Tutor perspectives on the use of visuals in undergraduate assignments

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Tutor perspectives on the use of visuals in undergraduate assignments

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Aim

• Investigate the writing of L1 Chinese and L1 English students in three disciplines (Biological Sciences, Economics and Engineering).

Outline

1. Establish that there are differences in use of visuals
2. Investigate tutors’ views on this
3. Explore EAP tutors’ views
Background: Framing in academic literacies

Deficit approach
- student writing is ‘remedial’, ‘immature’ and contains ‘problems’ or ‘errors’ - especially L2 English student writing (Chen and Baker, 2010; Paquot, 2010)

Vs.

Academic literacies approach
- writing within the academy is a set of social practices in which genre, context and culture are highly significant
- highlights ‘the variety and specificity of institutional practices, and students’ struggles to make sense of these’ (Lea and Street, 2006: 376).
- *All* student writers are in a constant struggle to establish the preferred ways of making meaning within their particular context (e.g. Lillis, 2006).
The data

The corpora

- British Academic Written English (BAWE) & beyond
- All proficient writing
- 58 texts from L1 Chinese students (107,000 words)
- 202 texts from L1 English students (429,000 words)

Interviews & questionnaires

- Interviews with 18 lecturers in Biological Sciences, Economics and Engineering in 6 UK universities
- Questionnaire responses from 200+ teachers of EAP (English for Academic Purposes)
- Interviews with students - ongoing

ESRC project number
RES-000-23-0800
A year 3 Engineering assignment
INTRODUCTION

The C. elegans nematode is a small, transparent, free-living soil nematode. Its development is well understood at the cellular level, making it an ideal model organism for studying developmental biology. The nematode has a fixed number of cells, which are lineage-traced throughout development, allowing for detailed analysis of cell fate and differentiation.

The life cycle of C. elegans includes four larval stages (L1-L4) and an adult stage. During the larval stages, most somatic cell lineages are established. The adult stage is characterized by the completion of cephalization and the formation of the reproductive system.

Visuals and extended captions in Biology

L1 Chinese writer

L1 English writer

The role of maternal effect genes in the development of the nematode Caenorhabditis elegans

ABSTRACT

Maternally expressed genes are essential for the correct patterning and cellular determination in the nematode C. elegans. The PGR protein is responsible for initial embryonic cell lineage specification. The PGR protein is required to specify the trunk and dorsal identity of the A8 lineage, which is essential for maintaining the identity of the germ cell lineages and for proper embryonic cell determination.

The information presented in the abstract is based on a comprehensive analysis of the role of maternal genes in C. elegans embryonic development.
EC 226 ECONOMETRICS I Assignment 1


These qualitative variables would have some impacts on the QTMARK, but whether they are statistically significant will be investigated later.

**Correlation matrices**

- **5.6.** Examined that QTMARK has strong positive relationships with variables ABILITY, ALEVELSA, ATTC, ATTL and strong negative relationships with variables EXPLAC and TOPB. Correlation between BTTC, ATTL and BTTA are very high. Therefore, multicollinearity is an issue to think about later on.
- **5.7.** Examined that QTMARK has strong negative relationships with ATTC, ATTL, BTTA and strong positive relationships with TOPB. This could be explained that if students who get drunk cannot get up early to attend lectures and classes. The more TOPB they attended, the more money they spent on alcohol.
- **5.8.** Examined that QTMARK has strong positive relationships with ALEVELS and ALEVELSA, which present negative relationships between ABILITY and TOPB. This could be explained that some students who pay for their education spent more time studying, and the higher ability a student has, the less time of study is required for him/her. On the other hand, students having a good A-level record maintain their hard working attitude.

### 2. Bivariate Regression and Multivariate Regression

#### a. Bivariate Regression

**QTMARK** = β0 + βATTR + ε

The following results are obtained after running the bivariate regressions in EViews:

QTMARK = 46.9702 + 0.00217 ATTR

**Interpretation for the regression results**

- The intercept of 46.97 means that even students did not attend any revision lecture, they could get 64.97 in the exam, which may not make much economic sense as revision lectures are designed to boost a student’s exam marks.
- The coefficient of 0.0022 shows an inverse relationship between the attendance of revision lectures and exam performance. It means that 1% increase in the proportion of revision lecture attendance would decrease students’ mark by 0.0022 in the exam. This shows that going to revision classes can help students make more effective use of their time than the lecture. However, the coefficient of 0.0022 is so small that it could easily be omitted.
- The p-value of about 0.000047 means that only 0.0047% of the variation in QTMARK is explained by ATTR. Therefore, it could be concluded that ATTR has such a small effect on exam performance that it could even be omitted.

**Two-tailed t-test for the significance of the slope**

H0: β ≠ 0 (Proportion of revision lecture attended does not affect exam performance)

H1: β = 0 (Proportion of revision lecture attended does affect exam performance)

Since calculated t-value -0.13 is lower than the critical value of -1.96 at 5% significance level with 370 df, we fail to reject H0. In this case the conclusion is that revision lecture attendance does not affect exam performance.

#### b. Multivariate Regression

**QTMARK** = β0 + β1 ATTR + β2 ABILITY + β3 HRSQUT + u

Modelled by 0.551,

QTMARK = 56.9257 + 0.160594 ATTR + 0.049506 ABILITY + 0.141755 HRSQUT

**Interpretation of the regression results**

1. Refer to “Correlation matrix for the quantitative variables” in the Appendix.
2. Refer to the Appendix for the coefficients or regression results table.
3. (Anonymized: student number)
Methods

1. Extraction of corpus linguistic keywords and counts of visuals

2. Thematic analysis of lecturer interviews

3. Quantitative and qualitative analysis of questionnaire responses
# Keywords relating to visuals and lists

<table>
<thead>
<tr>
<th>L1&amp; discipline</th>
<th>Chi-Biol</th>
<th>Chi-Econ</th>
<th>Chi-Engin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected keywords</td>
<td>#</td>
<td>growth</td>
<td>#</td>
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<tr>
<td></td>
<td>table</td>
<td>curve</td>
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<td></td>
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<td>per</td>
<td></td>
</tr>
<tr>
<td></td>
<td>graph</td>
<td>output</td>
<td></td>
</tr>
</tbody>
</table>

A word which is *positively* key occurs *more* often than would be expected by chance in comparison with the reference corpus.
Keywords relating to visuals and lists

Biology
• All "Phases" are labeled on the graph. The curve of the Exponential Phase was straight, though some point lay outside this best straight line of fit (0041a).

Economics
• Actually the total loss resulting from the lower monopoly output (Q M) is the grey triangle. The part of the grey triangle above P C is the loss of consumer surplus (6008q).

Engineering
• According to the program and refer to the figure 4.1.1, it is easy to find... (6107d).
Visuals

Photograph 9 – Tree shrew pollinating the male flower

[Attenborough, 1995]

<table>
<thead>
<tr>
<th>Carbon Content %</th>
<th>Classification</th>
<th>General for weld</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3-0.4</td>
<td>Low Carbon Steel</td>
<td></td>
</tr>
<tr>
<td>0.3-0.7</td>
<td>Medium Carbon Steel</td>
<td>Used for nuts, shafts</td>
</tr>
<tr>
<td>0.7-1.7</td>
<td>High Carbon Steel</td>
<td>Use applications</td>
</tr>
</tbody>
</table>

Table 1

Figure 1

Figure 7

Figure 8
Lists and ‘listlikes’

- Sales promotion:
  - Monthly promotions, according to customer sales and current interest
  - Discounts for bulk orders
  - Free P&P on orders over £25, encouraging bulk buying
  - Discounts for new businesses using us for the first time, on condition they use us for a minimum of two more orders

- Public relations:
  - User friendly website
  - Easy search tools within website, enabling you to find the exact bulb you want even for the engineering minded
  - Extensive “Help” and “FAQ” pages
  - 12 hour guaranteed reply to email queries

Conclusions

The experiment yielded the following conclusions:

- The efficiency of a single stage centrifugal pump at high pump speed (3000 RPM) is better than it at low pump speed (2000 RPM).
- The input power with high pump speed increases faster than the one with low pump speed as discharge increases.
- The relationship between total head and discharge is not affected by pump speed, but higher pump speed provides higher total head.
## Counts of visual and list items

<table>
<thead>
<tr>
<th></th>
<th>Tables</th>
<th>Figures</th>
<th>Lists</th>
<th>Listlikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Biology</td>
<td>15****</td>
<td>25****</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Eng-Biology</td>
<td>5</td>
<td>13</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Chi-Economics</td>
<td>1</td>
<td>14****</td>
<td>2*</td>
<td>25****</td>
</tr>
<tr>
<td>Eng-Economics</td>
<td>0</td>
<td>12</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Chi-Engineering</td>
<td>10*</td>
<td>21</td>
<td>7</td>
<td>53****</td>
</tr>
<tr>
<td>Eng-Engineering</td>
<td>7</td>
<td>21</td>
<td>10</td>
<td>24</td>
</tr>
</tbody>
</table>

per 10,000 words

* p<.05
** p<.01
**** p<.0001
Summary… and some questions

Summary

- L1 Chinese students make significantly greater use of visuals and lists than L1 English students
- All BAWE assignments have been judged proficient
- = > suggests these are different, yet equally valued, ways of writing

Questions

- Are visuals and lists used as strategies to meet the challenge of producing extended pieces of writing in unfamiliar genres in L2?
- Perhaps some students are more visually-oriented?
- What do discipline tutors think of this greater use of visuals and lists?
- Do EAP tutors teach students how to use visuals and lists as strategies?
Interviews with lecturers 1

Importance of visuals

- Diagrams and formulae are ‘the spine of the essay’ (Economics)
- The ‘challenge’ is ‘to marry the diagrams with the text’ (Economics)
- Including visuals helps students gain better marks as it avoids having to describe and introducing errors (Biology)
- Marks for presentation may include the assessment of diagrams, tables and overall layout (Engineering).

Being concise

- Preference for ‘precision, incision, concision’ (Economics)
- ‘there’s never been a penalty for an essay that’s too short’ (Biology)
- Good writing is ‘clear’, ‘concise’; and dislike ‘verbosity’ (Engineering)
- British ss ‘use too many words’ - ‘don’t use 10 when you can use 5’.
- Proforma may say ‘include a table here’. May be given font sizes, margin size, line spacing, ‘so people can’t cram in words’.
Bulleted lists are ok

• …but the words have to be ‘particularly good’
• ‘easier to mark if bullet points’
• in exams, bullets are ‘ideal’ not paras. ‘no need to dress it up as an essay’. Be straightforward. (Engineering)
• ‘Gives visual emphasis’.
• ‘essay questions allow you to hide the things you don’t know.’ (Economics)

‘Maths-oriented’ and ‘journalistic’ students in Engineering and Economics

• 2 types of student – ‘maths-inclined student who would be happy putting bullet points instead of prose’ and students who are good at writing prose but ‘not as strong mathematically’.
• students see essays as a ‘refuge from problem-solving questions’ (Economics)
Yet...

• ‘graphic literacy’ is seldom taught in writing classes – why?

• Most applied linguists are ‘trained in the humanities, where words are central to disciplinary values and argumentation’ (Johns, 1998:183)

• Tutors may ‘find themselves relying on disciplinary norms they are familiar with’ (Gardner and Holmes, 2009: 251)

• There’s often a concentration on ‘linear text’ (Johns, 1988: 183) rather than on the interaction of visuals with text.
Survey of writing tutors

• 219 responses
• 87% of respondents teach in universities
• 60% have been teaching for 10 years +
• 50% + have a Masters degree in Applied Linguistics or Education
• 20% teach at foundation level, 36% UG in-sessional, 34% postgraduate
• Teach a mix of L1 English only, L2 English only, and both L1 and L2 English students
Teaching the use of visuals

• ‘My students need to use visuals in their disciplines.’ 90% agree
• ‘I teach my students how to include visuals within their academic texts.’ 72% agree
• ‘On the preessional course in the UK I taught on, lists were certainly discouraged and little explicit attention was paid to integrating visuals into writing.’
• ‘I have students do an ethnography of writing in their field, so that they can answer these questions.’
• ‘We are often quite detached from the disciplines because our students go into so many different spaces after completing foundation’
• ‘Some students are permitted to use these features and some not, so for this reason it is not sensible to teach them.’

EAP Tutors’ views

- My students need to use visuals in their discipline(s).
- I teach my students how to include visuals within their academic texts.

- The visuals are too complicated and student specific for me to know thoroughly and they know them better.
- I don’t know much about their individual subjects - just general knowledge or what I pick up from them.”
Implications for practice: Writing tutors

- remain open-minded as to what might be acceptable;
- include ‘graphic literacy’ in academic writing classes;
- research writing in their discipline (cf. Johns', 1997, plea for students to become researchers of their disciplines' practices);
- search corpora (e.g. BAWE, MICUSP) for particular discipline features;
- collect exemplars of the writing their students are asked to produce;
- move beyond lexicogrammatical considerations such as the acceptability of I or the choice of passive or active voice to considering assignments holistically (e.g. Is it ok to use a table to display results or should these be given in prose? Can the conclusion be presented as a bulleted list? If images are given, can a lengthy caption be included?);
References


• Leedham, M. (2009) ‘From traditional essay to ‘Ready Steady Cook’ presentation: reasons for innovative changes in assignments’ In Active Learning in HE.

