

# Write on the Edge: Using DDL to support students writing in unfamiliar genres

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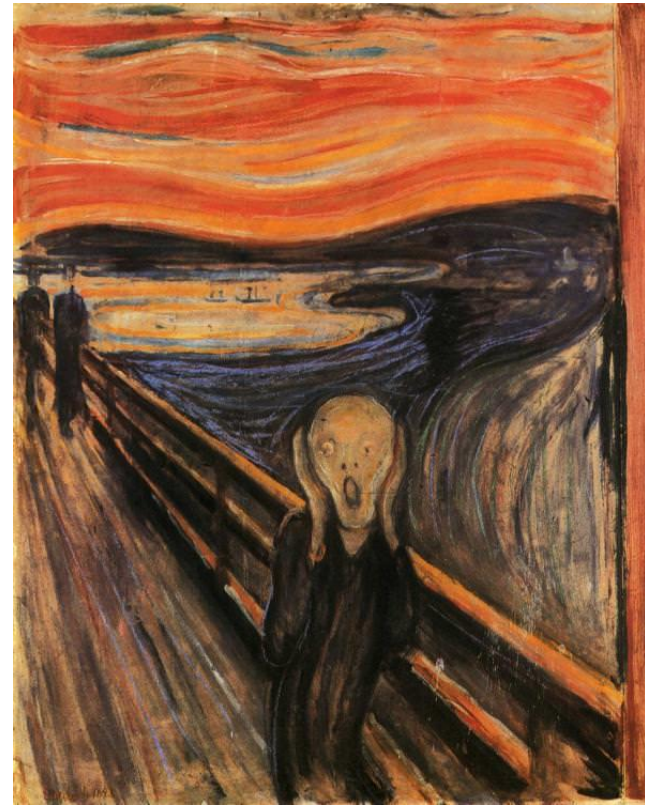
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# Outline

- Project background
  - Why DDL?
- FOCUS corpus
- Write on the Edge
  - Chemistry
  - Sport
  - PGCE
- Next steps

# Project background

- Introduction of EAP modules in Foundation Centre curriculum to support non-traditional learners (mature, WP) to prepare for degree level study.
- Quickly discovered that Foundation students didn't respond well to EAP methods which had been successful with NNS.
- DDL was a better fit.



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- The FOCUS (Foundation Corpus) project began in 2012;
  - Grew from a need to support Foundation students' academic language development;
  - Now being used not only in the Foundation Centre but in other Durham departments and elsewhere.

# FOCUS rationale: why did we build a corpus?

- Students lack awareness of how best to learn new subject-specific vocabulary;
- Students have confidence issues related to overt teaching of grammar;
- Students needed to develop good self-study skills;
- Students wanted self-access materials to use for revision.
- **These issues are also transferable to other contexts: hence rollout to other departments.**

# The FOCUS project

- A corpus of “good” (2:1 or above) Durham student writings produced by UG/PG students across an increasingly broad range of disciplines e.g. Chemistry, Earth Sciences, Sociology, History, Sport, Education, Criminology, Physics, Business, Theology.
- Bespoke concordancer with deliberately simple interface.
- It now contains well over 1 million words and figures.
- Developing concordancing activities based on these corpora to allow students to discover more about target vocabulary/structures in context.
- Supported by HEA, RSC and Durham University funding.

# FOCUS screen shot 1

Before ⇅	⇅	After	Level ⇅	Type ⇅	Subject
would give strong binding ability for a drug	molecule.	1 This model of gp41 in different conformati	M	Diss	CHEM
absorption cross-section of the molecule (m2	molecule-	1), . is the particle density (molecule m-3)	PhD	Diss	CHEM
ortional to the surface area of the dissolved	molecule.	11 The energetic contribution to dissolving	PhD	Diss	CHEM
understanding of the torsional motions of the	molecule.	41 The UV absorption spectrum of BPEB at room	PhD	Diss	CHEM
12). This eliminates the rest of the Et3SiOTf	molecule	(48). The newly formed, charged, NIS deriva	3	Diss	CHEM
3 (a) Diagram to show structure of a sucrose	molecule	(Chemistry Daily 2005) Iodine dissolved onl	0	Lab rep	CHEM
g the bond angle and bond length of a water	molecule	(left) and a dot and cross diagram illustrati	1	Essay	CHEM

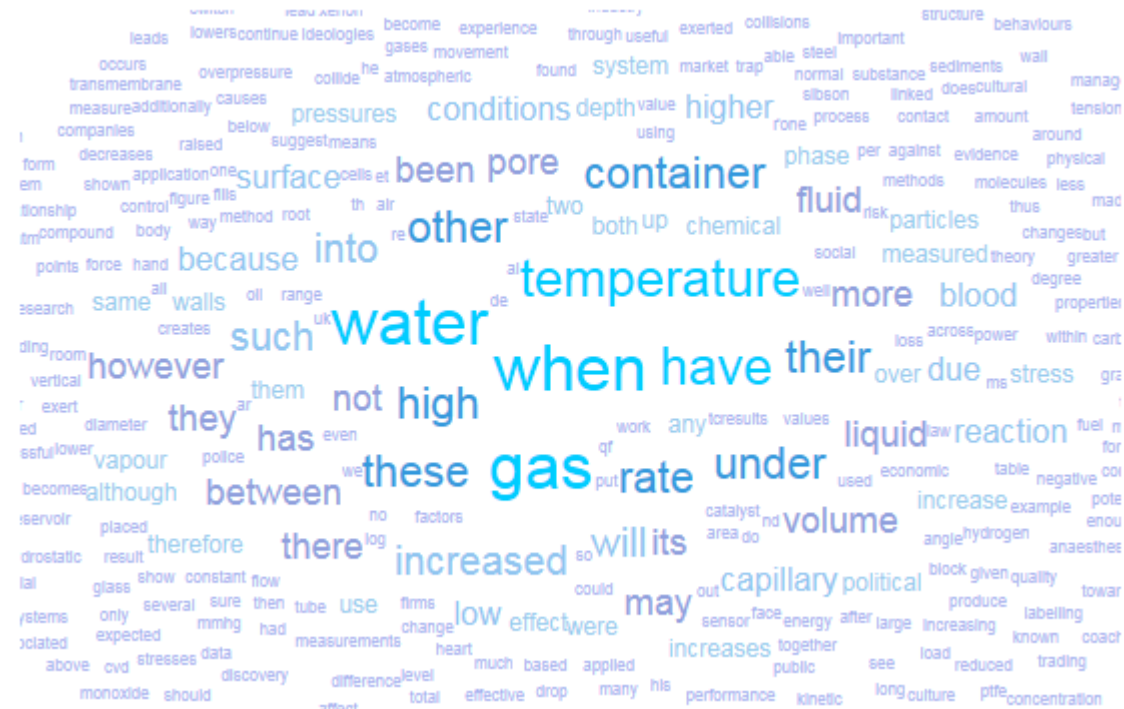


# FOCUS screen shot 2: collocation

electron flow. This electron comes from a water	molecule,	resulting in the photolysis of water into hy	1	Essay	CHEM
electron flow. This electron comes from a water	molecule,	resulting in the photolysis of water into hy	1	Essay	CHEM
ared and this is called non-polar. In a water	molecule	where the pull of the oxygen is stronger the	0	Lab rep	CHEM
e when heavy water was used that is a water	molecule	containing an atom of $^{18}\text{O}$ the oxygen produc	1	Essay	CHEM
e H-O-H bond angle and bond length of a water	molecule	are 104.474 and 0.95718 S3 respectively. The	1	Essay	CHEM
g the bond angle and bond length of a water	molecule	(left) and a dot and cross diagram illustrati	1	Essay	CHEM
cancy has enough energy to break up a water	molecule	so the hole can be filled by other electrons.	1	Essay	CHEM
f water nucleophilic attack, in which a water	molecule	from the solvent attacks an electrophilic oxo	3	Diss	CHEM
triglycerol 9 by the removal of another water	molecule,	and so on until the desired level of polymer	3	Diss	CHEM
nsistent with displacement of one bound water	molecule.	Bicarbonate binding to a europium complex	PhD	Diss	CHEM
illy, 1990) Equation 3: Reformation of water	molecule	The nitrous gas can escape, and the water	1	Essay	CHEM
I that approaches the representation of water	molecule	interactions differently. In this model each	1	Essay	CHEM
he average number of hydrogen bonds per water	molecule	will be a good quantitative measure of struct	3	Diss	CHEM
-ions are then $\text{H}^+$ Hydrogen ion from the water	molecule.	Equation to show Sodium Chloride reaction	0	Essay	CHEM
depicts the offset position of the water	molecule	compared to the hydroxyl and amine functions	3	Diss	CHEM
ar portion so the overall effect on the whole	molecule	of the polar portion is negligible and the mo	0	Lab rep	CHEM



# FOCUS screen shot 3: word cloud



# FOCUS screen shot 4: wildcard %

ion is now used to power 17.1% of the worlds	<b>electricity,</b>	[2] but few power stations have been built si	1	Essay	CHEM
hniques [13], which possess added interfacial	<b>specificity</b>	[14,15], have emerged at the forefront of mod	PhD	Diss	CHEM
mechanical properties, cost, availability and	<b>toxicity.</b>	A range of materials have found applicati	PhD	Diss	CHEM
ations, with benefits also for solubility and	<b>toxicity.</b>	Additionally, the increased chemical shift n	PhD	Diss	CHEM
t had a low melting point and did not conduct	<b>electricity</b>	after being mixed with water. Theses properti	0	Lab rep	CHEM
secondary amine functional group enhances the	<b>nucleophilicity</b>	allowing it to react more easily with carbony	PhD	Diss	CHEM
ecific parts of molecules or structures. This	<b>specificity</b>	also allows complicated correlation experime	M	Diss	CHEM
for many systems involving biocompatibility,	<b>lubricity</b>	and adhesion, and is often invisible to more	PhD	Diss	CHEM
es have been replaced to alter the structure,	<b>hydrophobicity</b>	and amphipathicity has given an insight into	PhD	Diss	CHEM
nded together covalently. They do not conduct	<b>electricity</b>	and are insoluble in water. Key examples of g	0	Lab rep	CHEM

# Data Driven Learning

A learning situation where “*the language learner is also, essentially, a research worker whose learning needs to be driven by access to linguistic data – hence the term data-driven learning (DDL)*”. (Johns 1991:2)

The learner uses data to uncover the rules behind the language while the teacher “*provides a context in which the learner can develop strategies for discovery*” (ibid).

Helps to develop criticality which is a crucial element of learning skills.  
Moves away from “single correct answer” towards understanding importance of patterns, alternatives and context. (Gabrielatos 2005)

# Write on the Edge project

- Supporting students writing in unfamiliar genres:
  - Chemistry finalists writing dissertations (extended text)
    - Online prelab
    - Live workshop developed by FOCUS team but delivered by Chemistry team
  - Sports students writing lab reports (often without science A Levels)
    - Live workshop in pilot year
    - Online activities will be accessible next year
  - Education (PGCE) students writing reflections
    - Live workshops
    - Online activities

# Chemistry activities

Online  
prelab  
diagnostic  
quiz and  
academic  
voice

## 1. 1. Introduction

You can see lots of colours in the objects that surround you every day. These colours are in things like a bit of a new building, a very old work of art or really REALLY old Egyptian funerary wall paintings. Loads of this colour around us is a consequence of the pigments used to make things which have been found to originate as far back as prehistoric ages prettier. For you to figure out how old these objects are, you have to use analytical methods that can show you what pigments are present.

really amazing

## 1.2. Definitions

You can characterise pigments as either organic or inorganic, depending on the elements they contain. Organic pigments are kind of mostly carbon containing compounds, typically with a delocalised system of electrons being responsible for their colour. The part of the compound responsible for colour is known as the chromophore. On the other hand, inorganic pigments are non-carbon based and often contain transition metals or other metals.

You can create admixtures of pigments where the hue of a primary pigment is changed by mixture with other minerals. This can be detected in the spectrum produced by an analytical method. When you look at really old things like paintings, you have to be really careful not to damage them, so you can't touch them or anything. Don't examine them in day light – you must be in a really dark room. Otherwise, do you know what will happen?

Proving that an artwork is a knock off using pigmentation is also a really amazing thing to do. After all, you don't want to pay loads of money for a fake, do you?

2nd person usage

Informal language

Subjective and Emotive  
Language

Contractions

Live workshop focusing on:

- Reporting verbs
- Nominalisation
- Connectives
- Punctuation

# Feedback - Chemistry

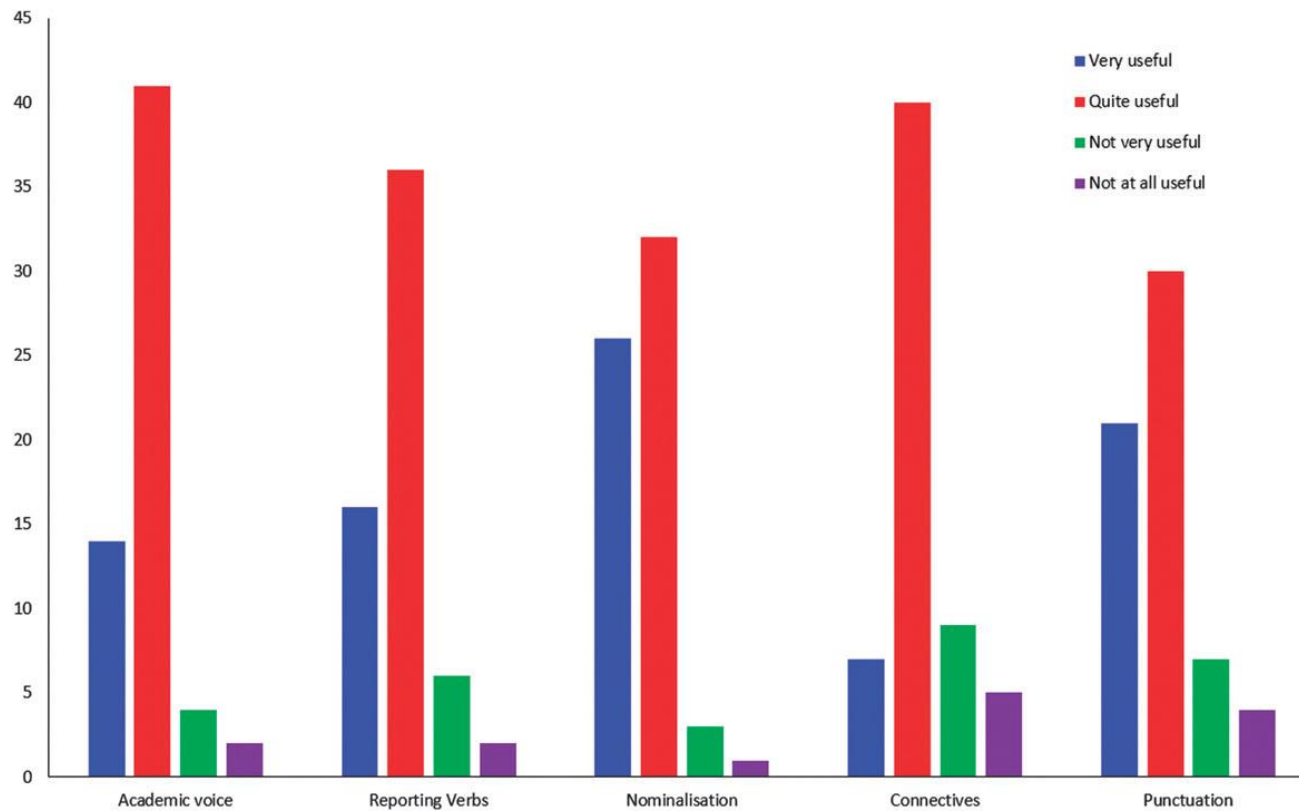
*“Nominalisation was new to me and a skill/tool I would like to develop to give me the right tone.”*

*“[I would use it] to see if certain words I write are academically acceptable.”*

*“It allows me to compare the language I am using to previous work that has received a good mark. This is useful.”*

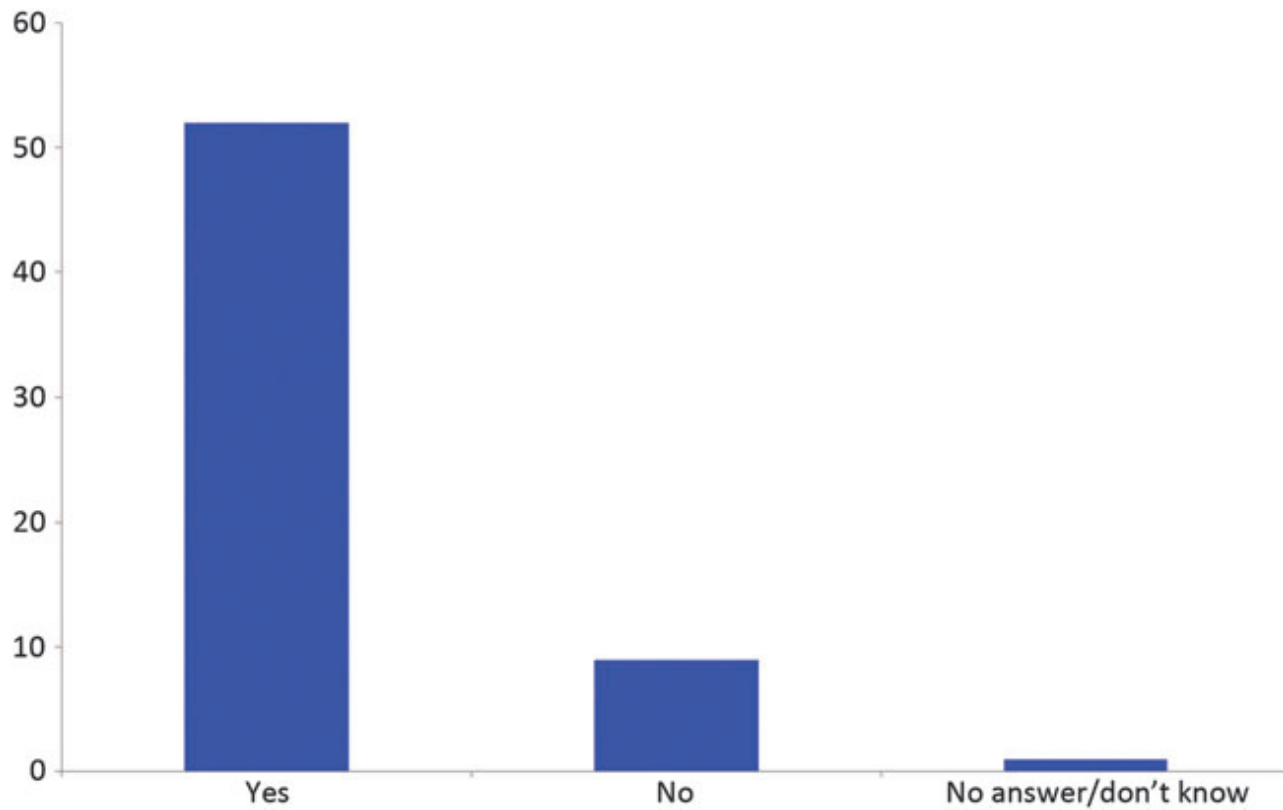
*“Useful to check whether [a] chosen word is common in dissertation[s].”*

Chart showing student responses to the question “How useful did you find the activities?”





Would you be likely to access the corpus yourself outside the classroom?



## PAPER

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## Write on the edge: using a chemistry corpus to develop academic writing skills resources for undergraduate chemists

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# Sport: Physiology lab reports

- Sport students needed help to produce a lab report as they don't usually have science A Levels and so no experience of this genre
- Based on issues we identified in the formative lab reports, the workshop that we ran to help students prepare for their summatives focused on the following areas:
  - Formality
  - Use of literature
  - Nominalisation
  - Scientific terminology

# Terminology

Corpus used to improve understanding of key subject specific terminology.

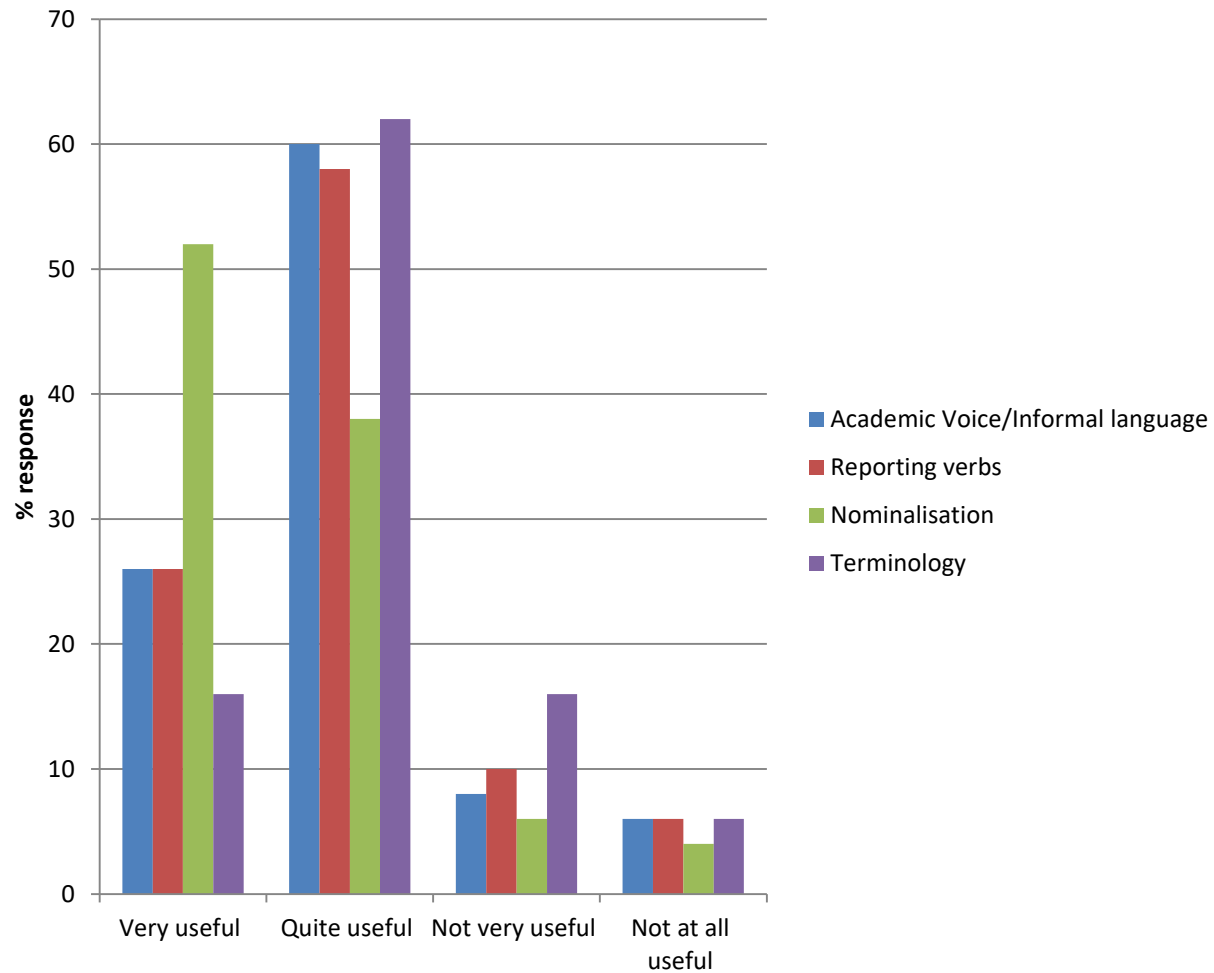
Use and meanings of words explored in context e.g. *saturated*, *contractility*.

Common roots of words explored e.g. lactate, lactic acid, alactate

imited (152). 2.5 PREVENTION OF UTI 2.5.1.1	<b>Prophylactic</b>	antibiotics Opinions differ on when to start
systems dominant in rugby as 60% aerobic, 30%	<b>lactic</b>	acid and 10% alactic energy systems (Bompa an
rugby ergogenesis as using; 10% Alactic, 30%	<b>Lactic</b>	acid and 60% Aerobic energy systems. Maximal
are often characterized by 20-to 40-membered	<b>lactone</b>	rings, contain six conjugated carbon-carbon d
d exertion using the Borg scale (Borg, 1982),	<b>lactate</b>	accumulation (until is 4mmol surpassed) and e
ring the nursing period (Haller et al. 1996).	<b>Lactation</b>	is a little more intense] for these pups, b
uch as lactic acid (McArdle et al, 2001).	<b>Lactic</b>	acid inhibits muscular performance as the blo
er aerobic conditions (McArdle et al., 2001).	<b>Lactate</b>	that is produced in fast-twitch muscle fibres
th men and women (Reichman, et al., 2002).	<b>Lactate</b>	threshold is the work load at which blood la
s join with pyruvate (McArdle et al., 2010).	<b>Lactate</b>	threshold represents the maximum oxygen uptak
and behave consistently so over time (across	<b>lactation)</b>	. Bell et al. (2009) conducted a meta-analysi
ding season, to sustain activities (primarily	<b>lactation)</b>	undertaken during the breeding period (Twiss
in Cell wall biosynthesis (transpeptidase)	<b>-lactamase</b>	Mutations in PBP.s Active efflux Staphylococ
. Lactones/Lactides . Carbonates .	<b>Lactams</b>	. Siloxanes
chemical shift imaging (CSI) studies of the .	<b>-galactosidase-</b>	catalysed reaction in transfected cancer cell
catalysing the reaction of pyrrolidine with .	<b>-crotonolactone</b>	5 and 6 offered a relative rate increase of



# Feedback - Sport



# Feedback - Sport

*“We have noted a distinct improvement in the quality of students’ use of language within level one assessment, and plan to extend the corpus to support additional disciplines within our undergraduate programme. We are delighted with the learning outcomes of the FOCUS project which is a key element of our student support for HE transitioning!”*

(Dr Sue Bock, Director of Education, Department of Sport, Durham University)

# PGCE - Reflection

- Self-directed study assignment: lit review plus reflection
- Many PGCE students lacked a traditional academic background: questionnaire data showed that they lacked confidence in PG level writing.
- We designed three online activities based on analysis of the assignments and feedback from markers. 100% of the students evaluated the activities as “very useful” or “quite useful”:

Activity	Very Useful (%)	Quite Useful (%)
Structure/Referencing	78.57	21.43
Criticality	50	50
Reflective Practice	53.85	46.15



# Feedback - PGCE

Students commented that:

*“This is a great resource and very helpful for someone like me that is returning to Education after a long break (and a lot of technological advances).”*

*“Really useful. I hope it stays open throughout the year so I can refer back to it for all assignments.”*

We are holding focus groups to evaluate activities further now that the academic year is complete.

# Next steps

- Evaluate student and lecturer feedback of the SDS assignment to inform future changes
- Integrate FOCUS into new Critical Scholarship in Social Sciences module to support CH students in understanding disciplinary differences.

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