research. Anu Digit Investig Educ [Internet]. 2022;5(1):122–33. Available from: https://revistas.bibdigital.uccor.edu.ar/index.php/adiv/article/view/5280/6529

FINANCING

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón, Patricia Matilde Huallpa-Quispe, Bertha Nancy Larico-Quispe.
Data curation: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón.
Formal analysis: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón, Patricia Matilde Huallpa-Quispe.
Acquisition of funds: Patricia Matilde Huallpa-Quispe, Bertha Nancy Larico-Quispe
Research: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón, Patricia Matilde Huallpa-Quispe.
Methodology: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón.
Project management: Patricia Matilde Huallpa-Quispe, Bertha Nancy Larico-Quispe.
Resources: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón, Patricia Matilde Huallpa-Quispe.
Software: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón.
Supervision: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón, Patricia Matilde Huallpa-Quispe, Bertha Nancy Larico-Quispe.
Validation: Patricia Matilde Huallpa-Quispe, Bertha Nancy Larico-Quispe.
Display: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón, Patricia Matilde Huallpa-Quispe.
Drafting - original draft: Miriam Viviana Ñañez-Silva.
Writing - proofreading and editing: Miriam Viviana Ñañez-Silva, Julio Cesar Quispe-Calderón, Patricia Matilde Huallpa-Quispe, Bertha Nancy Larico-Quispe.