

Casglu a Dadansoddi Data

Data Collection and Analysis

Gemma Mitchell & Dr Mirain Rhys
Prifysgol Metropolitan Caerdydd
Cardiff Metropolitan University



- Ail ymweld a pam rydym yn sut dadansoddi data
- Adlewyrchu ar brif nodweddion dadansoddi data
- Ystyried sut i ddefnyddio'r sgiliau hyn yn eich ymholiadau
- Adlewyrchu ar ddadansoddi data gan ddefnyddio enghreifftiau ysgolion
- *Revisit why we analyse data in the school context*
- *Reflect on the core principles of analysis.*
- *Consider how you might use this in your enquiry.*
- *Reflect on data analysis using school examples*

Pwrrpas y sesiwn

Aims of the session

06072019 – USW
open day

*Why and how do you
use data in school?*

Pam a sut ydych chi'n
defnyddio data yn yr
ysgol?

Go to / ewch i [menti.com](https://www.menti.com)

Enter the code / rhwch y cod i mewn: **42 36 70 5**



“Egwyddor bwysig yw bod data, yn gyffredinol, yn gofyn cwestiynau yn hytrach na’u hateb. Mae’n annhebygol y bydd un set o ddata ar ei ben ei hun yn rhoi’r ‘stori llawn’ i ysgol neu’n ei galluogi i nodi’n union pa gamau i’w cymryd. Mae’n bwysig ‘triangli’ data gyda thystiolaeth arall, fel edrych ar ddysgu a gwrando ar ddysgwyr.”



“An important principle is that, in general, data asks questions rather than answering them. It is unlikely that one set of data alone will give a school the ‘full story’ or enable it to identify precisely what actions may need to be taken. It is important to ‘triangulate’ data with other evidence, such as looking at learning and listening to learners.”

Welsh Government (2022), NEIR

Y Gweithiwr Proffesiynol – data, gwerthoedd a thueddiadau

The Professional – data, values and dispositions

- Yn ganolog i ddysgu proffesiynol 'DNA'
- Central to professional learning 'DNA'



The
teacher-
researcher
stance |
*Safbwynt
athro-
ymchwilydd*

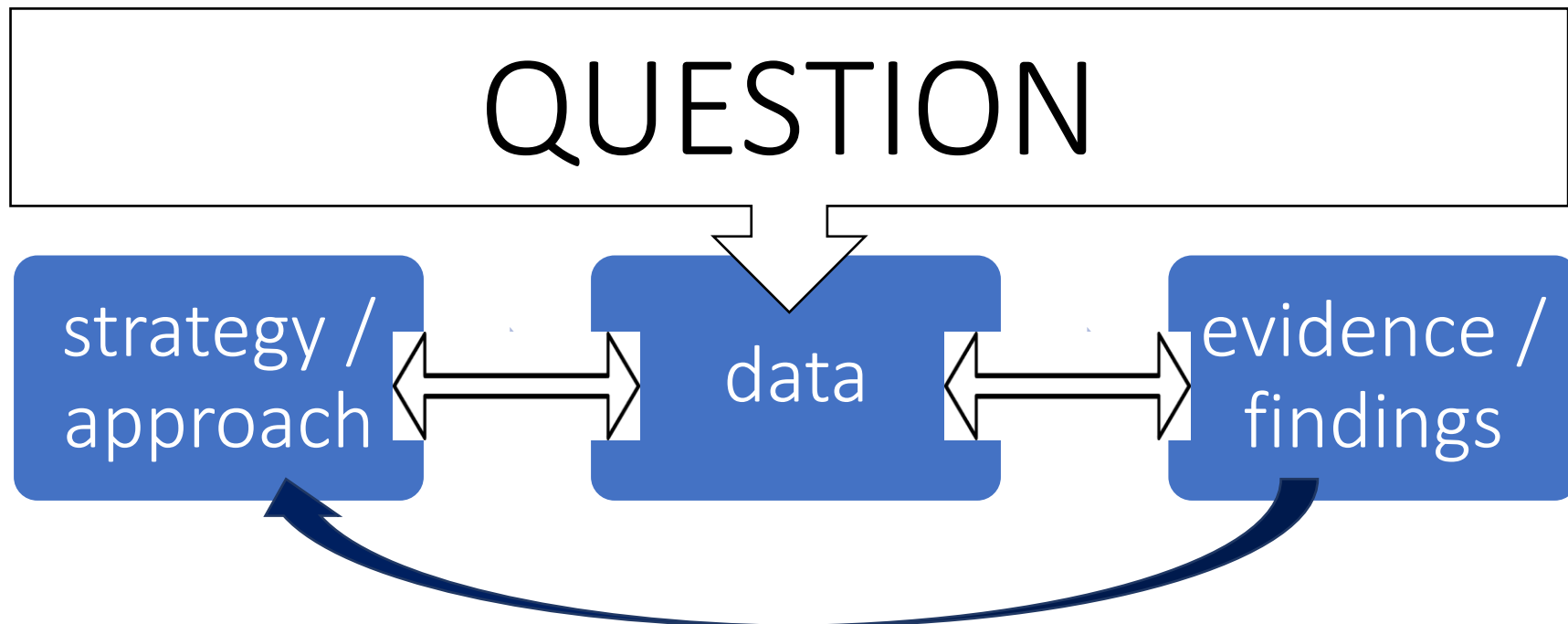
The systematic examination of one's practice as a teacher, 'founded in curiosity and a desire to understand; but it is a stable, not a fleeting curiosity, systematic in the sense of being sustained by a strategy'

(Stenhouse, 1981, p. 103, cited in McIntyre, 2005, p.368) |

(Stenhouse, 1981, t. 103, dyfynnwyd yn McIntyre, 2005, t.368)

**Mae casglu a
dadansoddi data ar gyfer
ymholi yn rhan o
repertoire athro.**

***Collecting and analysing
data for enquiry is part
of a teacher's repertoire.***

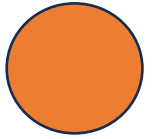


**Eich data, boed yn eiriau
neu'n ffigurau, yw eich
pwyntiau angor ar gyfer
eich ymholiad.**

***Your data, whether
words or figures, are your
anchor points for your
enquiry.***

Wrth benderfynu ar ddull ...

When determining an approach ...



1. Dylai'r dewis o ddadansoddiad alluogi'r ymholwr i ymateb i gwestiwn yr ymholiad.
2. Dylai'r dewis o ddadansoddiad fod yn gydnaws â'r dewis o fethodoleg (dull dull ansoddol, meintiol neu gymysg).
3. Dylai unrhyw ddefnydd o ddadansoddi data fod yn gywir (cychwyn yn fach, bod â ffocws, bod yn gywir) a chynnwys ymgysylltu agos â data.
4. Mae dadansoddi data yn broses gynhyrchiol. Mae angen lle i chwarae gyda data yn ystyrlon.
5. Ystyriwch sut y gallech gynrychioli'r data (diagramau, tablau, modelau).

1. *The choice of analysis should enable the enquirer to respond to the enquiry question.*
2. *The choice of analysis should align to the choice of methodology (qualitative, quantitative or mixed method approach)*
3. *Any use of data analysis should be accurate (start small, be focused, be accurate) and involves close engagement with data.*
4. *Data analysis is a generative process. Space is needed to meaningfully play with data.*
5. *Consider how you might represent the data (diagrams, tables, models).*

Cysylltu gyda'r data

Engaging with the data



- Mae'n gallu bod yn broses **gydweithredol**
- **Deolngliadol** a **iteraidd**
- Mae cynnal dadansoddiad yn arwain at **lwybrau newydd ac annisgwyl** (nid oes un ateb)
- Proses o wrando, cwestiynu a **gwerthfawrogi greddf**
- **Ymgolli** ym manylion y data
- Gall dadansoddi data fod **yn sbardun sy'n ysgogi trywydd meddwl newydd**
- *Can be a **collaborative** endeavor*
- ***Interpretive** and **iterative***
- *Undertaking analysis leads to **novel and unexpected paths** (there is no one answer)*
- *Process of listening, questioning **and valuing intuition***
- ***Becoming immersed** in the detail of the data*
- *Data analysis can act as a spark that instigates **a new trajectory of thought***

Dull Cyfranogol

Participatory Approach



- Dadansoddiad ar y cyd
- **Grwpio** canfyddiadau tebyg gyda'i gilydd
- Cytuno ar y **themâu** sy'n ymddangos fel pe baent yn dod i'r amlwg
- **Trafodwch** y stori sy'n ymddangos fel pe bai'n dod i'r amlwg o'r data
- **Cytuno** ar y cam nesaf, naill ai gweithredu neu ddadansoddiad pellach o ymchwil pellach



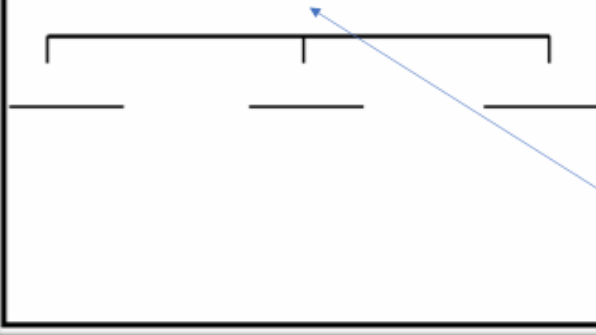
- *Collective analysis*
- **Group** similar findings together
- Agree the **themes** that appear to be emerging
- **Discuss** the story that appears to be emerging from the data
- **Agree** the next stage, either action or further analysis of further research



Visuals examples

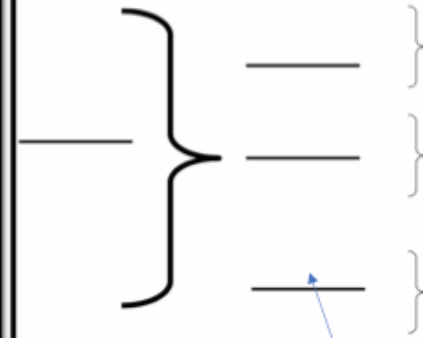
TREE MAP

Thinking Skill: Classify/Categorise



BRACE MAP

Thinking Skill: Whole to Part Reasoning



Generating themes and sub- themes / coding



Egwyddor Allweddol

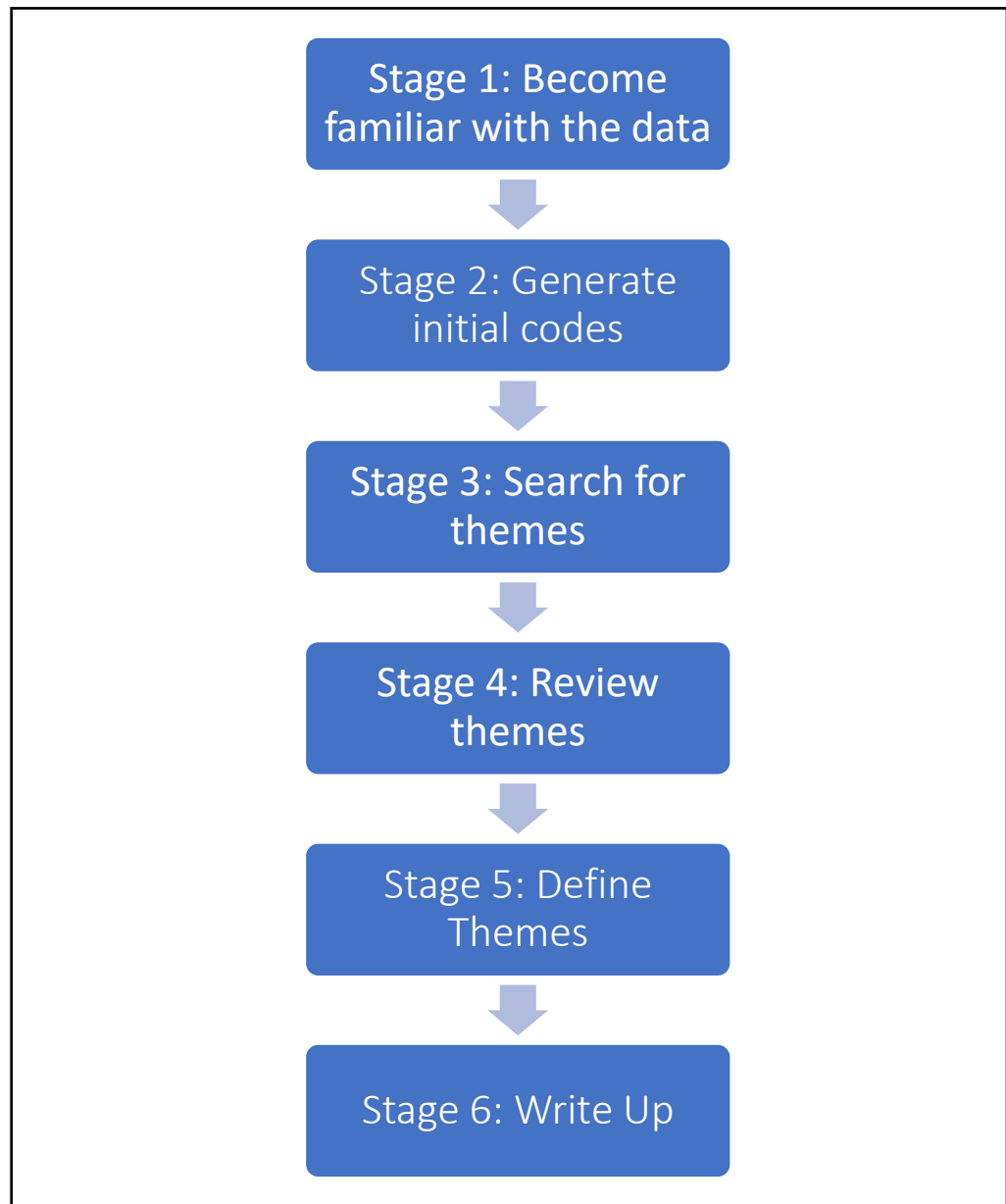
Key Principle

Mae'n bwysig deall nad yw **themâu yn ymddangos nac yn dod i'r amlwg yn hudol**; maent **yn greadigaethau o'r ymchwilydd a'u dehongliadau o'r data sydd ar gael**. Yn wir, mae'n bosibl iawn y bydd dau ymchwilydd gwahanol sy'n darllen yr un set ddata yn cynhyrchu themâu gwahanol, neu o leiaf labeli gwahanol ar gyfer y themâu hynny [Hastie a Glotova, 2012, t.313].

*It is important to understand that **themes do not magically appear or emerge**; they are **creations of the researcher and their interpretations of the available data**. Indeed, two different researchers reading the same data set may well generate different themes, or at least different labels for those themes [Hastie and Glotova, 2012, p.313].*

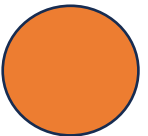
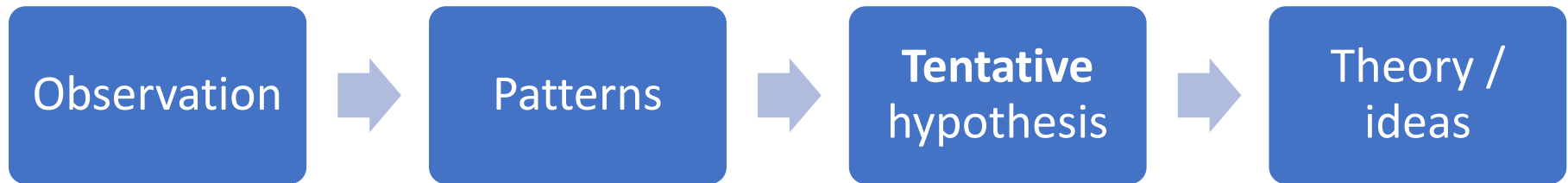
*Spending time
with the data*

Gwario amser
gyda'r data



Dull Anwythol

Inductive Approach



Data Collection

Data Analysis

Data Preparation

Identifying Units of Data

Organising Data

Data Interpretation

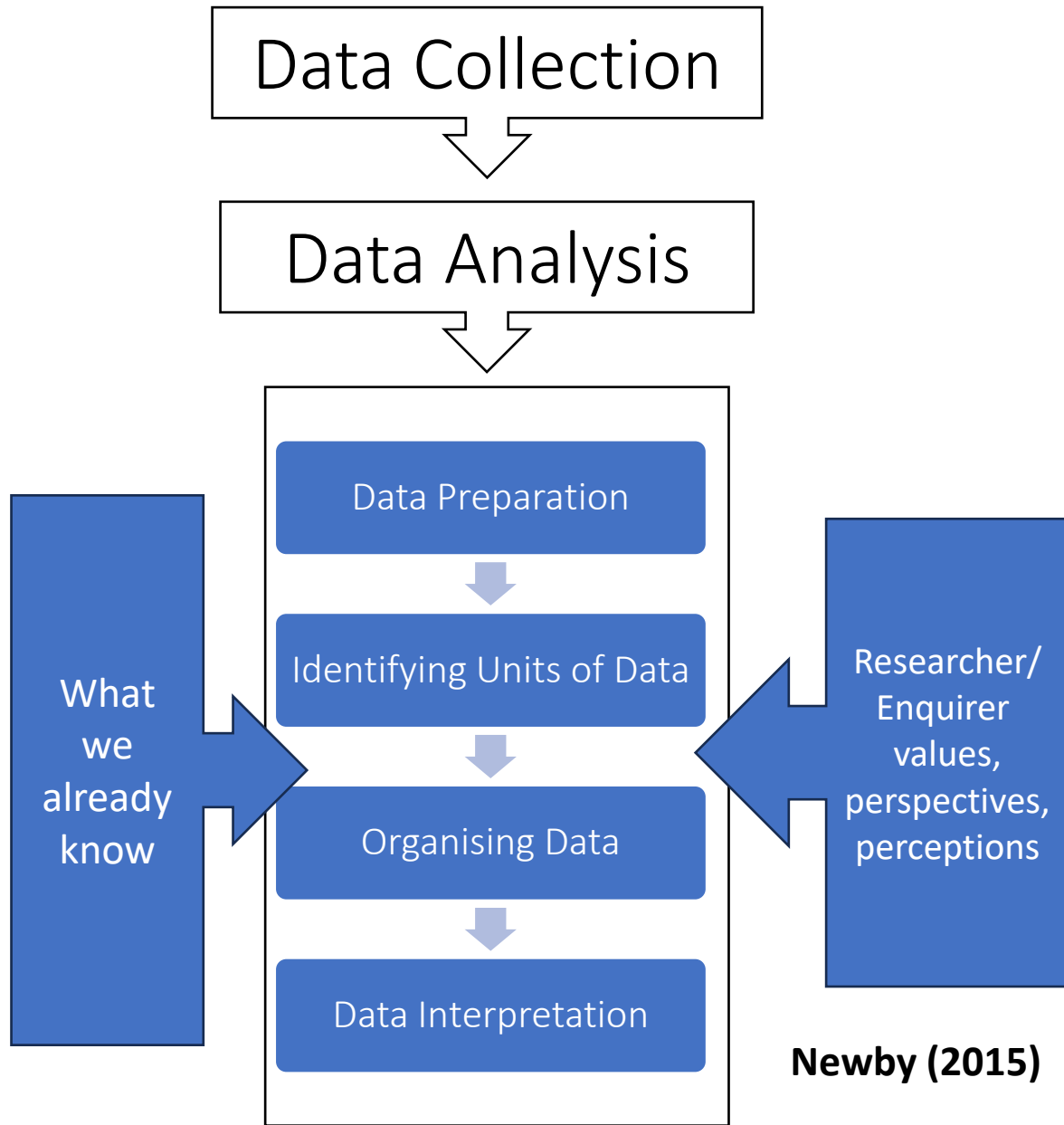
What
we
already
know

Researcher/
Enquirer
values,
perspectives,
perceptions

Newby (2015)

*Influence of
Researcher /
Enquirer*

Dylanwad yr
ymchwilydd /
ymholydd



Adlewyrchiadau...

Reflexivity...

- Mae adlewyrchiadau ymchwilydd yn hanfodol i'r broses...felly mae hi'n hanfodol i fod yn eglur yn y broses fod defnyddio a'r penderfyniadau a wnaed...
- *Researchers' reflexivity is crucial to the process...therefore it is essential to be explicit in the process being used and the decisions made...*
- Mewn gwirionedd, mae'r broses o ddadansoddi yn barhaus — y ymchwilydd yn meddwl gyda y data = dod i'r amlwg, proses anwythol
- *In reality, the process of analysis is ongoing – the researcher thinks with the data = emergent, inductive process*

Crynodeb o egwyddorion dadansoddi data

Summary of the Principles of Data Analysis

- Ennill mewnwelediadau
 - Themâu
 - Materion
 - Beth sydd wedi gweithio'n dda
 - Herio rhagdybiaethau
 - Helpu i ddatblygu cwestiynau newydd
 - Hysbysu cynlluniau / camau gweithredu newydd
 - Yn iteraidd / ymatebol
 - Agwedd gadarn a thrylwyr
 - Yn seiliedig ar dystiolaeth
- *Gain insights*
 - *Themes*
 - *Issues*
 - *What has worked well*
 - *Challenge assumptions*
 - *Help develop new questions*
 - *Inform new plans / actions*
 - *Iterative / responsive*
 - *Robust and rigorous approach*
 - *Evidence-based*

Esiamplau byw

Live Examples

Defnydd effeithiol o ddata

Effective Use of Data

- Eich data, boed yn eiriau neu'n ffigurau, yw eich pwyntiau angor ar gyfer eich ymholiad
- Trwy ddadansoddi'r data, rydych chi'n craffu ar y pwyntiau angori hyn ac yn eu harchwilio mewn ffordd strwythuredig a systematig.
- Bydd eich defnydd o ddull systematig o ddadansoddi yn ychwanegu manylion a dyfnder at eich canfyddiadau
- Bydd eglurder y system/strwythur hwn yn rhoi sicrwydd i'r byd ehangach bod eich ymchwiliad wedi'i angori'n gadarn mewn tystiolaeth, a bod eich canfyddiadau'n fwy na chasgliad o ragdybiaethau neu honiadau am y byd o'n cwmpas.
- *Your data, whether words or figures, are your anchor points for your enquiry*
- *By analysing the data, you are scrutinising and examining these anchor points in a structured and systematic way*
- *Your use of a systematic approach to analysis will add detail and depth to your findings*
- *The clarity of this system/structure will reassure the wider world that your enquiry is firmly anchored in evidence, and that your findings are more than a set of assumptions or assertions about the world around us*

I gloi ...

To conclude ...

- Symud oddi wrth ddata unigol a **chanolbwyntio ar y broses** o sut mae data'n cael ei gynhyrchu
 - Proses o **anheddu atblygol** a mireinio parhaus
 - **Gwneud synnwyr o ddata** i fynd i'r afael â thema ymchwil
 - **Cynhyrchu** gwybodaeth a **chwestiynau** newydd
 - Datblygu '**agwedd ddadansoddol**' (ansoddol a meintiol)
 - Proses archwilio anwythol/dwythol
- *Moving away from individual data and **focusing on the process** of how data is generated*
 - *A process of **reflexive indwelling** & continual refinement*
 - ***Making sense of data** to address research theme*
 - *To **generate** new knowledge and **questions***
 - *Developing a (qualitative & quantitative) '**analytic attitude**'*
 - *Inductive/deductive exploratory process*

Inductive Reasoning

Inductive reasoning is the act of making generalized conclusions based off of specific scenarios.

Examples:

- Determining when you should leave for work based on traffic patterns
- Rolling out a new accounting process based on the way users interact with the software
- Deciding on incentive plans based on an employee survey
- Changing a meeting time or format based on participant energy levels

VS

Deductive Reasoning

Deductive reasoning is the act of backing up a generalized statement with specific scenarios.

Examples:

- Developing a marketing plan that will be effective for a specific audience
- Designing the floor plan and layout of a shop to maximize sales
- Determining the most efficient ways to communicate with clients
- Planning out a budget to get the highest output from your investments



DEDUCTIVE REASONING

VERSUS

INDUCTIVE REASONING

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DEDUCTIVE REASONING

Deductive reasoning is the process of reasoning that starts from general statements to reach a logical conclusion

Involves moving from general to specific

A top down approach

The conclusion has to be true if the premises are true

 Comparatively more difficult to use as we need facts that are definitely true

INDUCTIVE REASONING

Inductive reasoning is the process of reasoning that moves from specific observations to broader generalizations

Involves moving from specific to general

A bottom up approach

The truth of premises does not necessarily guarantee the truth of conclusions

We typically use inductive reasoning in our daily lives since it's fast and easy to use

Unrhyw gwesitynau?
Any questions?

