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How Adequate Task Representation Can Help Students Write a Successful Synthesis

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Abstract
This article argues that adequate task representation can help students avoid plagiarism in academic writing tasks and reports results of research conducted at postgraduate level in the UK. It is suggested that viewing a writing task as a knowledge transforming activity can potentially lead to more intra- and intertextual integration and therefore less «copying and pasting». The synthesis task was chosen for this research project as it is a task that is especially likely to promote epistemic writing and thus learning. Preliminary research results show that adequate task representation leads a higher degree of elaboration of the source texts (S=23).

Introduction

Writing can be used for many purposes; we write shopping lists, birthday cards, and email messages, reports for our bosses and teachers, amongst others. In an educational context, writing is used in numerous kinds of assignments; reading-comprehension questions, reports, essays, summaries and syntheses, just to name a few. Writing is a powerful tool that can be used to help students learn; under the right circumstances, writing can be used for learning purposes; it is then called epistemic writing (Flower et al., 1990). That's why, in the words of Catt and Gregory, «effective writing is fundamental to success in higher education» (in Ganobcsik-Williams, 2006:17).

One of the assignments included in many writing courses including pre and in-sessional courses for Academic English is the synthesis. A synthesis is a hybrid task that comprises both reading and writing (Bracewell, Frederiksen and Frederiksen, 1982) and requires students to read several source texts and then to write their own text, based on what they have read. This combination of reading and writing makes the synthesis a task that can promote learning. Fitzgerald and Shanahan (2000:43) state that «reading and writing encourage different enough cognitive operations that they offer alternative perspectives that can give rise to new learning or appreciation». However, synthesis writing is a challenging task that often poses serious difficulties for students even at university level (Segev-

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Miller, 2004; Flower et al., 1990; Nelson-Spivey, 1997; and Jakobs, 2003). One of the difficulties that are often encountered is inappropriate source usage which, amongst other problems, leads to students copying and pasting information from their sources rather than synthesising what they have understood.

This article will suggest that adequate task representation is a necessary element that can contribute to helping students write a successful synthesis. If students use sources correctly, then the writing activity can help them advance their knowledge, which will help lead to deep learning. If however, students merely copy the information in the source texts, then the writing activity will not help them transform their knowledge; in other words, it will merely promote surface learning. See figure 1.

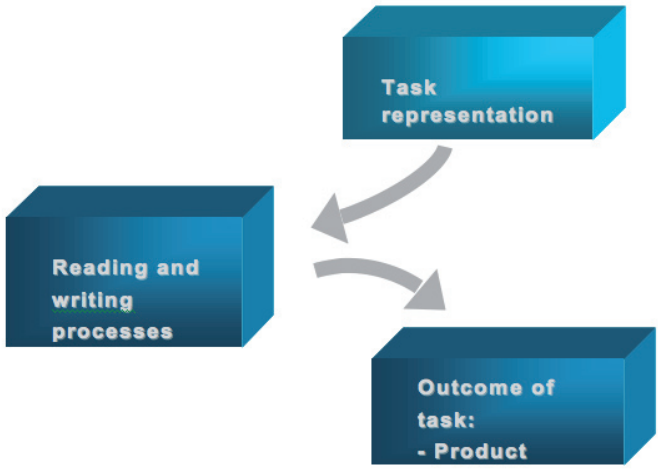

Figure 1: Hypothesis

Synthesis tasks

As mentioned above, the synthesis is a hybrid task that requires the student to both read and write. Writing a synthesis is a challenging task because the students have to select, integrate and re-organise the information they have read in the source texts in their own text and in order to do so, they have to choose a new macrostructure. This is one of the main differences between writing a summary and a synthesis (compare Segev-Miller, 2004).

The synthesis task has characteristics of both discourse comprehension and production, which explains why it has great potential for promoting learning (Bracewell, Frederiksen and Frederiksen, 1982). Reading and writing are cognitive operations that are different enough to offer the student alternative perspectives (Fitzgerald and Shanahan, 2000). This can give rise to new learning or appreciation.

It is argued here that if students represent a synthesis task as a problem-solving activity, they will be more likely to write a successful synthesis. In order to write a synthesis, students need to find a link, an idea that allows them to analyse and integrate the texts, applying a strategy that leads to a personalised elaboration of the information provided. The result tends to be a product with a new structure – that of the writer – which integrates different perspectives and in which the writer's knowledge plays an active part.

Research has confirmed that writing a synthesis is a task that requires planning and a high level of control (Segev-Miller 1997 in 2004). Segev-Miller (2004) describes two kinds of strategies students need to apply in order to perform successfully a hybrid reading and writing task such as a synthesis: metacognitive and intertextual processing strategies.

Metacognitive strategies, required for writing a successful synthesis, include assessing, planning and revising (Segev-Miller 1997 in 2004) as well as adequate task representation. Students need to plan their synthesis writing; this includes setting themselves goals for their writing. These objectives, which go beyond reproducing the information of the texts, need to be revised throughout the task.

It is in this process of continuous revision that they are most likely to review not just their goals and the message they want to convey but also their perception of the information in the source texts. Again, this revising process can generate thought and thus lead to the transformation of information, new perspectives and subsequently, to deep learning.

Segev-Miller (1997 in 2004) furthermore describes intertextual processing strategies. These are the strategies that can help students transform a text at three different levels; conceptually, rhetorically and linguistically. As mentioned above, students may need to invent a macroposition; besides, they should be organising the information selected in an appropriate rhetorical structure and they should transform the information linguistically, in other words paraphrase the information they have read (Segev-Miller, 2004).

Notwithstanding, student synthesis products often reflect a low degree of elaboration and a text-by-text approach whose result tends to be either a list of ideas

taken from the different source texts linked with varying success; or a juxtaposing of summaries of the source texts. The perception or representation of the task is one of the variables that might help understand why the student product does not resemble the product the teacher had in mind.

Task representation

Research by the research group LEAC[1], at the University of Barcelona has shown that students often misinterpret the task instructions which they are given. They do not perceive what they are required to do in the same way the teacher does. The LEAC research group studied the perception of different academic tasks of teachers and students at secondary and university level and found that these perceptions differ considerably at the following levels; interest, level of difficulty and the degree to which it leads to learning. For instance 75% of the teachers interviewed felt that a synthesis task can help deepen our knowledge whereas only 41% of the students felt the same way (S=214 teachers and 646 students) (Solé et al, 2005).

Research by Bereiter and Scardamalia (1987) has shown that there are two main ways in which writing is represented, namely the model of knowledge-telling and the model of knowledge-transforming. Each of these well-known models has an impact on writing and on the type of learning it might promote.

The knowledge-telling model of writing could be described as an efficient model of writing. It helps students to comply with the task instructions; if the student has appropriate and sufficient prior knowledge on both the subject and the discourse schema required, they are likely to fulfil task requirements. Furthermore, this model of writing is fast; it does not require extensive planning or goal setting; students simply write what they know.

The strengths of the knowledge-telling model are at the same time its weaknesses. The focus of the writing task is purely on showing what we know; writing is seen as a test of our knowledge and competence. We have to demonstrate our ability to fulfil the task requirements. The focus is on producing an adequate product; furthermore, no consideration is given to the audience. This can lead to what Flower (1979) calls writer-based-prose. The text produced could become incomprehensible because the ideas are in the writer's head rather than in the text. Nevertheless, the knowledge-telling model may help students remember information better and in a more organised way as they are writing down the knowledge they are already familiar with. However, this model of writing will be unlikely to lead to integration of information or to the elaboration of new knowledge.

The knowledge-transforming model is a way of representing writing as a learning task. This representation can help the writer rethink and revalue the topic on which they are writing. Following this model, the actual process of writing can help the writer generate thought. In other words, writing can become a tool for deep learning. In order for this kind of learning to take place, the writing process must be seen as an opportunity to expand the writer's knowledge and competence, rather than a test of their existing knowledge.

Writing should be perceived as a problem-solving process that is goal oriented. The writers have to consider whether the text they are writing says what they want it to say and whether the text is convincing. In other words, the writer should consider the needs of the audience while writing. In the process, the writer is likely to make changes not only to the text but also to the message they are trying to get across. Thus writing can help them develop their knowledge. In the knowledge-transforming model, the writer not only focuses on generating content but also deals with achieving the goals of the writing task. The interaction between the problem of generating content and achieving the goals of the assignment is the basis for reflective thought.

Now let us consider in which way adequate task representation can help students write a synthesis.

If students represent a synthesis task as a knowledge-transforming activity, they will be more likely to write a successful synthesis. We expect to find that viewing a synthesis as a knowledge-transforming task will lead to more elaboration of the source texts, that is, more intertextual integration, whereas a knowledge-telling representation will lead to less elaboration and will have students favour a text-by-text approach.

Furthermore, representing the task as knowledge-transformation rather than knowledge-telling will help students set themselves goals for their writing tasks. These goals will not just be oriented toward the product of their writing but also toward the process of

1 Lectura, Escritura y Adquisición de Conocimientos: Reading, Writing and Knowledge Acquisition comprised of the following members: N. Castells, S. Espino, M. Gracia, M. Miras, I. Solé.

their writing. Setting goals for their writing process will help students use more cognitive and metacognitive strategies and will make the process of writing more significant to them.

Research

The research being reported here forms part of a larger research project that studies the learning potential of different academic writing tasks at various educational levels. The data analysed here belong to a study of postgraduate students' approach to writing tasks. The research being presented in this article examines the influence of task representation on postgraduate students' written products.

Method

Design and participants

A qualitative methodology of case studies was used for this study. The participants consisted of 23 postgraduate students (14 male and 9 female; aged between 23 and 45) who attended a pre-sessional course of academic English at a large British university.

Procedure

Students were required to carry out a synthesis task based on four source texts on the topic of team work. Students were all given the same task instructions (please see the appendix for a copy).

Students were asked to read the task instructions and to then fill out a task representation assessment sheet, such as the one shown below, before carrying out the actual writing task. The synthesis task formed part of the end of course evaluation. Participants carried out the task in the classroom individually and were given two and a half hours to do so.

The task representation sheet described several representations and students had to choose the option that most closely resembled what they felt they should do.

Task assessment sheet

1. I should first state all the important ideas of each of the texts and then I should link them in my text.
2. I should identify a common theme that comes up in all the texts and in my text I should explain what each of the texts provided mentioned about this theme.
3. I should write a summary of what is mentioned in each of the texts in order to include all the important information in my text.
4. I should read all the texts provided and then I should write about my own opinion on the topic.
5. I should find a common theme in order to identify what each text says about this theme and I should then relate my own conclusions on the information provided in the texts.
6. I should identify a common theme that comes up in all the texts and I should then give my own opinion about this theme.

Based on research by LEAC-2, University of Barcelona, Spain

Analysis

Two kinds of analysis were carried out namely a) the task representation and b) the written products of the students.

a) Analysis of the task representation

The assessment sheet was designed to represent both a representation of the task as more consistent with a knowledge-telling activity (options 1, 2, and 3) and as more consistent with a knowledge-transforming activity (options 4, 5 and 6). Furthermore, the options were designed to represent either a text-by-text approach (options 1, 3 and 4) or an intertextual approach (options 2, 5 and 6).

Options 1, 2 and 3 require the student to show their knowledge by stating the most important information from the different source texts. Especially in the case of options 1 and 3, this could lead to a summary of each source text rather than a synthesis, for which purpose no intertextual integration is required. Although options 4, 5 and 6 represent knowledge transformation, only option 5 specifically asks for a synthesis of the source texts requiring intertextual integration. Options 4 and 6 merely require a personal opinion, not necessarily based on the source texts; therefore, these representations might not lead to synthesis products. However, they potentially correspond with a knowledge-transforming perspective of the task. (See figure 2)

	Knowledge-transforming	Knowledge-telling
Intertextual integration approach	5, 6	2
Intratextual integration (text by text) approach	4	1, 3

Figure 2: Task representation analysis

Option 5 was seen as the most appropriate task representation, given the task instructions. It is the only option that specifically requires writing a synthesis using intertextual integration. Options 1 and 3 were seen as the least appropriate options as they not only represent a knowledge-telling representation but also a text-by-text approach. It was decided that the written products of the students with the most adequate task representation (option 5) would be compared to those with the least adequate representation (options 1 and 3).

b) Analysis of the students' written products

In addition to analysing the students' reported task representation, the written products were analysed using two variables, namely text structure and text elaboration. The variable of text structure was chosen, as in a synthesis task it is deemed essential that the students reorganise the content of the source texts into a new macro-structure. Three different kinds of structure were identified for this research, namely juxtaposed summaries, alternating fragments and own structure. A text consisting of juxtaposed summaries would report the main ideas of the source texts one by one, whereas a text of the second category would contain fragments of the source texts in alternating order. Texts of the third category would have a new structure; that is, the writer reorganises the ideas of the source texts to fit in with their own ideas.

As for the second variable, text elaboration was selected because intertextual integration is another crucial element in a successful synthesis. Student products were analysed using three possible levels of elaboration; the lowest level would indicate that students have copied the main ideas from the source texts without elaborating them any further. This would mean, for instance, that they do not pick up on contradictions or inconsistencies in the different source texts. This category would include what is commonly called «cutting and pasting». The second degree of elaboration would indicate that students have elaborated the main ideas of the source texts and will have paraphrased these ideas. This category will indicate that students have carried out intratextual integration. The last category indicates the highest level of elaboration. In this study, that is taken to mean that students have contrasted the main ideas in the source texts and have identified any contradictions and inconsistencies as well as instances where the source texts coincide in their affirmations. In addition to intratextual integration, this degree of elaboration would require intertextual integration of ideas.

Results

Results have shown a wide variety in the way in which students represented the writing task provided (see figure 3). It can be seen that the majority of students (S=16) represented the task as a knowledge-transforming activity (options 4, 5, and 6) whereas the remaining students (S=7) represented the task as a knowledge-telling activity (options 1, 2 and 3). Of the 16 students who represented the task as knowledge-transforming, 9 selected the option deemed as most appropriate, given the task instructions; option 5.

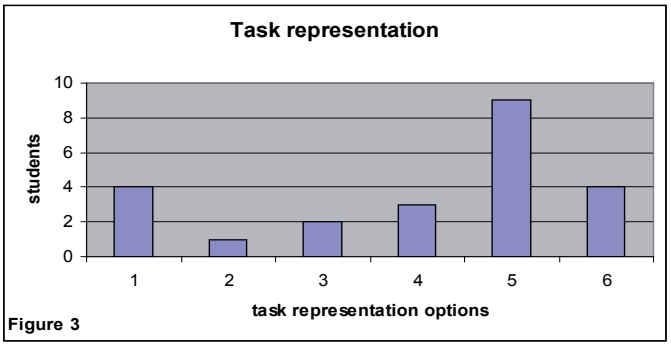

Figure 3

As for the variable of text structure, some differences were found between students with an appropriate and inappropriate task representation. Most students with adequate representation had their own structure (8 out of 9), whereas half the students with inadequate representation wrote a paper with a new structure (3 out of 6).

The variable text elaboration showed some differences in approach to the writing task. Students with a knowledge-transforming task representation used more intra- and intertextual integration than those with a

knowledge-telling representation who were more likely to display a low level of text elaboration. (See figure 4)

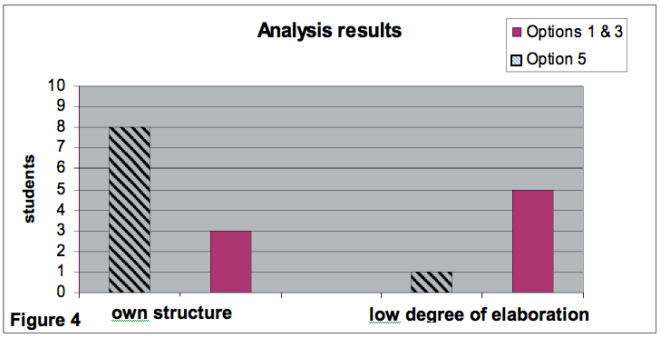

Figure 4

Discussion

First and foremost, it is necessary to point out that, given the small number of subjects in this study, any results must be regarded with utmost caution. Nevertheless, the authors feel that some tendencies can be observed.

First of all, our data show that postgraduate students, that is, experienced students, respond to identical task instructions, provided to them in writing, with a wide variety of task representations, some of which are clearly inadequate. It is worth pointing out at this point that the task instructions provided may have had an impact on the students' task representations. A task brief that specifies the need to analyse or argue may have led to more adequate task representations. Nevertheless, taking into consideration that the subjects were experienced students, our data confirm the result of previous research (such as Flower, 1990; and Solé et al, 2005) and questions the reassuring belief that a student's task representation coincides with that of their teachers. In our case, although the most adequate representation is chosen by the majority of students, the high number of students who represent the task in a different way is remarkable. It could be argued that those students who are capable of representing the difficulty of a given task adequately are also the ones who are more familiar with this type of task and are better at carrying it out. This could hint toward a circular link, rather than one of cause/effect, between task representation and the ability to carry it out. This hypothesis should be explored further, in future research.

Secondly, results seem to confirm the influence of task representation on the products elaborated at least insofar as our variables are concerned. As expected, most students who represented the task as knowledge-transforming have elaborated products with a new, original structure. Their texts show acceptable levels of intra- and intertextual integration and they avoid «cutting and pasting». As for the students with a knowledge-telling representation, the results are not that clear-cut. On the whole, students with a knowledge-telling representation repeatedly show a low level of text elaboration. At a structural level, representation option 1 leads to texts with a new structure, whereas option 3 leads to more sequential, less integrated texts. This might be due to the fact that option 3 contains the word «summary» which entices students to take a sequential text-by-text approach. This interpretation will be explored in future research.

In conclusion, our results confirm the influence of the task representation on students' elaboration of texts and, as may be inferred, on the processes involved in this elaboration. This result is important in that the variable «representation» can contribute to explaining the differences in texts produced by students at higher educational levels. At these levels, the influence of other variables – familiarity with the task, prior knowledge, competence in more sophisticated procedures – that are of influence at lower educational levels, diminishes as students become more experienced. In other studies (Mateos and Solé, 2008), it was found that university students' synthesis processes are more homogenous (and better) than those of secondary school students. However, differences can still be found in their products, which might be due to the way in which they represent the task. This leads to the possibility that in order to help students better carry out academic tasks, we need to make sure that they understand correctly the task at hand. This can, in part, be ensured by providing «a well phrased and explained assignment brief [which] should promote intellectual engagement» (Catt and Gregory, 2006:26). In the case of synthesis tasks, students need to understand their open and problematic nature; they need to understand that this type of task cannot be solved by following the procedure of «saying what they know» or «saying what the texts say». Only when they understand this, can they take full advantage of the knowledge-transforming potential of synthesis tasks.

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Appendix 1

Task instructions

Using the supplied short texts as sources of information and ideas, together with your own experience, describe what, in your view, makes a successful team and what may make a team fail. Describe an experience of team work that you have had and discuss the success or failure of the team in terms of the characteristics of effective teams that you have identified.

(350–750 words)