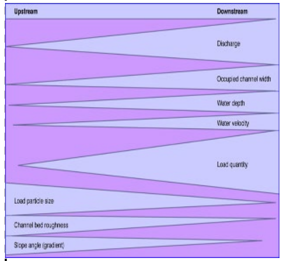
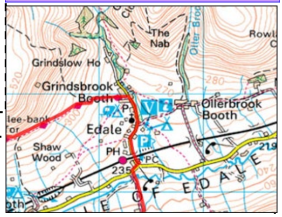
Summary of Physical Fieldwork Methodological Enquiry: River Noe Edale

Planning Stage › Data Collection › Data Processing / Presentation › Data Analysis › Conclusions › Evaluation

Geographical Enquiry Focus
Enquiry Question:
HOW DOES THE RIVER CHANGE ALONG IT'S LONG PROFILE?
Hypotheses: We will identify the relationship between the stage on a long profile and the velocity, river cross profile and bedload of the stream at that point.
We aim to test if the Bradshaw model of downstream change is true in River Noe in the Peak District National Park.





Fieldwork Location

Study Site: River Noe – Edale – Peak District National Park
Study Site Key Facts: England's first National Park, most visited National Park, River Noe is tributary of River Derwent.

Specific Sites: stream order 1Golden Clough, stream order 2 Grindsbrook, stream order 3 River Noe.

Justify why these specific data collection sites were chosen:
Accessible – there was a car park in the village, the National Park Visitor Centre is a short walk away as were the three survey points.
Safe – access to all three sites was mainly on public footpaths, across farmland, which avoided traffic. The river was easy to access safely at all three sites with low stable banks and low water levels.
Appropriate data – Able to access the River Noe drainage system at three different points – this allowed comparison of river characteristics such as velocity, channel width and bedload along the long profile.

Risk Assessment

Hazard	Risk	Strategies to Minimise Risk
	Slipping and falling in	Stay away from river bank
	Getting lost	Use map and follow instructions
	Getting wet if it rains	Wear waterproof clothing

Explain why it is important to carry out a risk assessment:
It is important to carry out a risk assessment in order to ensure that I stay safe. By identifying a risk in advance, I can put in measures to reduce the risk. For example, by wearing waterproof clothing I can avoid getting wet if it rains!

Sampling Strategies

Strategy	Data Sampled	Explanation
Spatial	All 3 surveys	To compare data in different locations in Edale.
Systematic	Bedload size/shape	Chosen random data at set intervals
Random	Surface velocity	All options are possible in terms of outcomes.
Opportunistic	River cross profile	Deliberately choose certain groups to survey e.g. types of vehicles.

Data Collection Methods

	Primary
Qualitative	N/A
Quantitative	Surface Velocity (Speed) River cross profile (channel depth only) Bedload dimensions & shape

Why did we use only primary data?
Only used primary data because I wanted to analyse the changes in the river profile on that day. I wanted reliable and accurate data.

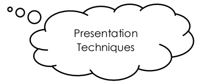
Justify why you used one of your primary data collection techniques.
Sediment size:
Quantitative data
Identify patterns of large and small sediment pieces
Relate to location along river profile
Evaluate impact of urban regeneration

Data Processing

Was data collated for the whole class to create a larger sample?
Bedload size – mean average dimensions of samples was calculated to identify patterns.
River cross profile measurements were transferred to a labelled cross section.

Data Presentation

Labelled cross sections – river cross profile
Scattergraph – bedload size
Line graph – river velocity
Pie chart – bedload shape



Labelled cross sections:
This is effectively a line graph.
Plotted the distance across (x axis) and the depth of the water (y axis).
Joined the points with a line – this showed the shape of the river channel – the cross profile.

Data Analysis

Describe the overall results found in your enquiry:
Overall river velocity increased along the long profile.
Bedload became more rounded and smaller in size along the long profile.
The river cross profile become wider and deeper along the long profile.
Make links between at least 2 different data sets:
As river velocity increased, more erosion would take place, in particular attrition where pieces of sediment knock against each other and break parts off, resulting in a more rounded shape.
Use chains of reasoning (this means that…) to explain the results found.
This means that increased velocity leads to more rounded and smaller pieces of sediment.

Evaluation

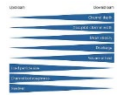
Results might be inaccurate due to human error in measuring sediment or channel characteristics.
There is not likely to be any bias in the results.

	Strengths	Limitations	Improvements
Methods	Simple equipment and easy to use	Biscuits got stuck, Rocks in water blocked water and reduced velocity.	Use middle of river for velocity measurements to avoid blockages, check underwater.
Results	Primary data and consistent	Human error in methods means they may be inaccurate.	Quality control on methods – check each other, repeat measurements.
Conclusions	Reflect expectations from Bradshaw Model.	Small range of data collected on one day.	Repeat surveys over period of weeks/months/years to gain clearer picture.

Conclusions

What conclusions can you draw from your results? (How does it help in your enquiry? Why did you collect the data in the way that you did?)
Our data supports the theory of the Bradshaw model. As we progress along the river long profile, more erosion takes place (due to more water flowing at a greater velocity). In particular, there will be more abrasion and hydraulic action. This makes the river channel wider and deeper, as seen on our river cross sections. The sediment in the river will become more rounded and smaller due to attrition.

Links to Geographical Theory



When comparing your analysis to the Bradshaw Model, what can you say?
Surface velocity is consistent with BM as the volume of water increases in the river.
Bedload also decreases in size and becomes more rounded along the long profile.
The river cross profile becomes wider and deeper along the long profile. All our results support the Bradshaw model.