RESEARCH STUDY PROTOCOL

Integration of data in inter and transdisciplinary research: an exploratory study
V 1.0 – 24.10.2022

Sponsor/Coordinator:	Institute of Tropical Medicine Nationalestraat 155 B-2000 Antwerpen - Belgium
Principal Investigator:	Claudia Nieto, Socio Ecological Health Research Unit (SEHR), DPH, ITM Eco-health group
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Department:	Public health
Version:	V 1.0 – 04.10.2022

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Contents

Statement of Compliance

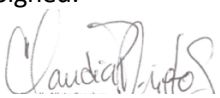
This protocol contains the necessary information for conducting this research study. By signing this document, the Investigator commits to carry out the study in compliance with the protocol, the applicable ethical guidelines like the Declaration of Helsinki, the European General Data Protection Regulation (GDPR), the ESF/ALLEA Code of Conduct for Research Integrity, and consistent with international scientific standards as well as all applicable regulatory requirements. The Investigator will also make every reasonable effort to complete the study within the timelines designated.

Once the final protocol has been issued and signed by the Investigator(s) and the authorized signatories, it cannot be informally altered. Protocol amendments have the same legal status and must pass through the mandatory steps of review and approval before being implemented.

Principal Investigator:*

Title, Name: Claudia Nieto Date: 21/09/2022

Signed:



1. Background and Rationale

The Institute of Tropical Medicine (ITM) has been involved in studies described as multi, inter- and transdisciplinary throughout the years. Expertise in data collection, management, and integration generated through cross-disciplinary collaborations in the department, however, remains scattered, making it difficult to systematically use this expertise and concrete project experiences to address current public health priorities (outbreak investigation, AMR, urbanization, among others).

Because we do not want to shy away from the complex health challenges of our times, we anticipate that the demand for such higher-level analytical approaches will continue to increase in the years to come. In the domain of Eco-health, in particular, there is an explicit intention to bring diverse data sources and types together. As an example of whole systems' approach, data generated under the Eco-health perspective are diverse because they correspond to various levels or scales (e.g. individual, household/dwelling, neighborhood, population subgroup, district, city, country, policy environment) and because they come from or fit within different perspectives and scientific traditions (epidemiology, social sciences, policy/governance, health systems' research, urbanism/ architecture).

Extensive literature has been written on the subject of inter- and transdisciplinarity in the health sciences. Generally speaking, interdisciplinary research is defined as a "mode of research by teams or individuals that **integrates** information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance a fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline" (National Academy of Sciences et al., 2005). Transdisiplinarity, on the other hand, involves not only integration but also **translation** of research and collaboration with non-academic sectors. It is often defined as "a reflexive research approach that addresses societal problems by means of interdisciplinary collaboration and the collaboration between researchers and extra-scientific actors" (Jahn et al., 2012). Creating conceptual frameworks, hypotheses, and research strategies that extend over disciplinary boundaries to address socially relevant problems is core to both approaches (Haire-Joshu & McBride, 2013).

This project is focused specifically on the process of interdisciplinary *learning*. As a multidimensional construction, interdisciplinary learning is built on the basis of cognitive, emotional, and interactional processes (Boix Mansilla et al., 2015) facilitating or limiting the possibilities of integration proposed in a given study. In this case, we will use the *Model of Interdisciplinary Learning* (Boix Mansilla, 2017) to study four processes typically involved in intern and transdisciplinary research:

- Establishing purpose: When the question / problem is formulated.
- Disciplinary exchange: Instances in which disciplinary insights, concepts, theories, findings, techniques, tools, assessments are shared.
- Leveraging integration: Development of integration models, results, and applications as part of the interdisciplinary process.
- Critical stance: How (if) peer review is articulated, and how (if) were results validated and discussed.

With this study, we propose to a) explore the knowledge and expertise existing at ITM in terms of inter- and transdisciplinary, and b) strengthen our capacity to address scientific (conceptual, operational, methodological, technical and ethical) challenges derived from these types of research.

2. Study Objectives

Main objective
This project aims to study experiences of inter and transdisciplinarity involving ITM researchers, with special emphasis on the processes of data integration and knowledge generation collaboration derived from these types of studies.

Specific objectives

a. Mapping interdisciplinary and transdisciplinary collaborations in which researchers from ITM have been involved.
b. Investigate challenges and possibilities for knowledge generation derived from the different disciplines, actors, methodological designs, and types of data collected as part of these collaborations.
c. Describe the processes and tools of data integration implemented as part of these collaborations.
d. Identify areas in which research capacity could be strengthened.

Insights from this study will be shared internally and externally through the channels developed by the DPH's Data Hub and incorporated in the development of a FWO proposal focused on COVID-19 in urban areas to be submitted in April 2023.

3. Study Design

As previously stated, we intend to integrate emerging results from this study in the development of a FWO proposal to be submitted in April 2023. For this reason, we will conduct a rapid ethnographic assessment (REA) for the exploratory phase of this study (October 2022 – March 2023). REA is a qualitative research method that emphasizes "rapid collection and dissemination of information useful for key decision making" (Sangaramoorthy & Kroeger, 2020). This exploratory phase will be focused on projects developed within or with participation of the Socio Ecological Health Research Unit (SEHR), previous Medical Anthropological Unit, at ITM. Initially, a map of inter- and transdisiplinary collaboration conducted by the unit will be produced and used as reference for data collection (mainly based on documents review). Subsequently, we will explore the research collaborations in more detail through qualitative methods, including in-depth interviews, informal conversations, and focus groups. If considered relevant, other units, research groups, and departments will be included in an extended ethnographic study to be developed at a later stage (April – December 2023). Based on the emerging results, a comprehensive capacity building plan will be developed. It will consider areas that could be strengthened in relation to data integration, as well as suggestions of experts and institutions that could facilitate those processes for ITM.

4. Methods

4.1 Study Settings

Data collection will be conducted at ITM. Participants that cannot be located at the institute will be contacted and interviewed via Zoom or Teams (professional versions with mandatory password, waiting room and explicit acceptance by host).

4.2 Sampling strategy

All sampling of informants for this qualitative study will be theoretical. Respondents will be selected through purposive sampling. For this exploratory phase, current or previous members of the SEHR unit will be invited. This selection responds to the extensive experience of this group in inter- and transdisciplinary research (all current projects fall under one of these categories). Researchers from other units and departments, as well as external collaborators (from institutions different from ITM), administrators or other informants may also be included if considered relevant for the purposes of this study. A minimum of 20 participants will be included.

4.3 Data collection

Qualitative data will be collected through in-depth interviews, informal conversations, participant observation and focus groups. Thematic areas of inter/transdisciplinary collaborations to be explored through these data collection methods include (see Annex 1):

a. **Articulation of disciplines involved,** including anthropology, entomology, epidemiology, sociology, urbanism/architecture, medicine, public health, among others.
b. **Participation of actors,** including internal (across ITM's research groups and departments), external (global North and South), and across different types of organisations (academic institutions, NGO's, UN system, grassroots organizations, etc.)
c. **Research designs**: Characteristics of inter/transdisicplinary collaboration in clinical trials, observational studies, ethnographic studies, etc.
d. **Types and process of data collection**: Articulation of actors around different types of data (quantitative, qualitative, clinical, spatial, participatory techniques, etc.)
e. **Stages of integration:** Conceptual, theoretical, methodological, etc.
f. **Integration tools:** Software, instruments, cognitive devices (metaphors, graphs, etc), meetings, etc.
g. **Quality checks:** Did they exist beyond disciplinary boundaries?
h. **Critical stance:** How was it articulated?
i. **Results:** Presentation and implications

Data will be collected face to face or via Zoom/Teams if participants are not reachable in person:

In-depth interviews: Upon agreement of research participants, interviews will be recorded and/or notes will be taken. No identifiable information will be used to label audio files or for note taking; numbers or pseudonyms will be used instead to refer to research participants. Interviews will be carried out in English. When recorded, interviews will be transcribed or summarized as soon as possible; identifiable information will be pseudonymized at this stage and the and the recordings deleted immediately after transcripts or summaries have been produced.

Participant observation. Researchers will get involved in participant observation from their role as current members of the SEHR Unit and/or collaborators in inter and transdiciplinary research. This method will enable us to identify behaviours that could contrast what is said in interviews and allows us to obtain information about social and cultural aspects that are unspoken, taken for granted or perceived to be irrelevant for the research by interviewees. By drawing on our own Experiences as researchers, a more holistic perspective on the subject can be built. Participant observation will take place in work scenarios where these topics are discussed (unit meetings, peer discussions, shared documents, etc.)

Informal conversations. Information will also be collected through spontaneous conversations. This will allow us to get a grasp of social norms being constructed around these forms of collaboration, as well as elements of the strategy emerging in lay conversations. Information obtained through this method will be captured through note taking.

Focus group discussions (FGDs). Group discussions will be organised to elicit conversations around the topics of interest and identify commonalities and differences in the experience of the researchers. Group discussions will be recorded, and recordings transcribed or summarised.

4.4 Data Analysis

In accordance with the research strategy, qualitative data collection and analysis will be concurrent and data analysis will be an iterative process. Preliminary data collected through different techniques will be intermittently analysed to guide further data collection. Data confirming or refuting temporary results will be subjected to constant validity checks until saturation is reached and the data could be theoretically supported. Raw data will be processed in their textual form and coded inductively to generate and/or identify analytical categories or themes for further analysis. Boix Masilla's Model of Interdisciplinary Learning (Fig 1) will be used as analytical framework for this purpose. The resulting analytical framework will be systematically applied to all the data. The systemization and analysis will be carried out with NVivo 13 Qualitative Data Analysis software (QSR International Pty Ltd. Cardigan UK).

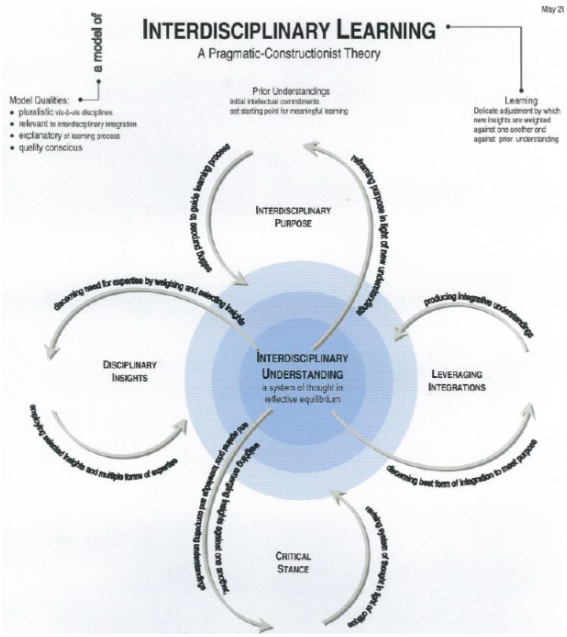


Fig. 1 Model of Interdisciplinary Learning (Boix Mansilla, 2009)

5. Ethical Issues

5.1 Ethical Review

This study will be submitted for formal review and approval to the Institutional Review Board at ITM. No participants will be enrolled nor participant related activities performed before written approval from this body is obtained. The study will be carried out according to the principles stated in the Declaration of Helsinki, all applicable regulations and according to established international scientific standards.

5.2 Consent

Researchers will follow the Code of Ethics of the American Anthropological Association (AAA). As proposed by the AAA, all interviewees will be informed before the start of the interview about the project goals, the topic and type of questions, their right to refuse being interviewed, to interrupt the conversation at any time, and to withdraw any given information during or after the interview. Written consent will be collected (annex 2 and 3). When consent is not obtained, participants will be automatically excluded from the study.

5.3 Confidentiality

This protocol complies with GDPR regulations about data protection. The research team will ensure strict confidentiality of all information collected in the framework of the study. All data in the IDIs, informal conversations, group discussion and participant observation will be pseudonymized during data collection as much as possible. Data confidentiality will be protected, among other means, by not including names or any other identifiable information in notes, files' names, transcripts, log files or the group's log file. We cannot, however, control the fact that some participants might share sensitive/personal information during interviews. Participants will be encouraged to use pseudonyms and the researchers to avoid recording identifiable data as much as possible. Pseudonyms will also be used to replace identifiable information during the transcription and analysis phases. Only the PI and the co-investigators will have access to the database.

5.4 Compensation

Participants will not receive compensation for their participation in the study.

5.5 Insurance

The Coordinator of this study, the Institute of Tropical Medicine, has obtained a (no-fault) study insurance to cover any injury, damage or loss to study participants and which is caused directly or indirectly by their participation in the study (see annex 2).

5.6 Potential risks and benefits for participants

Aside from benefiting from sharing their experience in inter and transdisciplinary collaborations, and the possibility of receiving further training in areas in which capacity building is recommended, we do not envision additional benefits for research participants.

We are aware, however, that a number or risks need to be taken into account. According to the Code of Ethics of the American Anthropological Association (AAA), any ethnographic study may involve risks of discrimination or disruption of personal relationships as the result of disclosure of private, identifiable information in gathered data. In this case, participants might share information about their work-place relationships that could be considered sensitive. The nature of ethnographic research, however, makes unavoidable to collect personal data. This type of research is highly contextual and intended at gaining depth of knowledge about participant's personal experience. Even if instructed not do so, we cannot guarantee that participants will not disclose identifiable information as part of their

narratives. These risks will be explained to the participants and they will be informed of the possibility of opting out from the study at any time. In this case, however, we consider those risks minimal, as all necessary measures will be taken to prevent any disclosure of private information from happening (see confidentiality section). In first place, we will protect participants' data by keeping data collected confidential and pseudonymized at the aggregated level of data processing. Moreover, participation will be completely voluntary, confidential and will take place in settings where confidentiality can be secured. Finally, most research participants are experienced researchers, with enough knowledge about the potential implications of their participation in this study and capacity to demand confidentiality when required.

6. Data Management and Archiving

6.1 Data Management

Given the nature of qualitative data, we cannot guarantee that identifiable data will not be recorded, as it cannot be anticipated that research participants will provide it or not. However, we will make every effort to protect participants' data through a data management plan guided by the minimization and privacy-by-design principles. This plan will proceed as follows:

- Data collection instruments will be designed to secure that only adequate, relevant, and necessary information is collected from each participant.
- All collected information will be kept confidential by not sharing any personal identifiers within and outside class purposes. All potentially identifiable information will be pseudonomysed in transcripts and summaries to be used in the data analysis phase.
- All data will be stored in an ITM MS One-Drive folder dedicated to this study and managed by the research team from ITM-provided laptops (encrypted by default).
- Audio files will be deleted from data collection devices once they are transcribed/summarized and pseudonymized.
- Collected data will be stored under codes or pseudonyms with no reference to personal identifiers.
- Only pseudonomyzed data will be used in publications. Research files will be kept for a 5 year-period. The PI is responsible for securing access to the research team during the periods of data collection and analysis, as well as during manuscripts' preparation.
- Once the study has concluded, all the study files will be placed in a password protected Y-drive location. Only the PI will have access to this folder during this period and will be responsible for eliminating the data afterwards.

6.2 Archiving

During the phases of data collection and analysis, all data will be stored in an ITM MS One-Drive folder created specifically for this study and managed by the research team from ITM-provided laptops (encrypted by default). The One-Drive folder can only be accessed using an ITM account or after explicitly granting access to external email addresses. Once the study has concluded, all the study files will be placed in a passport protect Y-drive location where they will be archived for a minimum 2 year period. Only the PI will have access to that folder during this period and he will be responsible for destroying all data once this period has concluded.

7. Dissemination of results

Insights from this study will be shared internally and externally (e.g. through the channels developed by the DPH's Data Hub) and incorporated in the development of an FWO proposal focused on COVID-19 in urban areas to be submitted in April 2023. If considered relevant, results may also be widely shhared through scientific publications.

9. References

Boix Mansilla, V. (2017). Interdisciplinary Learning: A Cognitive-Epistemological Foundation. In R. Frodeman (Ed.), *The Oxford Handbook of Interdisciplinarity* (p. 0). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780198733522.013.22

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Annex 1. Preliminary topic guide

Topic Guide
Integration of data in inter and transdisciplinary research: an exploratory study

Version 1.0, 04/10/2022

- Establishing purpose:
  - How was the interdisciplinary team composed?
  - Which types of input were required in the formulation of the original proposal?
  - How was the research question(s)/goal(s) formulated?
  - Which disciplinary perspectives were considered in their formulation?
  - Was the research question/goal(s) reformulated at some point?
- Disciplinary exchange:
  - Which methodological design was considered for this study? How was it implemented?
  - Which instances of data integration were considered through the process?
  - Which types of data were collected?
    Where these data exchanged? If so, how?
  - How, if so, were the different types of data integrated?
  - Can you mention any tools or processes used to facilitate data exchanges/integration?
  - Was data integrated at the stage of analysis? If so, how?
  - Did the team use any conceptual framework, methodology or tool to facilitate data integration?
  - How were they implemented?
  - Were the results presented as the results of interdisciplinary exchanges? If so, how was the presentation of results designed?
- Leveraging integration: Development of integration models, results, and applications as part of the interdisciplinary process.
  - In your opinion, was knowledge generated the result of inter/transdisciplinary exchanges? Please explain.
  - Which limitations did you experience in answering the research question(s)/goal(s) proposed as part of this research?
  - Which methodological/ conceptual contributions were obtained from this collaboration?
- Critical stance:
  - How were researchers involved throughout the process?
  - How, if so, was peer-review is articulated?
  - How, if so, were results validated and discussed?
  - Which mechanisms were created to facilitate critical input throughout the process?

Annex 2. In-depth interview participant information sheet.

STUDY INFORMATION FOR PARTICIPANTS

Integration of data in inter and transdisciplinary research: an exploratory study

Version 1.0, 04/10/2022

Welcome

Thank you for your interest in this interview. This project was set up by the Global Population Data Hub from the Department of Public Health at the Institute of Tropical Medicine.

Information about the study and your participation

We would like to listen to experiences and ideas regarding research collaboration in inter and transdisciplinary studies. As you may know, interdisciplinary collaborations are built on the basis of cognitive, emotional, and interactional processes. With this study we propose to collect experiences of inter and transdisciplinary research, with particular emphasis on the process of data integration and knowledge generation. Specifically, we aim to a) explore the knowledge and expertise existing in ITM in terms of inter and transdisciplinary, and b) strengthen our capacity to address conceptual, operational, methodological, technical and ethical challenges derived from these types of research.

Your participation in this study is completely voluntary. You have the right to stop your participation or refuse to answer any question at any time, even after data collection has concluded (up until the end of the data analysis phase or March 2023). Your participation in this study is also completely confidential and the information you provide will only accessed by the research team. Data for this study will be collected by means of in-depth interviews, participant observation, informal conversations, and focus group discussions.

Through this form, I'm inviting you to participate in an in-depth interview. This conversation will take us around 60 minutes and, if you agree, it will be audio recorded. If you accept to be audio recorded, the audio file will be deleted as soon as we transcribe or summarize the information you provide. Any information that could be linked to your identifiable data will be removed from our records.

Please be advised that although the researchers will take every precaution to maintain confidentiality of the data, there is always a minimal risk of disclosure of your private information. We will, however, take measures to minimize this risk. There are no direct personal benefits due to your agreement to participate in this study exercise. Nonetheless by participating you can provide us with valuable information that could be used as basis for future proposals or capacity building programs in which you would be invited to participate.

This research was reviewed and approved by the Institutional Review Board of the Institute of Tropical Medicine. Insights from this study will be shared internally and externally (e.g. through the channels developed by the DPH's Global Population Data Hub).

Contact

For questions about the protection of your data, please contact ITM's Data Protection Officer, Jef Verellen, on jverellen@itg.be or on +32 (0) 3 247 07 43. If you have any questions before, please

contact us by e-mail: Claudia Nieto, cnieto@itg.be (Institute of Tropical Medicine, Department of Public Health, Antwerp).

Annex 3. Documentation of consent.

DOCUMENTATION OF CONSENT BY RESEARCHER
Integration of data in inter and transdisciplinary research: an exploratory study

Version 1.0, 24/10/2022

I, undersigned, hereby confirm that the information sheet has been explained to the me and that I voluntarily consented to participate in the study. It was clear that I could freely choose to participate in the study.

I had the opportunity to ask questions and discuss the study. If I had questions, the interviewer answered them as completely and clearly as possible. All questions posed were answered.

I confirm that it was clearly explained to me that I didn't have to answer any interview question when I didn't want to and that I could stop the interview at any moment, even after concluding the interview (up until the end of the data analysis phase or March 2023).

Furthermore, it was explained to me that any information identifying me will not be shared with anybody outside of the research team, and that the information provided will be kept completely confidential in dissemination and publications of the results.

Name of participant Date (dd/mm/yy)

Signature of participant

Name of researcher Date (dd/mm/yy)

Signature of researcher

Participant ID number: ……

Annex 4. Focus group - participant information sheet

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Information about the study and your participation

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Your participation in this study is completely voluntary. You have the right to stop your participation or refuse to answer any question at any time, even after data collection has concluded (up until the end of the data analysis phase or March 2023). Your participation in this study is also completely confidential and the information you provide will only accessed by the research team. Data for this study will be collected by means of in-depth interviews, participant observation, informal conversations, and focus group discussions.

Through this form, I'm inviting you to participate in a focus group discussion. This discussion will take us around 60 minutes and, if you agree, it will be audio recorded. If you accept to be audio recorded, the audio file will be deleted as soon as we transcribe or summarize the information you provide. Any information that could be linked to your identifiable data will be removed from our records.

Please be advised that although the researchers will take every precaution to maintain confidentiality of the data, there is always a minimal risk of disclosure of your private information. We will, however, take measures to minimize this risk. The nature of focus groups prevents the researchers from guaranteeing confidentiality; however, the researchers will remind participants to respect the privacy of your fellow participants and not repeat what is said in the focus group to others. We will be careful of not asking anything that could be embarrassing for you or your colleagues and will ask participants not to use any names during discussion.

There are no direct personal benefits due to your agreement to participate in this study exercise. Nonetheless by participating you can provide us with valuable information that could be used as basis for future proposals or capacity building programs in which you would be invited to participate.

This research was reviewed and approved by the Institutional Review Board of the Institute of Tropical Medicine. Insights from this study will be shared internally and externally (e.g. through the channels developed by the DPH's Global Population Data Hub).

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