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FEEDBACK ON ACADEMIC ESSAY WRITING THROUGH PRE-EMPTIVE HINTS – MOVING TOWARDS 'ADVICE FOR ACTION'

Denise Whitelock, Alison Twiner, John T.E. Richardson, The Open University,
Debora Field, Stephen Pulman, Oxford University, United Kingdom

Abstract

This paper reports on the SAFeSEA project (Supportive Automated Feedback for Short Essay Answers), conducted by the Open University and Oxford University, which set out to assist students in writing draft essays. The project explored a number of feedback mechanisms to facilitate this process. One such mechanism was investigating how to offer support regarding essay structure, based on the premise that a good essay is like a good story: it needs a beginning, middle and end; the components are also well connected and the middle section of the essay provides the evidence for the argument progressed throughout the essay. This leads to the development of a web-based feedback system called OpenEssayist (Whitelock, Field, Pulman, et al., 2013). In parallel with this technical development, we also investigated whether support could be given to students before they started writing their essays, in the form of 'hints'. This paper will set out the rationale behind this investigation, the context in which it was addressed, and the conclusions we can draw to confidently assert that such a 'feed-forward' approach can have a statistically significant effect on students' essay marks.

Introduction

It is widely accepted and cited in educational literature that feedback is central to learning (e.g. Black & Wiliam, 1998; Taras, 2003). The debate therefore is constantly evolving to consider what forms of feedback can have the most positive impact, and how this feedback can be offered to students in a way that they will welcome, understand and act on in future work. In essence all learning is a dialogic activity, drawing feedback from all interactions that students associate with course material. What students do with the feedback they receive or perceive will determine how well they can adapt and develop to suit course tasks. Therefore feedback should also be seen (by teachers and students) as one feature in dialogic interaction, rather than an end point after summative assessment – as 'advice for action' (Whitelock, 2010). This paper reports a study on the provision of 'hints' to participants on how to write academic essays, before they begin their essays. We address this with a view to how this pre-emptive feedback, or 'feed-forward' (e.g. Hattie & Timperley, 2007; Price, Handley & Millar, 2011), can have a significant positive impact on students' work. The present paper is a

response to our research question: How does the provision of hints affect the essay being written, and essay writing in the future?

Butler and Winne (1995) identify that students who are better able to make use of feedback can more easily bridge the gap between their expectations or goals, and performance. Contrary to a common model of offering feedback on submitted work, they also conclude that feedback is most likely to have a positive influence on learning and learning performance when given during a task, rather than waiting until students submit what they believe to be a finished piece. Of course the point at which to provide feedback is affected by the type of task, e.g. a one-time short task, compared to an essay that is drafted and revised over time.

The verdict on feedback however is not entirely positive. Kluger and DeNisi (1996) offered a critical review and meta-analysis of the feedback literature, stating that a positive effect of feedback on subsequent performance is far from universal, even though it may appear to be represented this way in the literature. Whilst Kluger and DeNisi's paper was written almost 20 years ago, it is important that we still heed its warning not to assume feedback will automatically be beneficial. We draw on their finding however that a 'feedback intervention' (in our case offering 'hints' to participants before they write essays) will be beneficial if it supports learning and helps learners to set goals (Kluger & DeNisi, 1996). This is further supported by Hattie and Timperley's (2007) conclusion that 'When goals have appropriate challenge and teachers and students are committed to these goals, a clearer understanding of the criteria for success is likely to be shared.' (p.89)

Within the study to be reported here, the 'hints' given to students prior to their essay-writing refer to general guidance on how to structure an academic essay. The hints provided were content-free, and so broadly appropriate to all academic writing in any subject without extra strain and time demands for tutors. This has the advantage that they can be shared with large numbers easily, but the disadvantage that they are not tailored to learners' current subject understanding and individual learning needs.

In other research hints have been given as responsive prompts, at assumed points of need during task activity (e.g. Quintana, Zhang & Krajcik's 2005 review of software facilities), but not as general supportive information prior to tasks. Also hints tend to be short, in response to a potential error, omission or misunderstanding. Beaumont, O'Doherty and Shannon (2011) offer a qualitative report of students' experiences of receiving 'preparatory guidance' on tasks whilst at school or college, but with no experimental exploration of this aspect. Beaumont et al.'s study also focused predominantly on students progressing to university study straight after A-levels, without a gap in their academic pursuits. Further to this, Hattie and Timperley (2007) provide a review of the research field, and conclude that provision of 'cues' can offer guidance to students for ongoing work:

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> *'Such cues sensitize students to the competence or strategy information in a task or situation. Ideally, it moves from the task to the processes or understandings necessary to learn the task to regulation about continuing beyond the task to more challenging tasks and goals' (p.102).*

Again however, this work did not report any experimental trial of the effects of providing 'cues' or 'hints' on immediate and subsequent essay writing.

In work with 10-14 year old school students, Narciss (2013; Narciss et al., 2014) reported an experimental trial on the automated provision of 'hints' within short mathematics tasks. Hints were provided after errors had been made in a task, but prior to a further attempt at the same task. The hints were therefore pre-emptive, to support future performance and learning, but were also a direct response to an error. Hints were designed to offer either conceptual or procedural guidance. In doing this work Narciss recognised that there is little research, theoretical or empirical, on 'automatic feedback adaptation', which is similar to our interpretation of the existing literature. Given the nature of the tasks tested within Narciss' studies, being in the mathematics domain and specifically working with fractions, students' responses were relatively easy to identify as correct or incorrect. As Narciss acknowledges, this is not the case within less structured tasks, such as essay writing which is the context we address in our work, and so the nature of feedback needed is significantly different.

In the study to be reported here, we uniquely offered broad macro-level guidance to participants on how to write a 'good essay' before they wrote their essay, rather than focusing on the aspects that might identify their work as a 'bad essay'. Participants each wrote two essays. For one essay they were given hints before writing. Half of the participants received 'essential' hints before writing one of the essays (and no hints before writing the other). The other half received 'nonessential' or 'helpful' hints before writing one essay (again receiving no hints before writing the other essay). Participants' performance was marked against set criteria. This enabled us to explore whether there was an effect of giving hints for the immediate essay, and also whether there was a lasting effect of this provision.

To explore this context, we investigated the following research questions:

1. Is there a difference between essay writers' performance due to giving or not giving hints?
2. Is there a difference between essay writers' performance due to the type of hint given?
3. Is there a transfer evident in essay writers' performance due to the point at which hints are given?

We will now outline our method, including details of the sample and tasks, and will respond to the three research questions within the conclusions that follow.

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Method

Participants

Fifty participants were recruited from a subject panel maintained by colleagues in the Department of Psychology at the Open University, consisting of people who were interested in participating in online psychology experiments. Some of them were current or former students of the University, but others were just members of the public with an interest in psychological research. The 50 participants consisted of eight men and 42 women, who were aged between 18 and 80 with a mean age of 43.1 years.

Procedure

The participants were assigned in rotation to one of four groups as they signed up to take part in the study. Each participant was asked to write two essays, and in each case they were allowed two weeks for the task. The first task was: "Write an essay on human perception of risk". The second task was: "Write an essay on memory problems in old age". Participants who produced both essays were rewarded with an honorarium of £40 in Amazon vouchers.

Groups 1 and 3 were provided with hints for Essay 1 but not for Essay 2. Groups 2 and 4 were provided with hints for Essay 2 but not for Essay 1. Groups 1 and 2 were provided with essential hints. Groups 3 and 4 were provided with helpful hints as shown in Tables 2 and 3 below. Otherwise, the participants were provided with no feedback on their essays. Table 1 illustrates the research design.

Table 1: Research design

	Group 1	**Group 2**	**Group 3**	**Group 4**
Essay 1	Essential hints	No hints	Helpful hints	No hints
Essay 2	No hints	Essential hints	No hints	Helpful hints

Two of the authors who were academic staff with considerable experience in teaching and assessment marked the submitted essays using an agreed marking scheme and without reference to the groups to which participants had been assigned. The marking scheme is shown in the appendix. If the difference between the total marks awarded was 20 percentage points or less, essays were assigned the average of the two markers' marks. Discrepancies of more than 20 percentage points were resolved by discussion between the markers.

Data analysis

A mixed-design analysis of variance was carried out on the final marks that were awarded to participants who submitted two essays. This employed the within-subjects variables of hints (hints versus no hints) and marking criteria (1–10) and the between-subjects variables of hint type (essential versus nonessential) and hint order (hints on Essay 1 versus hints on Essay 2). Post hoc tests were carried out to identify the marking criteria on which any significant changes in marks had arisen as a result of providing hints.

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Table 2: 6 essential essay writing hints

1	Read the question carefully and underline keywords in the question to focus on the main areas that you need to address for the essay.
2	Make a plan for your essay. For example, create a list of salient points that will address the key points from hint number 1.
3	Remember, an essay is telling a story. A good story has a beginning, middle and an end. These are also known as introduction, discussion points and conclusion. Ensure this structure is explicit in your answer.
4	The introduction should set out a basis for your discussion/argument.
5	The discussion section picks up on the introduction, elaborates upon it and provides evidence for the points mentioned within it.
6	The conclusion should summarise the discussion points and ends with a decisive stance towards the essay topic that you've been asked to write about.

Table 3: 6 nonessential essay writing hints

1	When you have written your first draft, pick out 10 words or phrases that you think are the most important ones in your essay. Do you think they convey the ideas you want to express in this essay?
2	Topic sentences are those that give an outline of the contents of a paragraph. Do you have topic sentences to cue the reader into the major points you are trying to make in this essay?
3	Read your draft and identify any supporting sentences. Their function is to cue the reader into details of one of the arguments in a paragraph.
4	Ensure that your conclusion is a summary of the main argument of the essay. The conclusion may often have an opinion or a recommendation too.
5	Check your word count. If you have too many words, see if any of the paragraphs in your essay discuss things that aren't directly relevant to your assignment question. If so, delete them.
6	Are any of the paragraphs in your essay longer than 7 sentences? If yes, consider carefully whether all the sentences are necessary for you to clearly make your point.

Results

All 50 participants submitted Essay 1, although only 45 participants submitted Essay 2. The correlation coefficients between the marks initially awarded by the two markers were .81 for Essay 1 and .77 for Essay 2. In six cases, the discrepancy between the two markers was more than 20 percentage points, and these discrepancies were resolved by discussion between the markers. The mean final mark for Essay 1 was 56.9 (SD = 15.1), and the mean final mark for Essay 2 was 54.5 (SD = 15.9). Table 4 shows the mean marks awarded for essays with and without essential and nonessential hints.

Table 4: Mean marks with and without essential and nonessential hints

	n	**No hints**	**Hints**
Essential hints	23	54.8	56.5
Nonessential hints	22	53.6	60.0
Overall	45	54.2	58.2

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The main effect of hints was statistically significant using a directional test (equivalent to a one-tailed Student's *t* test), $F(1, 41) = 3.23$, $p = .04$, partial $\eta^2 = .07$. Table 4 shows that on average essays written with hints received 4 percentage points more than essays written without hints. This constituted a "medium" effect based on Cohen's (1988) benchmarks.

There was no significant effect of hint type, $F(1, 41) = .08$, $p = .78$, partial $\eta^2 = .00$, and no significant interaction between the effects of hints and hint type, $F(1, 41) = 1.09$, $p = .30$, partial $\eta^2 = .03$. Thus, there was no difference between the benefit of essential hints and that of nonessential hints. In fact, Table 4 shows that if anything the benefit of nonessential hints tended to be greater than the benefit of essential hints.

There was no significant effect of hint order, $F(1, 41) = 1.24$, $p = .27$, partial $\eta^2 = .03$, and no significant interaction between the effects of hints and hint order, $F(1, 41) = 1.68$, $p = .20$, partial $\eta^2 = .04$. In other words, there was no difference between the benefit of hints provided for Essay 1 and the benefit of hints provided for Essay 2. This in turn implies that there was no transfer of the effect of hints provided for Essay 1 on the writing of Essay 2.

There was no significant interaction between the effects of hint type and hint order, $F(1, 41) = 0.94$, $p = .34$, partial $\eta^2 = .02$, and no significant three-way interaction between the effects of hints, hint type and hint order, $F(1, 41) = .09$, $p = .76$, partial $\eta^2 = .00$.

The main effect of criteria was statistically significant, $F(9, 369) = 20.86$, $p < .001$, partial $\eta^2 = .34$, which is unsurprising since different numbers of marks were awarded against the ten criteria. However, there was a significant interaction between the effect of hints and the effect of criteria, $F(9, 369) = 2.25$, $p = .02$, partial $\eta^2 = .05$. Thus, the benefit of hints varied across the ten criteria. This too constituted a "medium" effect based on Cohen's (1988) benchmarks.

Post hoc tests were carried out to identify where the increase in marks as a result of providing hints had arisen. Directional tests showed that there was a significant increase in marks on Criterion 1 (introduction) from 5.43 to 6.77 out of 10, $F(1, 41) = 4.59$, $p = .02$, partial $\eta^2 = .10$, a significant increase in marks on Criterion 2 (conclusion) from 6.10 to 7.43 out of 10, $F(1, 41) = 12.50$, $p < .001$, partial $\eta^2 = .23$, and a significant increase in marks on Criterion 4 (evidence) from 8.00 to 9.03 out of 20, $F(1, 41) = 3.22$, $p = .04$, partial $\eta^2 = .07$. These constituted medium or large effects on Cohen's (1988) benchmarks. Otherwise, there were no significant differences between the marks awarded to essays written with and without hints.

Conclusions and implications

This study is unique in conducting an experimental trial to evidence that essays written with hints, as 'advice for action', gained higher marks than those written without hints. Whilst much research has suggested that this might be the case, to our knowledge no-one has previously tested this in such a way. We are also able to report the statistically significant finding that the higher marks gained for essays written with hints were due to better performance with regard to the introduction, conclusion and use of evidence within essays.

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This is of vital importance in terms of the quality of academic writing, as good essays require a strong beginning, a middle that is coherent and an end that brings the whole essay together, and the statistics reported here reflect that these elements significantly improved with provision of hints. A particular strength of this paper is that it set these issues up to be tested, offering hard evidence to support theory, not just 'hooray words' that we can all agree with in principle but cannot test in practice. In terms of efforts to improve the quality of students' academic writing, these findings have substantial implications for feedback research and practice. As the hints provided were content-free, this approach could easily be made more widely available, with the potential to benefit course designers, tutors and students on a much larger scale.

This evidence also supports the approach adopted in the development of OpenEssayist (Whitelock et al., 2013), the automated feedback tool on students' draft essays where key words and sentences are displayed as they appear in the text, designated by introduction, main text and conclusion sections of the essay. This again emphasises that a good essay has key phrases connected together from the beginning through to the middle and finally presented at the end of the essay, drawing together an excellent conclusion.

An important direction for future research needs to be further experimental investigation of how to frontload support for students, in the form of 'advice for action' before they begin assignments. This is critical as students starting new courses, particularly those who have been out of study for a while, may well understand the topic of study, but not how to approach the task – novices are unlikely to be aware of what they do not know. Telling them afterwards that they have done it wrong is potentially demoralising, and ultimately of little benefit in terms of course performance. More effort therefore needs to go into supporting students to understand task requirements beforehand, so that they can approach tasks confident that they know what they are doing, and that their efforts are aligned with tutors' expectations. An experimental trial of this scenario is precisely the direction in which we intend to take our ongoing work.

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Appendix

Marking criteria: 100 marks in total

Criterion	Definition	Maximum marks
1. Introduction	Introductory paragraph sets out argument.	10
2. Conclusion	Concluding paragraph rounds off discussion.	10
3. Argument	Argument is clear and well followed through.	10
4. Evidence	Evidence for argument in main body of text.	20
5. Paragraphs	All paragraphs seven sentences long or less.	5
6. Within word count	Word count between 500 and 1000 words.	5
7. References	Two or three references Four or more references	5 10
8. Definition	Provides a clear and explicit definition of risk or memory.	10
9. Written presentation	Extensive vocabulary, accurate grammar and spelling.	10
10. Practical implications	Understanding of practical issues, innovative proposals.	10
Maximum total marks		100

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