Module IV.1

Observation and evaluation techniques based on the use of smart resources

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e-EarlyCare-T

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Observation and evaluation techniques based on the use of smart resources

This part of Module IV refers to data preparation in the qualitative research setting. It will then include information about how to prepare data for further processing. Also, you will work specifically on think-aloud protocol analysis techniques.

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Observation and evaluation techniques based on the use of smart resources

1. Before registration, registration and data extraction
    - 1.1. Direct or indirect techniques for gathering information
    - 1.2. Categorisation of information
    - 1.3. Data reduction
    - 1.4. Example
2. Data Preparation in Qualitative Research: Recording Information
3. Data preparation in qualitative research: data processing

Observation and evaluation techniques based on the use of smart resources

1. Before registration, recording and extraction of data

Research, whether quantitative or qualitative, must be based on **research questions or hypotheses** that guide study. **Qualitative research has to carry out a refined and rigorous description of the contextual situation of a fact, situation or behaviour to be analysed** (Anguera, 1986). **For this reason, this type of research must also be systematic and start from categories that are observable and measurable in order to be able to later treat these data with different techniques.**

Observation and evaluation techniques based on the use of smart resources

1. Before registration, recording and extraction of data

1.1. Direct or indirect techniques for gathering information

Qualitative research can be based on several criteria:

a. Hypothetico-deductive, the advantages are the organisation and guidance from the beginning of the whole research process and the disadvantages are the loss of flexibility.

b. In-depth data recording, the advantages are the collection of data in the contexts and the disadvantages are the difficulty in systematising the collection of information. The categorisation of the information plays an essential role here.

c. Information collected from documentary sources or direct records (videos, manuscripts, etc.). The most commonly used observation techniques are systematic observation, which can be participant or non-participant, interviews, content analysis and case studies (Anguera, 1986; Sáiz-Manzanares and Escolar, 2013).

d. Criterion of prior observational content. Choice of the object or field of observation.

Observation and evaluation techniques based on the use of smart resources

1. Before registration, recording and extraction of data

1.1. Direct or indirect techniques for gathering information

In this type of research, **direct or indirect research techniques** can be used, the former referring to interactive contextual situations and the latter to contextual observational analytics involving the use of observational techniques with previously defined indicators.

1. Before registration, recording and extraction of data

1.2. Categorisation of information

In order to carry out a good categorical analysis, one has to start from a previous idea that answers the question **"what to observe", "why observe", "what is of most interest to me from all the data I have recorded?** Contextual qualitative observation can provide the researcher with a lot of information that may not be relevant to the object of study. Therefore, the object of observation should be delimited a priori. This delimitation can shed light on the process of categorisation or taxonomy of categorisation that is most appropriate at any given moment for the object of study. **Categorising means naming, classifying a series of data into a set of categories. In short, it implies ordering the data in relation to criteria that are either previously defined or are defined on the basis of the information recorded.**

1. Before registration, recording and extraction of data

1.3. Data reduction

Categorisation of the information facilitates the reduction of data that have been recorded in "raw" form. However, once categorised, these data need to be **analysed in** order to be **interpreted**. **This analysis can be quantitative or qualitative** (flow charting or ranking) or a combination of both. **The recording possibilities are very varied depending on the contexts**. Different events can be recorded in a successive continuum of data or a progressive behavioural analysis of a single subject or a set of subjects, etc. can be recorded.

1. Before registration, recording and extraction of data

1.3. Data reduction

According to Anguera (1986), different types of **validity** can be distinguished in qualitative research:

a) **Apparent validity**, choice of answers related to the object of the study.

b) **Instrumental validity**, analysis of the instrument used to record and collect information, similar to concurrent and predictive validity.

c) **Theoretical validity**, which relates to the relationship between what is observed and the theory that supports it.

1. Before registration, recording and extraction of data

1.3. Data reduction

Triangulation

Triangulation is a technique used to analyse **the degree of agreement or consistency of an observational analysis**. It involves the use of different observational procedures on the same event or situation. **Its aim is to increase the validity of conclusions about an observational fact**. It can be triangulated on:

1. The data according to variables of time, space and person.
2. The researcher, several researchers observing the same event.
3. Theory, different approaches to the same fact or situation to be observed or instruments (empirical observation with opinion instruments such as surveys).

1. Before registration, recording and extraction of data

1.3. Data reduction

In relation to **reliability**, according to Kirk and Miller cited by Anguera (1986) p.13, a distinction can be made between:

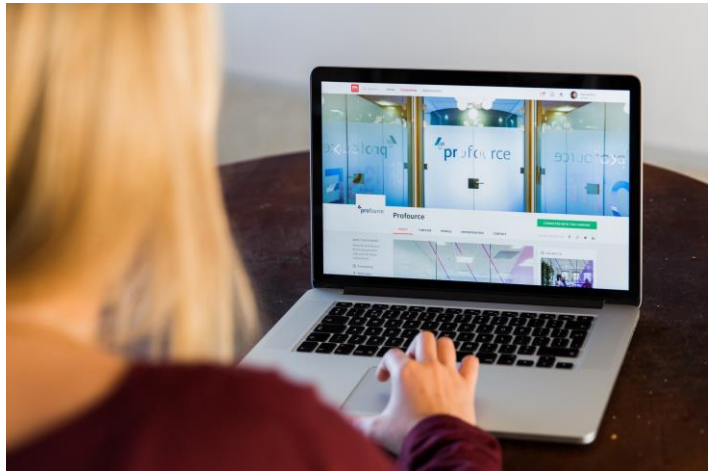
a) **"Quixotic" reliability** refers to a single method of observation. It results in a continuously invariant measure (sentences, facts or behaviours).

6) **Diachronic reliability**, which is the stability of an observation over time. It relates to repeated measurements for the recording of a time-invariant event.

e) **Synchronous reliability**, which implies similarity of observations with respect to relevant features.

1. Before registration, recording and extraction of data

1.3. Data reduction



Replicability

It is clear that the **argument between qualitative and quantitative research makes no sense, both are understood as complementary methodologies**. It is also clear that the replication of a study, as well as **generalisation, is related to finding similar results in different samples with similar characteristics**. This ia an indicator of the generalisability of a study's results.

In short, you must first define what you **want to study** and **for what purpose**. **These questions include the variables to be analysed**. All research questions indicate dependent and independent variables. The independent variable would be the one that is hypothesised to produce some change in the dependent variable. It is important to specify all these elements, as they will be the basis for the preparation and subsequent processing of the data.

1. Before registration, recording and extraction of data

1.4. Example

Analysis of a study in a prototype 1

First step. Defining the problem to be investigated

To specify the object of the research by answering the questions: what to study, what for, and how.

Example: To find out the type of cognitive and metacognitive strategies that children aged 3-6 years use when solving problems in natural environments (family, school, etc.).

1. Before registration, recording and extraction of data

1.4. Example

Analysis of a study in a prototype 1

Second step. Behavioural parameters to address the formulated problem.

The parameters, i.e. the observable behaviours that will make explicit the variables defined in the research objectives, must be specified. Once these have been specified, the procedure for measuring them will have to be developed. The measures can be primary, and frequency, duration, latency and intensity can be analysed. The most commonly used are the first two. Secondary measures involve the categorical operationalisation of the results found in the primary measures, where frequency can be analysed, and the order of occurrence will be applied either to the complete recording or to the recording intervals that have been concluded after random sampling.

1. Before registration, recording and extraction of data

1.4. Example

Analysis of a study in a prototype 1

Second step. Behavioural parameters to address the formulated problem.

Example: analysis of interactive behaviours in children with suspected Autism Spectrum Disorder (ASD) in the academic context. The categories in this example would be the different types of interactive behaviours in 2-3 year olds (eye contact, following instructions, proto-imperative and proto-declarative behaviours).

Category recording can analyse frequency (number of occurrences of the behaviour and the categories associated with it), duration measured in time units of the category (time unit), latency, the time from one behavioural category to another and intensity which is analysed when using Rating Scales. Scales may include ordinal, nominal, interval or ratio scales.

1. Before registration, recording and extraction of data

1.4. Example

Analysis of a study in a prototype 1

Third step. Sampling strategy for the parameters to be studied.

What to analyse will be determined by the research question formulated.

Example: task solving behaviours in symbolic play activities. These behaviours will be observed in the therapeutic intervention sessions.

Likewise, from possibilities approach, random sampling can be carried out at different times to specify the timing of the observation. For example, on Monday at the beginning of the symbolic play session, on Tuesday at the middle of the symbolic play session, on Wednesday at the end of the symbolic play session, on Thursday at the beginning of the symbolic play session and on Friday at the end of the symbolic play session.

1. Before registration, recording and extraction of data

1.4. Example

Analysis of a study in a prototype 1

Step 4. Method of data recording and field practice in the selected field

Observation may include video, audio, observational recording by the observer on paper records, or all of these.

Example: A video observation and a paper observation by a non-participant observer and a paper-based observation by a participant observer will be chosen. With these three ways of recording, a triangulation process can then be carried out.

1. Before registration, recording and extraction of data

1.4. Example

Analysis of a study in a prototype 1

Step 5. Most appropriate statistical tests to analyse the data.

The choice of techniques for analysing the data recorded in the observational process will depend partly on the type of records and partly on the researcher's design.

Example: In the case of this analysis, parametric, non-parametric and strictly qualitative statistical analysis techniques such as frequency analysis could be used.

2. Data Preparation in Qualitative Research: Recording Information

Most qualitative studies work with information that is collected using the transcription method, either from audio or video material. Nowadays there are many resources that facilitate the recording and transcription of information, among them we can distinguish the following

Audio records

Google Docs

To use **Google Docs** for free, all you need is a Google account associated with an email address. Once logged in from any browser, for example Chrome, a new document is opened and in the "Tools" menu the "Voice typing" option is activated. Immediately a microphone icon will appear and you will have to click on it to start dictating.

One of the strong points of Google Docs is that, once the text has been transcribed, it is also possible to edit it without using the keyboard, by means of numerous voice commands. Although for the moment, as the company itself indicates, these functions are only available in English. **Link**

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Audio records

Dictation Created by Amit Agarwal, a technology columnist, this is one of the most popular dictation tools available today. It allows you to save the result in a . txt file from which you can then copy and paste the text into another document. Link

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Audio records

Dictation

Speechnotes can be added as a Chrome extension, and can also be downloaded as an App for Android devices.

It has a very clean and intuitive design with a central part in which the text is transcribed flanked by two columns that are of great help: on the right are described the commands and shortcuts that can be used to facilitate the dictation and on the left are all the actions that can be performed with the final text: save it, send it by email, upload it to Google Drive or print it, among others. **Link**

2. Data Preparation in Qualitative Research: Recording Information

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Audio records

Personal Speechlogger

It is very similar to Speechnotes as they share the same developers, **Speechlogger** Personal, and it also has an app version for Android devices. Its creators present it with two competitive advantages over similar tools: automatic punctuation and the possibility of translating transcribed texts into several languages. Thanks to the latter function, Speechlogger Personal can be used for translation and communication in other languages. **Link**

2. Data Preparation in Qualitative Research: Recording Information

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Video registration

Camtasia

It is an easy-to-use tool that includes many options. It has video editing features, such as cutting and pasting shots or adding different kinds of transitions. In addition, it can export to all formats AVI, SWF, MP3, MP4, GIF, etc. Link

2. Data Preparation in Qualitative Research: Recording Information

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Video registration

Jing

It is a very simple tool that only allows basic screencasts (screen capture and audio) and has no video editing functions. However, it is a quality product with an interface that, in addition to being intuitive, has an attractive design for the user. However, it can only work in SWF format. **Link**

2. Data Preparation in Qualitative Research: Recording Information

Most qualitative studies work with information that is collected using the transcription method, either from audio or video material. Nowadays there are many resources that facilitate the recording and transcription of information, among them we can distinguish the following

Video registration

Adobe Captivate

This software allows you to create high quality, complex videos with effects. It uses its own peculiar capture method, since it does not capture screenshots as they are, but combines static backgrounds with vectorial movements, for example of the mouse. The results are of impeccable technical quality and great plastic beauty. **Link**

2. Data Preparation in Qualitative Research: Recording Information

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Video registration

Camstudio

It is an open source software that allows you to record your screen in AVI format and add audio to it. It does not allow you to edit the resulting videos, so they have to be recorded from video. **Link**

2. Data Preparation in Qualitative Research: Recording Information

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Video registration

Screencast-O-Matic It is a free online tool that allows you to create simple video tutorials. It supports three of the most used formats: MP4, AVI, FLV movie. **Link**

2. Data Preparation in Qualitative Research: Recording Information

Most qualitative studies work with information that is collected using the transcription method, either from audio or video material. Nowadays there are many resources that facilitate the recording and transcription of information, among them we can distinguish the following

Video registration

Debut Video Capture

It is a very complete free software that allows many editing options, such as adding our own image or others taken with the computer's webcam, editing shots, inserting transitions and other effects, etc. However, it requires a learning process about its functionality. **Link**

2. Data Preparation in Qualitative Research: Recording Information

Most qualitative studies work with information that is collected using the transcription method, either from audio or video material. Nowadays there are many resources that facilitate the recording and transcription of information, among them we can distinguish the following

Video registration

Active Presenter

It is a screencasting and eLearning program for Microsoft Windows that can be used to create software demonstrations, software simulations, and tests. It allows the export of image series, HTML slideshows, documents (PDF, Microsoft Word, Excel), Microsoft PowerPoint presentations, videos (AVI, MP4, WMV, WebM), Flash videos and interactive simulations (AJAX, Adobe Flash). For e-learning or m-learning, Active Presenter can package the content into SCORM compatible files. For software simulations you can use mouse movements, right or left clicks or keystrokes.

It can also be used to convert Microsoft PowerPoint presentations to any of its output formats with the loss of some effects and animations and conversion between quite a few video formats indirectly. Link

2. Data Preparation in Qualitative Research: Recording Information

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Video registration

Movie Maker

It is a software that allows the edition of videos, facilitates the personalisation of the recordings that have been made with the previously described programmes. **Link**

ScreenFlow

It is software and an editor and screen recorder for Mac. **Link**

iMovie

It is a video editor program available for Mac. **Link**

Filmora

It is an easy to use video editor program. **Link**

3. Data preparation in qualitative research: data processing

Most qualitative research works with data that have been recorded through audio or video recordings, records of opinion through open-ended online questionnaires that can be the subject of conversation recording. A few decades ago, this type of recording involved time-consuming data collection, transcription and categorisation. Nowadays, certain software (ATLAS.ti, NVivo; MAXQDA, etc.) will allow this process to be carried out more quickly. However, the researcher must then check the results in order to purify the records. In other words, the information relevant to the object of the research must be selected from among all the information recorded. In addition, the confidentiality of the recorded and transcribed data should be ensured at all times. To this end, it is recommended to omit the real names of the participants (Gibbs, 2012).

3. Data preparation in qualitative research: data processing

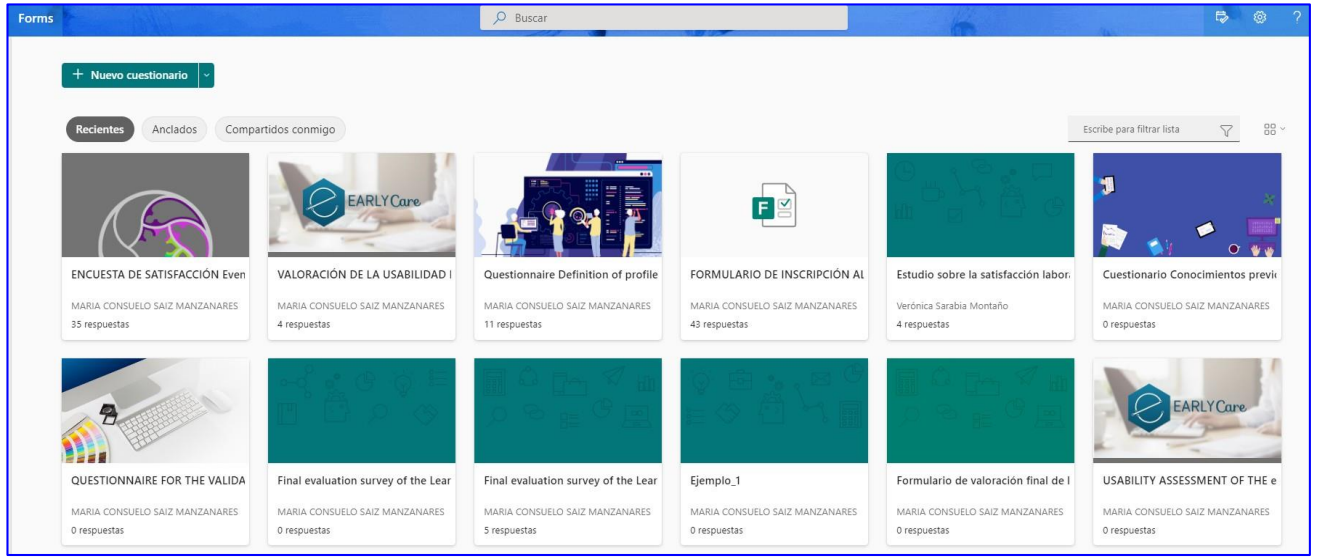
Example of transcription

Therapist: "I am going to explain the task to be done. First I do it and you listen to it, then you do it and I help you a little bit and then you do it on your own, okay? do you understand?
Girl: "The girl nods".
Therapist: "Look at today's homework, we have to put a yellow sticker, a green sticker and then a red sticker, what is the homework we have to do today? We have to stick a yellow, a green and a red sticker.
Girl: "yes".
Therapist: "How are we going to do it? We have to think it through. First we put the yellow, now the green and then the red. How am I doing, am I following our plan? Well I've followed the plan. I'm going to do it again, first I put the yellow, then the green and then the red. How did I do it? Very good.
Therapist: "Now you have to do it by yourself. Come on, I'll help you. What do you have to do today? Do you have to put the... first?
Girl: "Yellow".
Therapist: "Then the..."
Girl: "The green one".
Therapist: "You have to put them next to each other (the girl has put them in a row), just like the model, it's OK, we take it off and start again".
Therapist: "Now which one do you have to put".
Girl: "red".
Therapist: "Now what do you need to do, you need to put..."

3. Data preparation in qualitative research: data processing

Example of creating a survey with Microsoft Forms

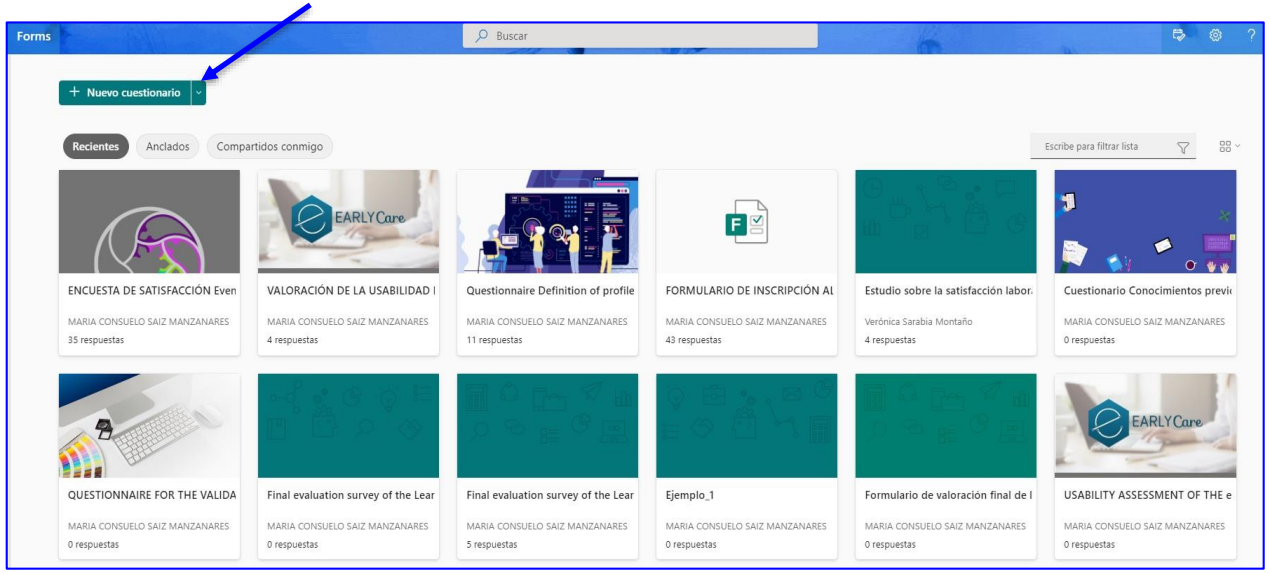
Step 1



3. Data preparation in qualitative research: data processing

Example of creating a survey with Microsoft Forms

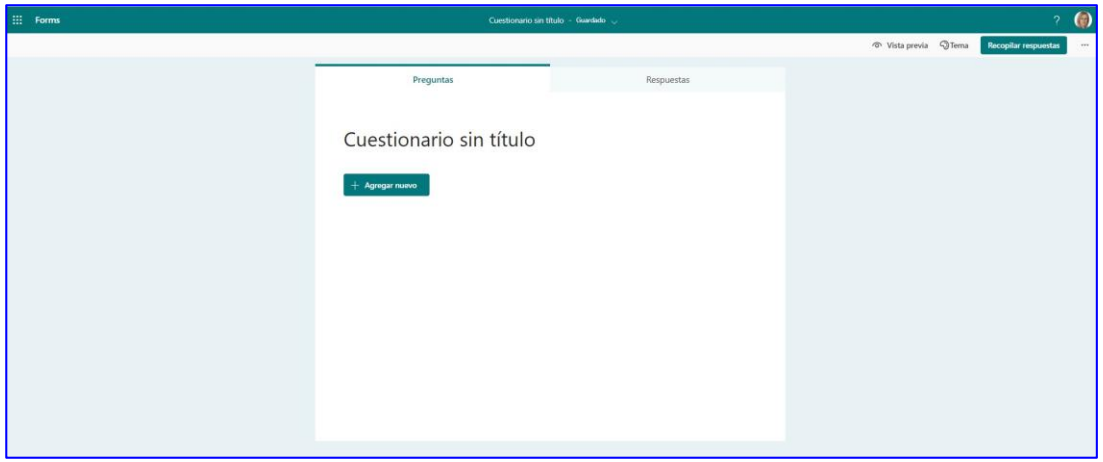
Step 2



3. Data preparation in qualitative research: data processing

Example of creating a survey with **Microsoft Forms**

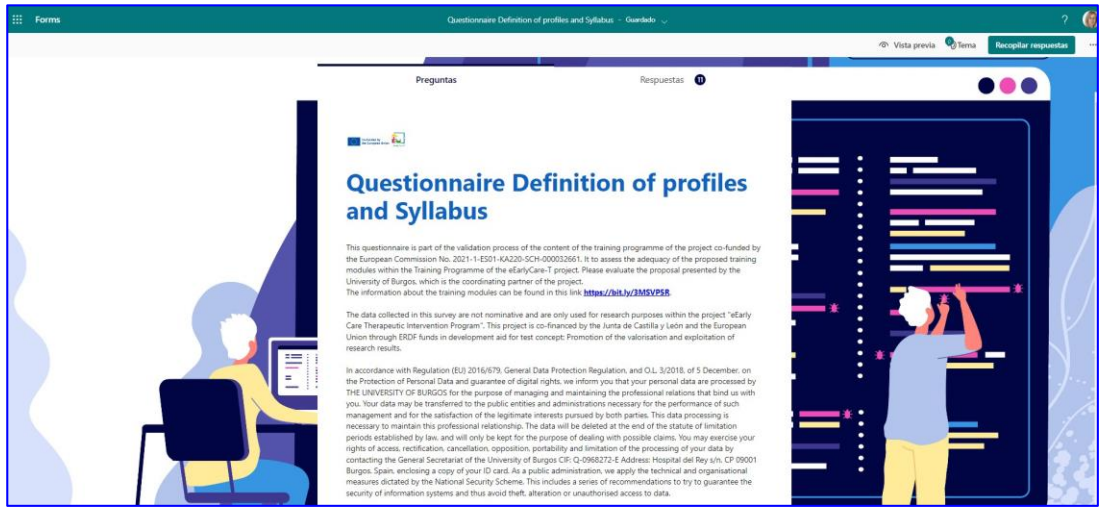
Step 3



3. Data preparation in qualitative research: data processing

Example of creating a survey with **Microsoft Forms**

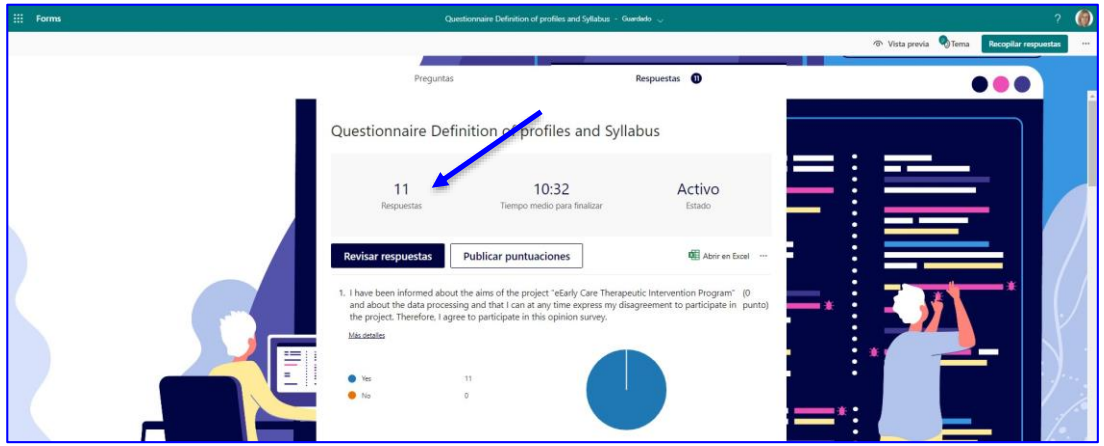
Step 4



3. Data preparation in qualitative research: data processing

Example of creating a survey with **Microsoft Forms**

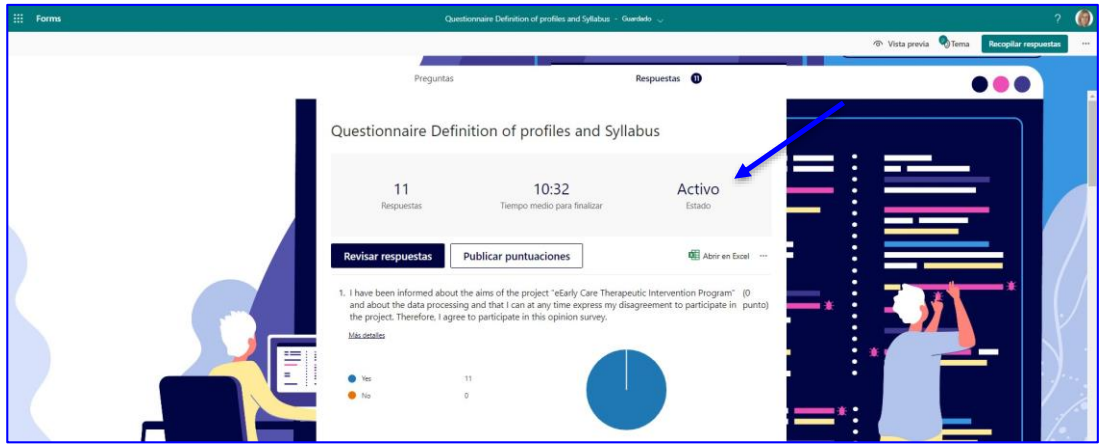
Step 5



3. Data preparation in qualitative research: data processing

Example of creating a survey with **Microsoft Forms**

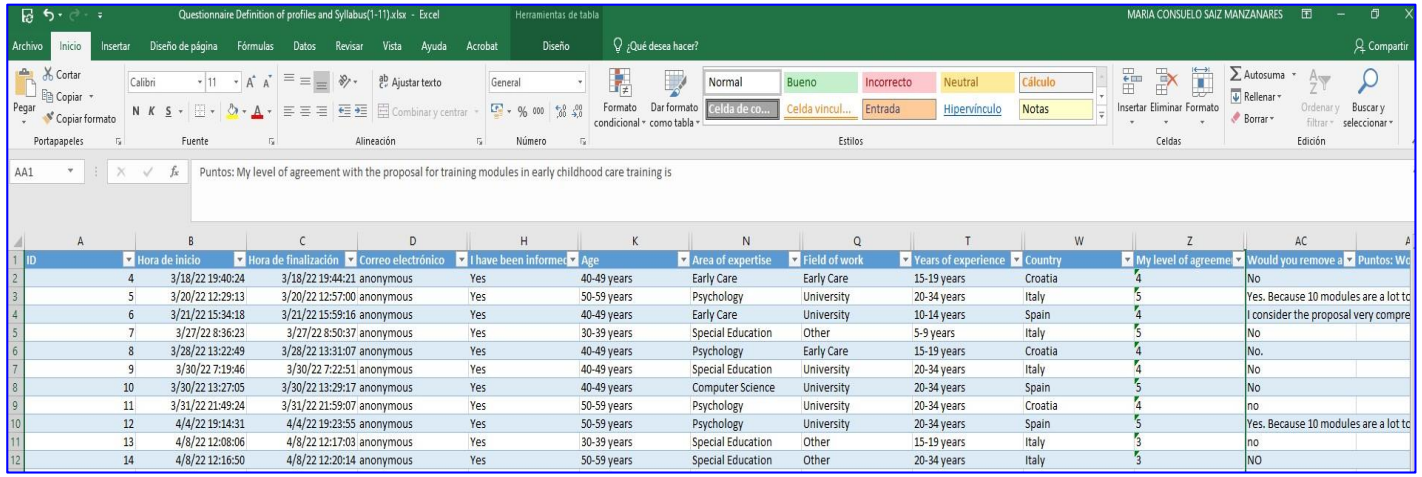
Step 6



3. Data preparation in qualitative research: data processing

Example of creating a survey with Microsoft Forms

Step 7

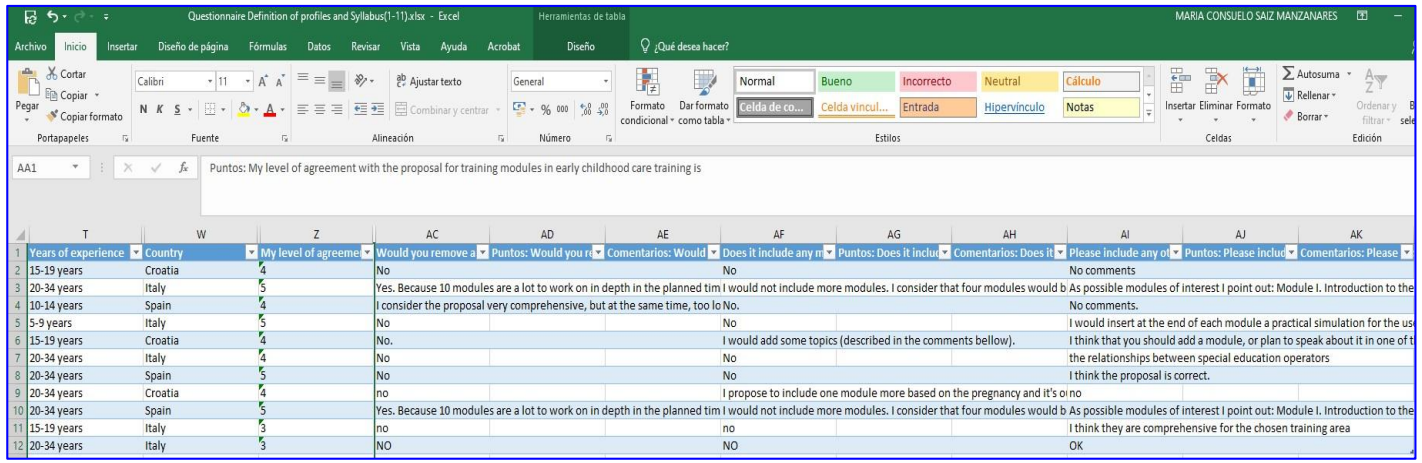


ID	Hora de inicio	Hora de finalización	Correo electrónico	I have been informed	Age	Area of expertise	Field of work	Years of experience	Country	My level of agreeme	Would you remove a	Puntos: Wo
4	3/18/22 19:40:24	3/18/22 19:44:21	anonymous	Yes	40-49 years	Early Care	Early Care	15-19 years	Croatia	4	No	
5	3/20/22 12:29:13	3/20/22 12:57:00	anonymous	Yes	50-59 years	Psychology	University	20-34 years	Italy	5	Yes. Because 10 modules are a lot to	
6	3/21/22 15:34:18	3/21/22 15:59:16	anonymous	Yes	40-49 years	Early Care	University	10-14 years	Spain	4	I consider the proposal very compre	
7	3/27/22 8:36:23	3/27/22 8:50:37	anonymous	Yes	30-39 years	Special Education	Other	5-9 years	Italy	5	No	
8	3/28/22 13:22:49	3/28/22 13:31:07	anonymous	Yes	40-49 years	Psychology	Early Care	15-19 years	Croatia	4	No.	
9	3/30/22 7:19:46	3/30/22 7:22:51	anonymous	Yes	40-49 years	Special Education	University	20-34 years	Italy	4	No	
10	3/30/22 13:27:05	3/30/22 13:29:17	anonymous	Yes	40-49 years	Computer Science	University	20-34 years	Spain	5	No	
11	3/31/22 21:49:24	3/31/22 21:59:07	anonymous	Yes	50-59 years	Psychology	University	20-34 years	Croatia	4	no	
12	4/4/22 19:14:31	4/4/22 19:23:55	anonymous	Yes	50-59 years	Psychology	University	20-34 years	Spain	5	Yes. Because 10 modules are a lot to	
13	4/8/22 12:08:06	4/8/22 12:17:03	anonymous	Yes	30-39 years	Special Education	Other	15-19 years	Italy	3	no	
14	4/8/22 12:16:50	4/8/22 12:20:14	anonymous	Yes	50-59 years	Special Education	Other	20-34 years	Italy	3	NO	

3. Data preparation in qualitative research: data processing

Example of creating a survey with Microsoft Forms

Step 8



Questionnaire Definition of profiles and Syllabus(1-11).xlsx - Excel — MARIA CONSUELO SAIZ MANZANARES

Puntos: My level of agreement with the proposal for training modules in early childhood care training is

	T	W	Z	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1	Years of experience	Country	My level of agreeme	Would you remove a	Puntos: Would you r	Comentarios: Would	Does it include any m	Puntos: Does it inclu	Comentarios: Does it	Please include any ot	Puntos: Please includ	Comentarios: Please
2	15-19 years	Croatia	4	No			No			No comments		
3	20-34 years	Italy	5	Yes. Because 10 modules are a lot to work on in depth in the planned tim			I would not include more modules. I consider that four modules would b			As possible modules of interest I point out: Module I. Introduction to the		
4	10-14 years	Spain	4	I consider the proposal very comprehensive, but at the same time, too lo			No.			No comments.		
5	5-9 years	Italy	5	No			No			I would insert at the end of each module a practical simulation for the us		
6	15-19 years	Croatia	4	No.			I would add some topics (described in the comments bellow).			I think that you should add a module, or plan to speak about it in one of t		
7	20-34 years	Italy	4	No			No			the relationships between special education operators		
8	20-34 years	Spain	5	No			No			I think the proposal is correct.		
9	20-34 years	Croatia	4	no			I propose to include one module more based on the pregnancy and it's o			no		
10	20-34 years	Spain	5	Yes. Because 10 modules are a lot to work on in depth in the planned tim			I would not include more modules. I consider that four modules would b			As possible modules of interest I point out: Module I. Introduction to the		
11	15-19 years	Italy	3	no			no			I think they are comprehensive for the chosen training area		
12	20-34 years	Italy	3	NO			NO			OK		

Bibliographical references

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Sáiz-Manzanares, M.C., & Escolar, M.C. (2019). Qualitative research. Application of mixed methods and data mining techniques. Burgos: Servicio de Publicaciones de la Universidad de Burgos.

Bibliographical references

Web resources

Google Docs	Link
Dictation	Link
Speechnotes	Link
Personal Speechlogger	Link
Camtasia	Link
Jing	Link
Adobe Captivate	Link
Camstudio	Link
Screencast-O-Matic	Link
Debut Video Capture	Link
Active Presenter	Link
Movie Maker	Link
ScreenFlow	Link
iMovie	Link
Filmora	Link
Microsoft Forms	Link
linesurvey	Link

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Observation and evaluation techniques based on the use of smart resources

Licence

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