The teaching process of mixed research methods in the Tourism Research subject: a case study of the Autonomous University of Ciudad Juárez, Mexico.

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Abstract
Scientific education and research in tourism constitute an important cognitive platform for training professionals in the sector; however, there are limitations to its understanding as an object of study in research and teaching of university academic disciplines. This study aims to propose and implement methodological organisation and instructions for the planning and development of the teaching process of the mixed research methods in the Tourism Research subject at the Autonomous University of Ciudad Juárez (UACJ) to promote undergraduate tourism students' learning and research skills. Empirical and theoretical research using mixed data sources were used; the applied case study was developed with students of the advanced level of an undergraduate degree in tourism who attended the Tourism Research I and II subjects. The main results were the methodological procedures of how to investigate tourism using mixed methods, the practical development of the didactic process of scientific education of mixed methods, and examples of mixed research methods used in student projects on the subject of Tourism Research at UACJ, all of which contributed to raising scientific education experience of tourism students. (THIS SENTENCE IS NOT CLEAR). As a conclusion, it is recognised that undergraduate tourism students are able to plan and implement mixed research methods in their projects based on a step-by-step methodologically structured teaching process, in which the student's research needs and interests were considered.
Keywords: mixed research methods, research education, tourism students, teaching process, tourism research.

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Introduction
Tourism is a complex and interdisciplinary socio-economic phenomenon with established space-time dimensions (Jafari, 2005; Darbellay & Stock, 2012; Korstanje, 2015; Decroly & Diekmann, 2018), which is well-known and valued as a field of leisure and business travel operations and activities, although unfortunately the same does not happen with its understanding as an object of study in research and in the teaching of university academic disciplines (Campodónico & Chalar, 2011; Darbellay & Stock, 2012; Korstanje, 2015; Decroly & Diekmann, 2018). In practice, there is a great debate about "... the state of science, the scientific nature and the disciplinary nature of tourism, [which] has bogged down the progress of the production of its knowledge, [which] has to do with the epistemological question of tourism" (Castillo, 2011, p.517).
During the last decades, there has been much debate about whether tourism research is a disciplinary, multidisciplinary, interdisciplinary (Coles et al., 2016), or post-disciplinary field of study (Munar & Pernecky, 2016; Coles et al., 2016). This is an essential first point to consider to select the most convenient approach to use in the research and for the teaching methodology to train professionals with scientific methods that allow them to act professionally and transform the tourist reality in which they perform.
In this sense, scientific education and research in tourism represent a cognitive platform of great importance for the training of professionals in the sector in any of the fields of their performance (Jafari, 2005) since it contributes to the formation of knowledge and development of investigative skills useful for the formation of solid scientific tourism thought, providing them with valuable methods and tools for the exercise of the profession in the different tourist organisations (Tribe & Liburdb, 2016).
To understand the sense and significance of investigative learning and favour the emergence of knowledge from the data, a multi-method approach is required (YOU NEED TO INDICATE WHY THIS IS NECESSARY) that allows the construction of comprehensive realities and the discovery of explanatory theories about the object of study. The value of the method on which this statement is based lies in the fact that it is a process of search and perfectionism of knowledge that responds to theoretical and practical problems of reality (Igartua & Humanes, 2004;

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Rodríguez & Pérez, 2017). This approach is necessary because the complementarity of approaches makes it possible to provide information with a greater scope, complexity, and integration, allowing the construction of paradigmatic relationships and incorporating "both similarities and differences, but within a new understanding that contains the contributions of each paradigm, in addition to other aspects that could not be visualized when they were separated" (Gallardo, et al., 2017).

In the practical experience of teaching mixed methods, few resources and methodological experiences are available. That is why three research questions have been formulated for this study: What is the scientific mixed method's role in generating knowledge? How to organize the teaching process of the mixed methods in the subject of Tourism Research? Why should students research using mixed methods? (ARE THESE YOUR QUESTIONS OR FROM ANOTHER SOURCE?) Consequently, this study aims to propose and implement methodological organisation and instructions for the planning and development of the teaching process of the mixed research methods in the Tourism Research subject at the UACJ to promote undergraduate tourism students' learning and research skills.

The theoretical bases of the study are based on the systematisation of the scientific research method as a way to achieve scientific knowledge and the organisation of the teaching process of research mixed methods in the subject of Tourism Research. The main results are the methodological procedures of how to investigate tourism using mixed methods, the practical development of the didactic process of scientific education of mixed methods, and examples of mixed research methods used in student projects on the subject of Tourism Research at UACJ, all of which contributed to raising scientific education experience of tourism students. (ALMOST AN EXACT REPETITION OF THE STATEMENT IN THE ABSTRACT AND NOT FULLY CLEAR)

Comentado [MRGH3]: It was specified that these are the research questions of this study.

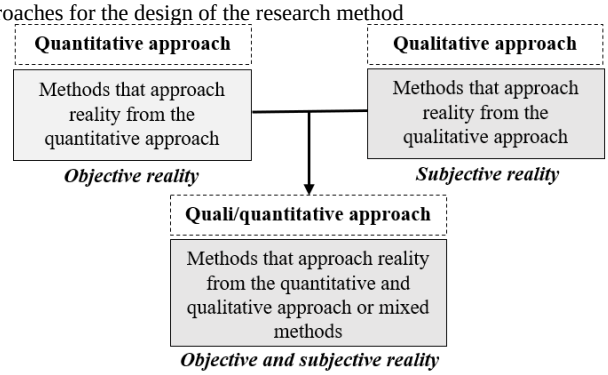
Comentado [MRGH4]: It was changed

The teaching process of research methods in the Tourism Research subject

Comentado [MRGH5]: All the theoretical parts dealt with in other chapters were eliminated. This part was left because it refers to the teaching process.

Scientific and research education is a fundamental area for university tourism education since it contributes to scientific tourism thought, based on which the appropriation of scientific methods that allow tourism study is required. In this sense, it is necessary to promote the training of new professionals with a way of thinking that supports implementing mixed research methods to generate new integrated tourism knowledge (Figure 1). In particular, this approach is supported by incorporating critical perspectives in tourism programmes (Camargo & Sánchez, 2016; Young, 2017; Cañada & Murray, 2019).

Figure 1 Approaches for the design of the research method



The conceptual categories of learning and teaching correspond to different disciplinary fields that are congruent, although they have different objects of study (Boluk & Corey, 2016; Benckendorff & Zehrer, 2017; Brijesh, 2019). Learning is the process of acquiring knowledge, skills, abilities, attitudes, and values, which can be obtained through observation, study, teaching, experience, or practice. Product of its complexity, there are different theoretical positions and conceptual statements regarding its definition, methods, and applications. Based on these, different learning

paradigms and theories have been developed around the act of learning, which are mainly linked to the disciplinary field of psychology.

On the other hand, the teaching process corresponds to the action and effect of teaching or instructing through the transmission of ideas, principles, beliefs, knowledge, experiences, abilities, and habits. Through this act, professors or facilitators interact with their students in a specific educational context, facilitating learning or knowledge acquisition. Various paradigms, models, and approaches related to teaching activity have been developed to achieve this purpose, mainly linked to the disciplinary field of Pedagogy and Educational Sciences.

Among them, the Scientific Research Teaching Methodology can be considered (Toala-Toala & Mendoza-Briones, 2019), which allows the training of students to be able to proceed in a structured and systematic way during the analysis and investigation of the studied problem, endowing them with the steps that go from observation to experimentation, and from the demonstration of hypotheses to logical reasoning, all in order to demonstrate the validity of the results obtained; in such a way that it becomes a systematic, methodical, orderly, rational, reflective and critical action (Fernandes, 2021). One of the fundamental contents of this branch of knowledge corresponds to the methodical one that studies methods as part of logic (Guzmán, 2013).

As a basis for the methodological treatment of the teaching process of mixed research methods to undergraduate students of tourism, different procedures can be used, such as the research process: an eight-step model (Ranjit, 2011), modified for the incorporation of other points of interest in the present study (Table 1). This comprises different phases and steps, for each of which the planning activity and methodological design can be oriented towards using mixed research methods, favouring the mixture of approaches to face each particular problem. IT WOULD BE USEFUL TO HAVE A CLEAR STATEMENT ON WHY STUDENTS SHOULD RESEARCH USING MIXED METHODS.

Comentado [MRGH6]: It was included

Table 1 Step-by-step model for teaching process of mixed research methods

Phase I: Deciding what to research
Step 1. Identifying the research question
Step 2. Formulating a research problem: reviewing the literature, formulating a research problem, identifying variables, constructing hypotheses
Step 3. Formulating the objectives.
Phase II: Planning a research study
Step 4. Conceptualising a research design: the research design, selecting a study design
Step 5. Constructing an instrument for data collection: selecting a method of data collection, collecting data using attitudinal scales, establishing the validity and reliability of a research instrument
Step 6. Selecting a sample
Step 7. Writing a research proposal
Phase III: Conducting a research study
Step 8. Collecting data
Step 9. Processing and displaying data
Step 10. Writing a research report

THE TABLE IS VERY USEFUL

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This means that in the research planning phase, students must be able to ask scientific questions that contain the use of mixed methods for tourism research; select approaches to tourism research using mixed methods; select theories and conceptual variables; perform tourism research sampling using mixed methods; and identify the mixed methods and instruments for data collection, as well as their relationships. In the implementation phase, students must be able to collect field data using mixed methods, analyse and interpret open and closed data, and elaborate conclusions derived from the processed data.

Methodological framework

It was empirical and theoretical research in which mixed data sources were used. The theoretical scope was based on the literature review as the basis for understanding mixed methods utilising the triangulation among authors (WHAT IS MEANT BT THE 'AUTHOR'S TRIANGULATION'?). The applied case study was developed with students of the advanced level of the undergraduate degree in tourism who took the subjects of Tourism Research I and II. As a sample, the total number of tourist projects developed by the students of group B of the afternoon session, made up of thirteen students, was considered. In this regard, thirteen Tourism Research projects were developed during all their stages between August 2022 and May 2023. The group composition comprised four male students and nine female students, all of them of the advanced level.

The conceptualisation of the study is based on project-based learning (Guo et al., 2020; Almulla, 2020), which represents an educational methodology oriented to the collaborative management of learning through the development of a practical study project, which allows the student to appropriate the knowledge, skills, and competencies through the interpretation and investigation of objects, phenomena, and processes of objective reality, in such a way that it promotes the relationship of their learning with a situation of daily life (challenge) to which a solution must be found. Its main attributes are that it is student-centred, promotes active learning and inclusiveness, generates rich socialisation, presents an open and flexible design, conceives evaluation as a formative and continuous process, and is interdisciplinary (Gobierno de Canaria, 2012). In educational practice, implementing this methodological approach contributes to developing the student's scientific culture.

The projects contain clear and guiding objectives, learning activities that stimulate reflection, respond to real situations that the student faces, collaboratively favour the construction of knowledge, foster creativity, and are attractive, authentic, and accurate. The essential components to build this learning correspond to the approach of a relevant idea to the student, elaboration of the evaluation criteria, the approach of a guiding question or challenge, and of the learning activities to be addressed during the development of the project, the product end to be delivered and the audience for the presentation of the product (Gobierno de Canaria, 2012). To achieve it, the professor plans learning tasks aimed at the development of the student's creativity, stimulating them to assess alternatives and argue important points related to the solution of cognitive tasks that allow the construction of new knowledge; at the same time, the professor supervises that they have the information and resources necessary to develop the project successfully, promoting teaching strategies based on doing. The student faces the project actively and critically, controls their learning, and works independently.

The didactic methodology of this formative process was based on the application of the active teaching method, which according to the student's work, was combined (individual/group) (MEANING PRECISELY?) since, from the individual point of view, each student developed differentiated tasks for the solution of their research projects, and from the collective point of view, the students carried out collective tasks that favoured the socialisation of knowledge. In addition, biweekly individual tutorials were developed in the academic advisory modality.

The methodological orientation work with the research projects was based on the presentation of the new content using the heuristic method, the development of general extra-class activities, guided teaching tasks in person, independent practice tasks in class, and the application of an online questionnaire. The evaluation criteria of the routine tasks and partial activities were based on scoring guides, rubrics, and checklists previously given to the students with the indications for carrying out the activities. For each criterion, a score was established whose sum equalled 10.0 points. In each case, the students were informed about the didactic materials to consult and the spaces created in Microsoft Teams to clarify doubts. The presentations of each activity were made at the beginning of each class, corresponding to the topic under study, including both semesters.

Results

Academic experiences in teaching mixed research methods in the Tourism Research subject

The current scientific education experience was oriented to teach students how to investigate tourism using mixed methods. (IT WOULD BE USEFUL TO HAVE THIS STATEMENT EARLIER AS IT (AT LEAST) ANSWERS THE QUESTION 'WHY DID THE STUDENTS

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Comentado [MRGH9]: OK

USE MIXED METHODS?') In this sense, it is appropriate to highlight that a holistic approach was used since all the components of the theoretical design were taken into consideration, and methodological aspects of the research that have to do with the selection, implementation, and validation of the research method since it was not desired to work on the method in isolation. The pedagogical statement presented includes three thematic axes of teaching (i) Teaching to plan research: theoretical design and methodological design; (ii) Teaching to elaborate the theoretical framework of the research; (iii) Teaching to develop and prepare the research report.

The development of the Tourism Research subject corresponds to the advanced level of the degree in tourism, and comprises two semesters of study, in semester 1 the theoretical and methodological design of the research is carried out, and the theoretical framework is built. In semester 2, field research and preparation of the research report are carried out. For this, it was given a template that includes the contents to be developed in a structured and integrated way (Table 2).

Table 2 Template for teaching the process of elaboration of the theoretical and methodological design of the research

I. Theoretical Design 1. Selection of the research line and the topic to be studied (exploratory stage, preliminary observation and recognition of the place. Reconnaissance visit). Presentation of proposals to the group. 2. Need to carry out the research and research question. Justification. 3. Background of the research. Analysis of the international, national and local context according to documentary research. 4. Problematic situation in which the research is framed. Tourist reality of the context under study. 5. Delimitation and approach of the research problem. 6. Justification of the research problem. 7. General and specific objectives. 8. Hypothesis and research assumption. 9. Conceptual framework of the research: conceptual variables (conceptual support of the research: definition of variables).
II. Methodological design 1. Approaches and type of research. 2. Unit of analysis. Population and sample. 3. Operationalisation of the research: variables, dimensions and indicators. 4. Procedures for research data management. 5. Research methods, procedures and techniques. Instruments and data source. 6. Stages and tasks of the research. Schedule by stages of the research. 7. Expected results and value of the results. Users and introducers of results. 8. Ethical implications of the research 9. Strategies for monitoring and evaluation.

For the orientation of the student's research work, (DO YOU MEAN THAT THIS WAS THE STARTING POINT AND YOU WANTED THEM TO USE A DEDUCTIVE APPROACH FIRST?) the deductive route was used (Grajales & Negri, 2017; Grinchenko & Shchapova, 2020), which, began with the construction of the theoretical framework towards the methodological design and from here to practice through field research work. After this, the office work is done through the analysis and interpretation of data and the elaboration of conclusions, finishing with the proposals for monitoring and evaluation of the results, the practical introduction of the results, and the future orientation of the work (Figure 2). This approach was selected as a starting point in this subject since it is less complex for developing undergraduate student projects. It starts from the general theory to the implementation in a specific case (from general to particular). In future research, attention will be paid to the use of the inductive approach to identify the strengths and weaknesses of this approach at this level (Benítez & Vargas, 2019).

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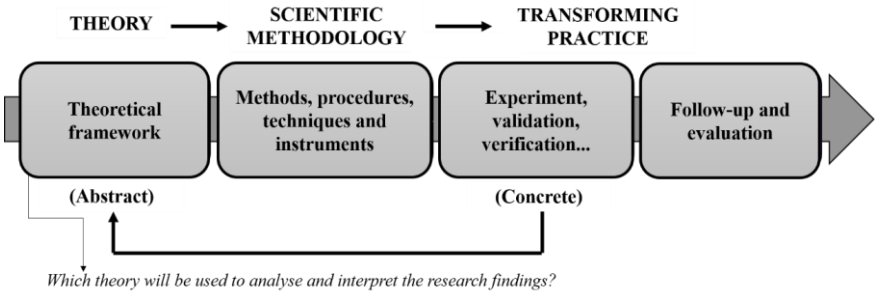
Comentado [MRGH11]: Yes, it was incorporated a breve explanation

Figure 2 Stages of the methodological orientation for the implementation of the deductive approach in the research projects



As a requirement for the development of the research projects, it was requested that the approach of mixed problems be carried out, including a qualitative and quantitative scope. Mixed research questions must combine open and closed questions. According to the methodological organisation of the investigative teaching, the selection and structuring of the mixed methods, procedures, techniques, and instruments to be applied in three sections that correspond to the internal logic of the project and the structure of the final report were requested, these being:

- Documentary research methods, techniques, and instruments (to know the theories, hypotheses, assumptions, and conceptual variables). The recommended types of documentary research used were exploratory argumentative, and expository informative research. They were related to Chapter 1 of the research report.
- Methods, techniques, and instruments of situational diagnosis (to know the current state of the problem under study). They were related to Chapter 2 of the research report.
- Prepositive-projective methods, techniques, and instruments (for solving problems in different time horizons: desired state). They were related to Chapter 3 of the research report.

Regarding the research methods and techniques, the methodological planning included the following content system:

- Data collection methods. Data collection using primary sources: observation (Table 4), survey and interview group studies, case study, institutional study, and experimental study (field experiment vs. laboratory experiment). Data collection using secondary sources: tourism statistics, survey results, censuses, and big data indicators. Collection of qualitative and quantitative data through an online panel, survey via email or social networks, HTML Code to embed in the website or blog, QR Code, and SMS Surveys. Production and analysis of qualitative and quantitative data. Data collection methods in qualitative research. Qualitative data analysis. Data collection methods in quantitative research. Quantitative data analysis. Multi-methods of data collection.

Derived from the thematic treatment of the research methods, the methodological planning of the research instruments included the following content system:

- Types of instruments: ordering, classifying, diagrammatic, or cartographic instruments. Choice of the appropriate instrument. The design of the instruments. Instrument design: observation guide, interview guide, survey questionnaire. Questionnaire sequence. Format, nomenclature, and pre-coding of the questionnaire. The test and adjustment of the questionnaire. Instruments for emptying data: registration and field journal. Data Management Process.

Table 4 Example of empirical method used as a demonstrative for student work

Method	Techniques	Procedures	Tools

Scientific observation (empirical method). For data collection, recording, analysis and interpretation. *Modalities:* Direct or indirect. Participant or non-participant. Structured or unstructured. Fieldwork or laboratory. Individual or in a team.	Comparison Interpretation Ordering	Determine the object, situation, and case that will be observed. Determine the objectives of the observation (for what will be observed). Determine how the data will be recorded. Observe carefully and critically. Record the observed data. Analyse and interpret the data. Elaborate conclusions.	Observation sheet. Observation guide. Notebook. Field diary. Photographic and video camera. Tape recorder. Check list. Others.

As guidelines for data management during the research process (CEPAL, 2019), the following steps were recommended:

1. Data collection
2. Mixed data quality assessment
3. Processing and measurement of mixed data. Tabulation of the data obtained through the application of the instruments, database generation; and data coding to examine emerging patterns (categories, groupings, variables).
4. Analysis and interpretation of mixed data.
5. Generating reports.

In addition, the methodological orientations for the software capture and statistical data analysis were established using the questions: What type of data will I analyse? What software will I use? What statistical/non-statistical processing will I carry out with the obtained data?

THIS SECTION ABOVE IS GENERALLY GOOD

Comentado [MRGH12]: Thanks

Didactic process of scientific education of mixed methods

The explanation of the contents related to the research methods was developed in unit three, "Research Methodological Design," of the subject of Tourism Research I and in all themes of the units of Tourism Research II. The teaching process of mixed research methods was based on the development of various teaching tasks included in the lesson plans according to the study programme, whose general objective was to design and implement mixed methods, technical procedures, and instruments for methodological work in the tourism research project of each student. The teaching methods and techniques to guide the students' research projects were based on the orientation and realisation of the following activities:

1. Report of reading on mixed research methods in tourism.
2. Teamwork for the planning and design of mixed methods of tourism research.
3. Documentary research on the subject under study as a basis for the implementation of mixed methods of tourism research.
4. Resolution of practical cases/exercises related to mixed tourism research methods.
5. Guided practice of approximation for the design of the mixed methods of investigation in tourism.
6. Reports of partial results.

To avoid the lack of theoretical-methodological alignment regarding the selection and design of the mixed methods, the students were asked to prepare a technical sheet of the empirical study (Table 5) and a sheet of logical flow and methodological alignment of the research project to contrast the design components with selected methods (Table 6).

Table 5 Data sheet of the empirical study

Kind of research
Sample unit: What or who is the object of interest
Type of sample

Sample size
Type of variables: numeric/categorical
Measurement of variables: nominal, ordinal, interval, ratio
Type of data (quantitative or qualitative; data-metadata-big data)
Formats and media (physical or digital)
Data collection methods
Data collection instruments
Database construction
Database Management System (software)
Fieldwork
Number of surveys or other instruments applied
Valid answers

Table 6 Record of logical flow and methodological alignment of the research

Research title:
Conceptual variables:
Research question:
Goals:
Hypothesis/Assumptions:
Operational variables:
Research tasks:
Expected results:
Methods and instruments to achieve the results:
Basic ideas that must be used to formulate the conclusions expected to be reached:
Possible limitations that may arise in the study:

The guided teaching tasks systematically oriented in classes for the methodological design of the research were the following:

Tourism Research I

Task 1. Based on the study of international scientific production, systematises and operationalises the theoretical and methodological foundations of mixed methods and research instruments in tourism. In each method, analyse the conceptual definition, typologies, main characteristics, schools and representatives of the theory that support it, advantages and disadvantages, techniques used (special operations), procedures (how), and main instruments (with what) that can be used with this method. Debate what authors focus on and assume a critical position (contrasting authors). Include a conceptual model synthesising each method's systematised information, techniques, procedures, and instruments.

Task 2. Develop a conceptual model that represents the relationships between theories-scientific methods-expected results based on your research project.

Task 3. Draft a tentative Data Management Plan for your field research project. Consider the following items:

1) General objective of data management.
2) Type of data to use: data, metadata, massive data.
3) Data classification: numerical/categorical; structured/unstructured; raw data/processed data/analysed data.
4) Source of data collection.
5) Data formats and support media.
6) Description of the data (desired characteristics).
7) Data management procedure (what will be done with the data and how)

Task 4. Perform the operationalisation of research variables based on your research project. Relate it to the methods to be used.

Variable	Conceptual definition	Operational definition	Kind of variable	Measurement scale	Dimensions	Indicators	Tools

			Quantitative or Numerical: discrete and continuous. *Qualitative or Categorical: dichotomous and polychotomous*	*By interval* *By reason* *Ordinary* *Nominal*			

Task 5. Regarding the scientific methods to be used in your research:

a) Identify and classify the selected research methods according to the classification approaches; consider the form of cognition of the object of study. Identify the relationship between theoretical and empirical methods.
b) Justify the need to select each research method.
c) Briefly characterise each research method using theoretical and methodological arguments.
d) Develop a working algorithm for the use of each research method.
e) Contrast the research methods selected in your research with two used by other authors to treat similar problems.
f) List for each fieldwork method the techniques and procedures to be used.

Task 6. Based on the classification of the stages of the scientific method by Menéndez-Barzanallana (2015), prepare a flowchart for one (1) of the fieldwork methods of your research.

Task 7. Taking into account the classification of research methods according to the way of approaching reality, select one (1) mixed fieldwork research method and make a procedural table based on:

a) Data collection
b) Measurement scales
c) Data analysis

Task 8. Regarding your research topic, make a list of the methods and techniques:

a) Documentary research (construction of the theoretical framework)
b) Situational diagnosis (fieldwork diagnosis stage)
c) Proposal and projective (stage of proposed solutions to the problems detected).

Task 9. Carry out a search and bibliographic review of content on the triangulation method in scientific research. Based on the reading, develop the following activities and indicate the sources used:

a) Definition of the triangulation method.
b) Identification of the purpose.
c) List the main advantages of its implementation.
d) Identification and brief characterisation of the types of triangulation methods.
e) Illustration of the potential implementation of the triangulation method in your research.

Task 10. Analyse the classification of the research techniques proposed in class. Based on these, exemplify in the following table each one according to the mixed methods to be used in your research:

Examples of techniques according to classification criteria	
a) Conceptual technique:	a) Technique for data collection:
b) Descriptive technique:	b) Techniques for measurement:
c) Metric technique:	c) Technique for data analysis and interpretation:

Task 11. Synthesise the methodology implemented in your study according to the stages of the scientific method using the following table:

Method stages	Implemented Methodology
Observation	
Research question	
Hypothesis	
Prediction	
Prediction test	
Conclusion	
Feedback	

Tourism Research II
Task 12. Reinforce the ideas embodied in the research plan regarding the proposed methods. Review and group discussion.
Task 13. Make the necessary corrections and approximations of the methods for the expected results.
Task 14. Implement the proposed mixed methods in response to each research question and formulate objectives according to the field research plan. To do so, use the validated instruments and complete the table for weekly registration of field activities. Make weekly reports in class.
Task 15. Evaluate the contribution of the application of the used methods to the results obtained and the conclusions you have reached.
Task 16. Make recommendations on the use of the implemented methods according to the specific objectives with a view to future investigations.

The independent practice tasks corresponding to the partial cut were the following:
Partial task 1. Technique: What do I know? What do I want to know? What did I learn? Applying them to the thematic axes of the teaching process of mixed methods:

Thematic axes	What do I know?	What do I want to know?	What did I learn?
Teaching to plan research			
Teaching to develop the theoretical framework of research			
Teaching to develop and prepare the research report			
Teaching to write a scientific article			

Partial task 2. Diagnostic test using your research project

	Author 1	Author 2	Author 3	My proposal
Methods, techniques, and instruments for documentary research				
Methods, techniques, and instruments for situational diagnosis				
Methods, techniques, and instruments for proposal-projection solutions				

Partial task 3. Debate in the chat and reply to two classmates on the topics (distributed during the two semesters):

- Importance of scientific education and research in tourism
- Relationship between science, knowledge, research, and the scientific method
- Value of investigative learning

- Value of scientific method in research as a way to generate knowledge
- Process of selection, implementation, and validation of the research method
- Usefulness of the methodical or multi-methodical research typologies and designs
- Quantitative data collection process (closed information) and qualitative data (open information).
- Methodological organisation and instructions for the planning and implementation of the teaching process of mixed research methods in the Tourism Research.

Partial task 4. Practical activities

a. Recognition and application of the stages that integrate the scientific method in research to a practical case.
b. Elaboration of two cases that require the approaches for the design of the research method.

At the end of the semester, once the research projects were completed and presented, a survey was applied to find out the opinion of the students, their assessments, and their intentions (Table 7).

Table 7. Key points of questionnaire

Structure	Content
Presentation	Purpose of the questionnaire
Classification data	Age, sex, education, occupation, residence, research experience
Instructions / scale	Assessment of the effectiveness of mixed methods using a Likert scale between 1 and 5
Questions	1. Expectations about the use of mixed methods 2. Learning perception of mixed methods 3. Satisfaction with mixed methods 4. Future intention about the use of mixed methods 5. Positive experiences 6. Negative experiences and recommendations
Closing	Appreciation
Analytical control variables	Date, time, duration, observations

Regarding the guided tasks carried out systematically and discussed in class, it was verified (Table 8) that the most critical difficulties presented and that required remedial activities were: elaboration of the conceptual model that synthesises all the systematised information for each method, its techniques, procedures, and instruments (T1); operationalisation of research variables (T4); and implementation of the triangulation method in scientific research (T9). In the independent partial tasks (Table 9), the main problems were establishing the relationship between the mixed methods of other authors and relating them to their projects (P2).

Table 8 Average score given to each guided systematic task

T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17
8.5	9.1	8.7	8.0	9.0	8.9	9.0	8.8	8.3	9.1	9.0	9.5	9.6	9.3	9.2	9.5	9.4

Table 9 Average score given to each individual partial task

P1	P2	P3	P4
9.0	8.5	9.5	9.0

Finally, regarding the questionnaire (Table 10), the expectations about the use of mixed methods were low (76%); learning perception of mixed methods was average (82%); satisfaction with mixed methods was high (100%); and the future intention about the use of mixed methods was high (100%). The main positive experiences were related to the contribution of the mixed method to achieving the results obtained in their research. In contrast, the negative experiences and recommendations were related to the lack of research background, the low capacity for synthesis, and problems with the systematisation and ordering of the content in their projects.

Examples of mixed methods research used in student projects

The methodological design of the mixed research methods was based on the elaboration of an operational matrix that allowed for the establishment and ordering of the methodological alignment and demonstrated the relationship between the main components of the design. To exemplify the work carried out, the project developed by two students (case 1 and case 2) is presented below, in which two types of mixed methods design are shown, these being those of explanatory sequential and parallel design. As can be seen in the operational matrices of each case, the title of the project, scope of the investigation, general question of the research, general aim, research hypothesis, and variable types are identified. Concerning these components, the techniques to be used are all related to each other, as well as the data collection, analysis, and the research approach. Figure 3 reflects the general process followed for the implementation of the stages that integrate the deductive research method used by the students.

Comentado [MRGH13]: All this section was elaborated in order to INCLUDE SOME EXAMPLES OF STUDENTS PROJECTS

Case 1 Operational matrix

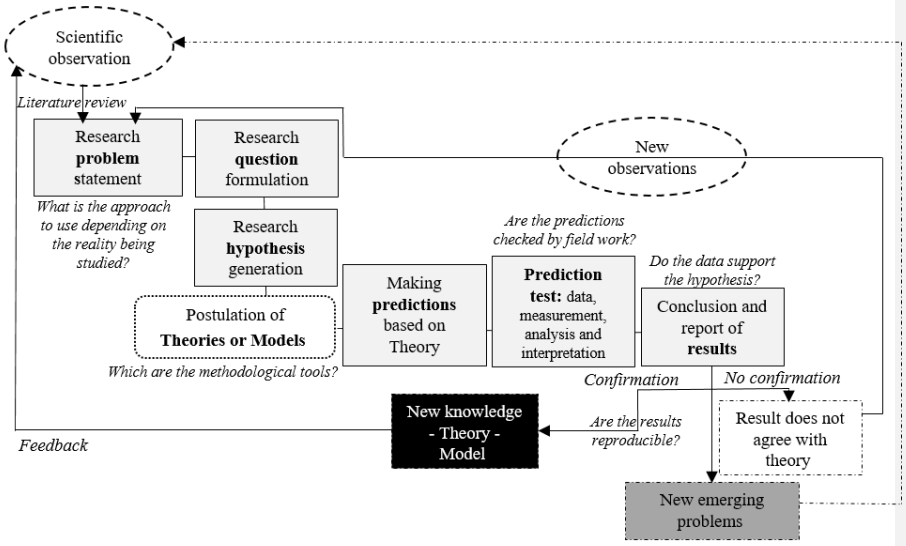
Title: Impacts of Insecurity on the Quality of Tourism in Ciudad Juárez, Mexico.				
Design type: explanatory sequential design. The average number of criminal acts (main metric) and high-risk incidents in each city's tourist area will be determined. Based on the obtained conclusions, focus groups will be developed with businessmen, tourists, and decision-makers to obtain qualitative data that can explain why security problems occur in certain areas, inquiring about the specific causes that deteriorate the quality of the destination.				
Scope of the investigation	**General question**	**General aim**	**Research hypothesis (Hi)**	**Variable types**
Explanatory	How do criminal acts affect the loss of quality in the tourist areas of Ciudad Juárez, and what are the opinions of the different stakeholders regarding these?	Determine the insecurity problems that affect the quality of the tourist areas of Ciudad Juárez as a way to project security strategies that allow a better perception and enjoyment of the destination.	The greater the criminal acts in the tourist areas of Ciudad Juárez, the lower the quality of the tourist destination.	Quantitative and qualitative to understand the security situation in tourism in the city more deeply, determining the cause-effect relationships between the quantitative variables and broadening the understanding by incorporating qualitative assessments.

Techniques	**Quantitative**	Pearson correlation with both quantitative variables. A regression could be run taking the loss of quality as the dependent variable (effect) and several independent variables or causes (divide several criminal acts to see which has the greatest effect on the dependent variable).
	Qualitative	Focus groups for data collection through group interaction.
Data collection and analysis	Quantitative data is first collected and analysed and then qualitative data is collected and analysed.	
Research approach	Deductive	

The deductive approach is based on reasoning by inference from the general/theory to the particular/case, which suggests taking general conclusions to obtain particular explanations; it consists of applying premises from general cases to singular or particular ones (Grajales & Negri, 2017; Grinchenko & Shchapova, 2020). The stages of the deductive method are observation of the object; creation of hypotheses; deduction of more elementary consequences/propositions of

the hypothesis; verification of the truth of the deduced statements, comparing them with experience (experimentation); and conclusion, which will be true if the starting premises are true.

Figure 3 Stages that integrate the deductive research method



Source: González-Herrera, 2021

Case 2 Operational matrix

Title: Inclusive Tourism Model as a basis for the Sustainability of the tourist destination. Case of Ciudad Juárez, Mexico.				
Design type: parallel design. Through this quantitative and qualitative data will be collected simultaneously, although the findings and conclusions will be analysed separately to finally reach a general and inclusive conclusion.				
Scope of the investigation	**General question**	**General aim**	**Research hypothesis (Hi)**	**Variable types**
Correlational	What is the relationship between inclusive tourism and sustainability in the tourist areas of Ciudad Juárez, and how do tourists perceive it?	Determine the relationship between the current problems of inclusive tourism in the tourist areas of Ciudad Juárez and the levels of sustainability.	The higher the levels of inclusive tourism, the greater the sustainability in the tourist areas of Ciudad Juárez, Mexico.	Quantitative and qualitative to diagnose the security situation in tourism in the city and propose strategies for the promotion of good practices of inclusive sustainable tourism.

Techniques	**Quantitative**	Correlation techniques, such as the Pearson correlation coefficient.
	Qualitative	Interviews using a qualitative interview script.
Data collection and analysis	Simultaneous collection and analysis of quantitative and qualitative data through qualitative interviews with local residents, businessmen, and tourists, and field inquiry on the number and frequency of barriers that limit inclusion in each studied polygon.	
Research approach	Deductive.	

Conclusion THESE CAN BE EXPANDED SUMARISING STUDENT PROJECTS

Comentado [MRGH14]: OK

The teaching process of mixed research methods is complex and requires methodological orientation to achieve favourable formative efficiency in the students who study the subject of Tourism Research. In this way, students' projects were characterized for obtaining and analysing quantitative (closed) and qualitative (open) data; the use of structured procedures for data collection and analysis depending on the type of method; selection of the appropriate sample size for quantitative and qualitative analysis; integration of data during collection, analysis or discussion; elaboration of procedures that apply qualitative and quantitative components simultaneously or sequentially with the same or different samples; and the design of the procedures within the theoretical model of the research as mentioned by Bastis Consultores (2021). In educational practice, implementing this methodological approach contributed to developing the student's scientific culture.

In response to the research questions, it was found that the mixed method of research plays an essential role in the generation of knowledge of greater depth and integrity for the understanding of the object of study and the research problems addressed in the thirteen academic projects developed by the researcher's students who studied the subject of Tourism Research. At the same time, the high formative efficiency of teaching mixed research methods was verified through a teaching process based on projects, in which the categories objectives, contents, methods, teaching and media were integrated harmoniously in a methodology that favoured the learning and development of investigative skills.

Undergraduate tourism students were able to plan and implement mixed research methods in the Tourism Research subject at the UACJ, based on a methodologically structured step-by-step teaching process, in which the student's research needs and interests are considered. During the research planning phase, students generated scientific questions and objectives integrating mixed methods for their projects; they selected various research approaches using mixed methods, and the sampling was carried out applying mixed methods. In the implementation phase, they carried out field data collection using mixed methods; and they performed the analysis and interpretation of open and closed data, all of which served as the basis for elaborating integrative conclusions based on the mixed data obtained.

The theoretical implication of the research is that it articulates the scientific research process through mixed research methods with the teaching methodology for the training of future professionals to promote the appropriation of the knowledge, skills, and competencies necessary to face this complex process. In the methodological order, it exposes the didactic methodology implemented for the development of the research projects of the students who studied the subject of Tourism Research. These results serve as a basis for comparing with other experiences and for enriching scientific knowledge related to the design problem and use of mixed research methods.

The main learning lessons derived from students' projects were that they need help coherently combining qualitative and quantitative methods in mixed research. At the same time, they can understand the importance and value of implementing mixed methods for the combined understanding of the objective and subjective reality of objects, phenomena, and processes. They recognize the high level of complexity of the design and implementation of mixed methods since they require more effort and fieldwork. They identify the high level of complexity in understanding the methods, although they recognise the significant contribution that having the materials delivered and the activities carried out represents.

The high value of the methodology used to understand better the procedures to be implemented stands out. At the same time, they attribute importance to the opportunity to carry out activities in pairs and small groups to be able to infer and reflect on the composition and development of their individual projects. The methods to which they attribute the most outstanding value for the development of their research were the survey, interview, observation, group meetings, discourse study, consultation with specialists, and case study. They find it complex to work on mixed research methods in an integrated way with the rest of the components of the theoretical and methodological design and indicate the valuable support that the technical data sheets for the empirical study represent and the logical flow and methodological alignment of the investigation.

The applied case study developed with students of the advanced level of the undergraduate degree in tourism confirms why students should research using mixed methods because this allows a

more complete and complex understanding of the object of study than if only quantitative or qualitative data is available, especially in tourism research that seeks to have a holistic understanding of the objective and subjective reality that characterizes the process of tourist travel, facilitating a better understanding of the study problem. They could realize through their projects that mixed methods research is best used when both quantitative and qualitative variables are present in the study, because quantitative data contains closed information, such as that used to measure attitudes (rating scales), while qualitative data (words, texts, or behaviours) contain open information that can be collected through interviews, discussion in groups, and observations.

The strategies for adopting the results correspond to the dissemination of the research conclusions and the continuity of their implementation in the research methodology classes and in the development of new projects with the students who begin this formative period in the coming semesters. The results can be adapted and applied in other university centres that develop subjects related to tourism research; at the same time that they are being disseminated through presentations at scientific events, and the transfer of knowledge through different channels is being promoted in order to contribute to its continuous improvement, since it is not a finished product but open to future enrichment.

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Comentado [MRGH15]: It was revised so that all the citations correspond to the references in correspondence with the changes made in the text.

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DEAR MANUEL,
THERE IS INTERESTING MATERIAL AND THE STRUCTURE IS GOOD, BUT I SUGGEST THE FOLLOWING:

1) YOU COULD REDUCE THE INITIAL SECTIONS (UP TO p10) AS THERE WILL BE OTHER CHAPTERS DISCUSSING THE NATURE OF MIXED METHODS RESEARCH
2) YOU SHOULD INCREASE THE SECTIONS BEGINNING WITH THE HEADING 'PROCESS OF SCIENTIFIC MATERIAL OF MIXED METHODS' AND INCLUDE SOME EXMAPLES OF STUDENTS PROJECTS – JUST EXTRACTS, ALTHOUGH NOT NAMING STUDENTS.
3) YOU SHOULD EXPLAIN IN MORE DETAIL WHY YOU WANTED THE STUDENTS TO DO MIXED METHODS PROJECTS.
4) I HAVE INSERTED COMMENTS AND QUESTIONS IN CAPITALS IN THE TEXT THAT I WOULD LIKE YOU TO ADDRESS.
5) WHEN YOU HAVE MADE THE CHANGES RE POINTS 1-4 ABOVE YOU MAY ALSO HAVE TO CHANGE THE ABSTRACT.

Best regards,
Peter

Comentado [MRGH16]: Done

Comentado [MRGH17]: Done

Comentado [MRGH18]: Done

Comentado [MRGH19]: OK

Comentado [MRGH20]: Done