Scaffolding writing using feedback in students’ graphic organizers – novice writers’ relevance of ideas and cognitive loads


This paper aims to find out two outcomes of feedback in the novice writers’ graphic organizers, which are: the novice writers’ ability to align their ideas to their writing goal, and their perceived germane, metacognitive, extraneous and intrinsic cognitive loads when generating and revising ideas based on the feedback. Data was gathered from the students’ graphic organizers, mental difficulty questionnaires and focus group discussion. The findings show that the students’ relevance of ideas improved with feedback in their organizers, except for one sub-process. In addition, the students’ metacognitive load seems to affect the amount of ideas generated. These findings have implications for media selection mix and social collaborative environments.

Online adaptation of learning tasks according to students’ expertise level needs to take into account cognitive load theory. This is because the adaptation needs to optimize the use of mental resources to perform a particular task due to the limitations of working memory (Paas, Renkl, & Sweller, 2003). Research in writing has reported problems and difficulties faced by novice writers. For example, novice writers tend to trigger ideas based on keywords in the writing topic rather than the writing goal (Scardamalia & Bereiter, 1987). In addition, they seldom look ahead or back in text to monitor and improve comprehension (Richards, 1990). Novice writers’ concern about the accuracy of their language also truncates their ideas generation (Perl, 1979). They also tend to paraphrase and reword ideas when revising their text because they do not
have the ability to diagnose their mistakes (Hayes, Flower, Schriver, Stratman, & Carey, 1987).

One of the key underlying problems faced by novice writers is the high cognitive demands of writing: finding the resources to formulate goals and plan writing, generating content, translating ideas into language and revising writing (Kozma, 1991). Research in writing has thus looked at how to scaffold their writing process so that sufficient mental resources could be freed to focus on these cognitive needs. Underpinning the scaffolding strategy and mental resources is the theory of cognitive load. This theory differentiates three types of cognitive load: germane, extraneous and intrinsic cognitive load. Germane cognitive load refers to the cognitive load devoted to helping students process, construct and automate schema (Sweller, van Merrienboer, & Paas, 1998). On the other hand, extraneous cognitive load refers to the cognitive load incurred when students engage in activities not related to schema acquisition and automation (Paas et al., 2003). Intrinsic cognitive load refers to the cognitive load incurred due to the difficulty level of the writing task itself (Chandler & Sweller, 1991).

The differentiation between the cognitive loads is important for instructional designers because for learning to occur, the total amount of the three cognitive loads cannot exceed that of working resources available (Paas et al., 2003). Thus, cognitive load research has mainly been geared towards reducing students’ extraneous and intrinsic cognitive loads so that more mental resources could be devoted to their germane cognitive load (van Merrienboer & Sweller, 2005). Valeke (2002) argues for the inclusion of another type of cognitive load that is, metacognitive load. He refers to metacognitive load as the cognitive load incurred when students monitor the selection and organization of sensory information. Gunawardena, Hermans, Sanchez,
Richmond, Bohley, and Tuttle (2009) also acknowledge the role of metacognitive load in socially mediated metacognition as negotiation of meaning happens based on reflections of personal experiences and group thinking.

One of the most common strategies used to scaffold students’ germane and metacognitive load in writing is feedback. This is because feedback helps students to notice the incongruities between their ideas and writing goal through dialogue and interaction (Ferris, 1997; Kramarski & Zeichner, 2001; Paulus, 1999). Feedback also contributes to students’ intrinsic cognitive load. Criticisms of written peer feedback include the feedback being vague, prescriptive (Mangelsdorf & Schlumberger, 1992) and too harsh (Villamil & de Guerrero, 1996). These weaknesses might arise because peers are not able to detect the macrostructure of the students’ writing and thus, their ability to align their peers’ ideas to the writing goal is affected (Hammann & Stevens, 2003; Mannes & Kintch, 1987).

This paper explores an alternative method for feedback, that is, through the use of graphic organizers. Graphic organizers consist of “spatial arrangements of words (or word groups) intended to represent the conceptual organization of text” (Stull & Mayer, 2007, p. 810). Examples of graphic organizers include concept maps, fishbones, matrices and flowcharts. Though the use of graphic organizers for feedback is not extensively studied, research on graphic organizers in other areas has shown promising potentials. For example, Paas (1992) finds that novices often have weak problem-solving methods because they are affected by the form of the problem. Thus, adopting a visual rather than textual form might help students fulfill their cognitive needs. Suthers and Hundhausen’s (2003) study reported that matrix and graph users have more discussions on evidential relations than users of text because the representations prompt them to discuss evidential relationships more than text. In
addition, organizers are better at promoting comparison and integration of concepts than outlines or lists as the indexing of ideas in the organizers enables readers to draw multiple intra- and inter-concepts relations simultaneously and holistically (Katayama, Robinson, Kiewra, Dubois, & Jonassen, 2001).

This study explores the use of graphic organizers by novice writers in a multi-stage drafting process with peers’ and teacher’s feedback. Specifically, this study examines two outcomes of feedback in students’ graphic organizers:

1) their ability to align their ideas to their writing goal and

2) their perceived germane, metacognitive, extraneous and intrinsic cognitive loads when generating and revising ideas based on the feedback.

Studies have looked at the effectiveness of feedback in students’ text but not in students’ graphic organizers. The findings from this study could contribute to media selection decisions in teaching writing. In addition, various studies have often attributed the success or failure of an intervention to students’ cognitive load without explicitly measuring their cognitive loads (Brunken, Plass, & Leutner, 2003). This study proposes to measure the students’ cognitive loads to identify how these four cognitive loads influenced the students’ relevance of ideas. This will help designers to scaffold students’ reorganization of meaning in social collaborative environments.

**Method**

A case study approach was adopted for this study as the case study inquiry copes with situations where there are many variables of interest and thus relies on multiple sources of evidence and theoretical propositions to guide data collection and analysis (Yin, 2003).
This study uses Van Merrienboer, Kirschner, and Kester’s (2003) four components instructional design: simple to complex sequencing of the learning task, supportive information, procedural information and part-task practice. The pre-writing task was segmented into three pre-writing processes according to the writing goal of each pre-writing process to facilitate part-task practice. In addition, the pre-writing processes were sequenced in order of difficulty. The students were also informed about how the three pre-writing processes were related in terms of writing goal and provided with peer and teacher feedback.

**Context**

The participants were taking *Effective Communication*, a core communication skills course offered to all engineering students in an Asian university. The key objective of the course was for the students to learn to communicate effectively in interpersonal, group and mass settings. Each two-hour tutorial (there were no lectures) consisted of two to three activities which included role plays, discussions and/or written assignments based on scenarios given. There were three continuous assignments for the course – one individual written assignment, one group written assignment and an oral presentation. There was also an end-of-semester examination which accounted for 50% of the grade for the course. The use of organizers as a feedback and revision tool was only used for the individual written assignment in the classes taught by the first author. This was because the intervention was time-consuming. If the first author extended the intervention to include the other two assignments, she will not be able to finish the syllabus and prepare her students adequately for the end-of-semester examination.
Participants

The participants were 36 first-year engineering students from two classes that the first author taught. As the first author was the teacher and researcher in this study, care was taken to conform to the ethical issues surrounding this relationship (Herr & Anderson, 2005). The students were invited to participate in the study. They were also informed that there was no monetary benefit or course credit in return for their participation. In addition, the writing assignment for all the students in the classes the first author was teaching was moderated at the course level by the Center to ensure fairness for all students.

The students were pre-registered into their classes randomly by their respective schools of engineering without any prerequisites. All the students were taking communication skills courses for the first time. In addition, all the students indicated that they did not know what graphic organizers were when answering the pre-questionnaire. There were 21 students from Singapore, 6 from Malaysia, 5 from Indonesia and 4 from China. Their ages ranged from 17 to 21 years old. There were 30 men and 6 women.

The novice writers were identified as those scoring a grade of B and below for their assignment. This classification was based on their assignment rather than a pre-test because the purpose of this study was to find out how feedback in their organizers affected novice writers’ revisions and cognitive loads in the process of writing.

Intervention

The intervention consisted of 3 stages and is summarized in Table 1.
In the pre-session stage, the students were asked to fill in a pre-questionnaire in week 2 to find out whether they have prior experience in using organizers. From weeks 2-4 of the semester, the teacher modeled the use of the organizers and how to give feedback in the organizers based on one tutorial activity on the white board. The teacher drew the organizers and then wrote their oral answers for the tutorial activity in the organizers. A total of six organizers were introduced to the students (Figure 1). The six organizers were chosen because they reflected the most common forms of organization in a writing assignment which are main idea and sub-ideas, cause and effect, and compare and contrast (Smalley, Ruetten, & Kozyrev, 2001). The tree diagram and target organizers (week 2) mainly represented main ideas and sub-ideas. The fishbone and clustering organizers (week 3) on the other hand, represented cause and effect relationships between the ideas. The matrix and venn diagram organizers (week 4) represented compare and contrast relationships between the ideas.

In week 4, the first author briefed the students about the writing assignment. The students were advised to plan their writing using any of the organizers that have been introduced to them. They were also informed that the writing task was broken down into three pre-writing processes: extracting and categorizing information (pre-writing process 1), integrating information (pre-writing process 2), and drawing conclusions (pre-writing process 3), with each pre-writing process having a different goal (Figure 2).
A scenario was provided to the students for this writing assignment with the following goals: The goal of the first pre-writing process was to identify the causes for Angela’s (a student in the university) communication problem as given in the assignment question; the goal of the second pre-writing process was to identify the main causes for the communication problem as it relates to the general undergraduate student population to their audience (the Student Affairs Office); and the goal of the third pre-writing process was to provide solutions to the problems identified in the second pre-writing process. In addition, for each pre-writing process, the students had to generate their ideas (generating sub-process) and revise their ideas based on feedback from their peers and teacher (revising-peer and revising-teacher sub-processes).

The first pre-writing process was done in class. The students generated their organizers in the generating sub-process based on ideas extracted from the assignment question. They then completed the mental difficulty questionnaire (Appendix A). Next, they gave their organizers to a classmate of their choice for comment. The students were not assigned peers to comment on their organizers as there were more novice writers than expert writers in both classes. The students then revised their organizers based on their peers’ feedback in the revising-peer sub-process. After that, they filled in the mental difficulty questionnaire. The organizers were then given to the teacher for comment and the students revised their organizers based on the teacher’s feedback in the revising-teacher sub-process. Then, they filled in the mental difficulty questionnaire.

In week 5, the first author taught the students how to formulate survey questions and use the survey results to form an argument based on a hypothetical case about university students wearing slippers to attend classes. They were then instructed
to come up with solutions that solved the problem. The students were asked to do likewise for the second and third pre-writing processes outside class hours and to fill in the respective mental difficulty questionnaires after completing the pre-writing processes. They were also instructed to write their assignment after they had completed the three pre-writing processes. The second and third pre-writing processes were completed outside the class hours because the teacher had to cover the syllabus and the students did not want to come for any extra class sessions to do the assignment. The students submitted all their organizers, mental difficulty questionnaires and assignment to the first author in week 6. In week 7, the focus group discussion was carried out to probe for the students’ reflections about the whole pre-writing process.

Data collection and analysis

Data were collected from the students’ organizers, mental difficulty questionnaires and focus group discussion.

The students’ organizers. The peers’ and teacher’s written feedback and the students’ revisions in their organizers were evaluated based on the relevance of the ideas to the writing goal for each pre-writing process. For example, the writing goal of the first pre-writing process was to identify the causes of the communication problem. Thus, ideas for this pre-writing process were categorized as relevant only if they identified the causes of the communication problem. The novice writers’ ratios of relevant to non-relevant ideas for the generating, revising-peer and revising-teacher subprocesses were calculated based on all the ideas in the organizer for a particular subprocess to provide an indication of their ability to align their ideas to the writing goal.
of each pre-writing process. The ratios of relevant to non-relevant ideas for the *revising-peer* and *revising-teacher* sub-processes were compared with the ratio for the *generating* sub-process to determine whether there was an improvement in the students’ relevance of ideas. The practical constraints of having students complete part of their assignment outside class hours also resulted in inconsistent submissions of the students’ organizers. Thus, in this study, the quantitative measures like ratios of relevant/irrelevant ideas were computed to help surface the patterns and trends in students’ learning outcomes rather than for statistical tests. There was a 95% agreement in the coding of the students’ ideas in the organizers.

*The mental difficulty questionnaires.* The students’ germane, metacognitive, extraneous and intrinsic cognitive loads were measured in each pre-writing process to provide an indication of how the novice writers’ cognitive loads differed in each pre-writing process and the strategies they used to overcome their difficulties in the writing task.

The items in the questionnaires were firstly identified based on informal feedback from the students in the first author’s English Proficiency class (students who failed the Qualifying English Test); the items were then grouped into the four types of cognitive load based on studies on students’ composing process, graphic organizers and feedback (Chemielewski & Dansereau, 1998; Ferris, 1997; Nelson & Carson, 1998; Paulus, 1999; Raimes, 1985; Winn, 1993). Items 1a–1f were grouped as contributors to germane cognitive load while items 1g–1j were grouped as contributors to metacognitive load. Items 3a–3e were grouped as contributors to extraneous cognitive load while items 3f–3j were grouped as contributors to intrinsic cognitive load. The questionnaire included an *others* item so that the students could
include other ways in which they felt the graphic organizers might have affected them. The questionnaire was then piloted on a former student who took the course and two colleagues teaching the course.

Each questionnaire consisted of 20 items. For each item, the students had to put a cross on a 5cm line to indicate the cognitive load they experienced in the three sub-processes. This is similar to Paas’ (1992) and Kalyuga, Chandler, and Sweller’s (1999) rating scale where the students translated the perceived amount of mental effort into a numerical value. The same questions were used for the generating, revising-peer and revising-teacher questionnaires because the feedback received from the participants during the piloting of the questionnaire was that the underlying thoughts and decisions that they made when writing for each sub-task or one writing task were the same.

As the number of questionnaires submitted for the generating, revising-peer and revising-teacher sub-processes for each pre-writing process was inconsistent, the students’ germane, metacognitive, extraneous and intrinsic cognitive loads were totaled for each pre-writing process and the mean cognitive load for each type of cognitive load derived. The total score for the others item was counted separately and not included in the total score for each type of cognitive load. This was followed by an analysis of the students’ mean scores for each item in the mental difficulty questionnaire. The items with the highest mean scores for each type of cognitive load were then noted to identify the strategies most used to overcome the difficulties they mentioned in the focus group discussion. As explained above, the students completed part of the assignment outside class hours, thus strict control of questionnaire submissions could not be exercised. The quantification of cognitive loads is used to reveal patterns and trends rather than for statistical comparisons.
Focus group discussion. Morgan’s (1998) approach for planning focus group discussions was adopted. The questions for the focus group discussion were piloted and revised based on the feedback received. There were two groups of eight to nine members in each class. A minimum of two groups per class was required so as to provide a way for us to check the consistency of the feedback made by the students in both groups. The focus group discussion was moderated as advised by Krueger (1998). In this study, the first author provided the students with a copy of the questions that would be discussed during the session and asked the students to provide voluntary answers to the questions posed as the first author went through the questions one by one. At the end of the discussion on each pre-writing process, the first author summarized what had been discussed and asked the students whether they had anything to add or change.

The students’ responses in the focus group discussion were analyzed following Krueger’s (1998) method to determine what difficulties they faced, their perception of peer and teacher feedback and how the organizers might have facilitated or interfered with their generation and revision of ideas in each pre-writing process. In this study, all the sessions were tape-recorded and transcribed. In analyzing the data, the internal consistency, frequency, extensiveness and intensity of the words and the context were taken into consideration. There was a 98% agreement in the coding of the students’ responses.
Results

The findings show that the novice writers’ relevance of ideas improved with feedback except in one sub-process. In addition, the students’ metacognitive load seems to affect the amount of ideas generated.

The Extracting and Categorizing Information Pre-writing Process

The findings in Table 2 show that the novice writers’ ratio of relevant to non-relevant ideas improved in the revising-peer and revising-teacher sub-processes as compared to the generating sub-process. Feedback in the students’ organizers seems to have helped to improve the relevance of the students’ ideas.

Insert Table 2

The novice writers’ responses in the focus group discussion and perceived cognitive loads were further investigated to find out how the students’ cognitive loads affected their ability to align their ideas to the writing goal of this pre-writing process. The students mentioned in the focus group discussion that they had difficulty in understanding the question as this was the first time they were writing a proposal (three students), developing their ideas (four students), using the organizers to generate and revise ideas (two students) and revising ideas based on peer feedback (one student).

The students’ cognitive loads were then analyzed to find out how they coped with these difficulties. Table 3 shows that the two highest percentages were germane cognitive load and metacognitive load. This means that the students perceived that they could elaborate their ideas and align their ideas to the writing goal well.

Insert Table 3
A further analysis of their mental difficulty questionnaires shows that in terms of highest mean score, the students might have been able to overcome their difficulties in understanding the task and developing their ideas because they remained focused when generating ideas and were able to identify relevant information from the assignment question (Table 4). In addition, the students’ difficulties in using the organizers and revising based on their peers’ feedback were expressed again in the mental difficulty questionnaires. The items *need more training in organizers* and *need more teacher feedback* were the items with the highest mean scores for extraneous and intrinsic cognitive loads respectively. Responses from the focus group discussion show that the students might have wanted more teacher feedback because the teacher’s feedback was accurate (3 students), the feedback helped to point them to the right track (2 students), and useful when they lacked knowledge on how to do the assignment (2 students). On the other hand, they felt that peer feedback was not accurate (three students), their peers were also new to the task and the feedback was too brief (two students).

Insert Table 4

In summary, the findings in this pre-writing process show that the students’ relevance of ideas improved with feedback. The findings on the students’ perceived cognitive loads further reveal that the students could cope with their difficulties because they could identify relevant ideas from the assignment question and remain focused when generating ideas.
The Integrating Information Pre-writing Process

The novice writers’ relevance of ideas improved after receiving teacher feedback in this pre-writing process (Table 5).

The novice writers’ responses in the focus group discussion were analyzed to determine what could have caused the low ratio in the revising-peer sub-process. The most frequently identified difficulty was revising ideas based on peer feedback (six students). This was because they felt that their peers’ comments contradicted what they wanted to express. In addition, many students perceived that their peers’ feedback was not accurate (2 students) and their peers lacked the knowledge to help them in their revisions (2 students). One other student mentioned that he had difficulty in presenting his survey results because he did not know which results were important and which were not important. Another student mentioned that he found it difficult to generate ideas using the organizer because he was not used to using the organizer to generate and revise ideas.

The novice writers’ cognitive loads were then analyzed to find out how they coped with these difficulties. The findings in Table 6 show that the two highest percentages were germane and metacognitive loads again. This means that the students perceived that they were able to elaborate their ideas and align their ideas to the writing goal well, which contradicts the earlier findings of low ratio of relevant/non-relevant ideas in the revising-peer sub-process (see Table 5).
A further analysis of their mental difficulty questionnaires was done to find out possible reasons for the low ratio in the revising-peer sub-process. In terms of mean score, Table 7 shows that the items with the highest mean scores for germane cognitive load and metacognitive load were *put ideas down quickly* and *identify relevant information from texts* respectively. An analysis of their organizers confirmed that they were triggering ideas based on keywords in the topic rather than the writing goal.

Insert Table 7

In summary, the findings in this pre-writing process show that the students’ relevance of ideas improved only after teacher feedback. The novice writers lost sight of their writing goal in the revising-peer sub-process. In addition, they preferred to ignore their peers’ feedback because they felt that the feedback was not credible.

*The Drawing Conclusions Pre-writing Process*

There seems to be a big fluctuation in the novice writers’ ratios of relevant to non-relevant ideas in this pre-writing process (Table 8).

Insert Table 8

The novice writers’ responses in the focus group discussion were analyzed to determine possible reasons for this fluctuation. The students mentioned that the main difficulty they faced was in supporting their main ideas (five students). The other difficulty they faced was in writing their assignment individually (two students).

The novice writers’ cognitive loads were then analyzed to find out how they coped with these difficulties. The findings in Table 9 show that the two highest
percentages were the germane and the metacognitive loads. This means that the students perceived that they could elaborate and align their ideas to the writing goal well.

A further analysis of their mental difficulty questionnaires was done to find out the possible reasons for the fluctuation in the ratio. The findings show that the items with the highest mean score for germane and metacognitive loads were *diagnose my mistakes* and *develop my ideas* respectively (Table 10). This reflects that even though they wanted to develop their ideas, the students were even more conscious about making mistakes. An analysis of their organizers also shows that the students ignored their peers’ feedback and made minimal changes in their organizers in the *revising-peer* sub-process. However, they generated more ideas based on the teacher’s feedback in the *revising-teacher* sub-process. This was because they felt that the teacher’s feedback was credible.

In summary, the students’ relevance of ideas fluctuated in this pre-writing process. This was because they wanted to provide a strong support for their ideas but they were even more focused on diagnosing their mistakes in order to minimize errors.

**Discussion**

The findings in this study show that the students’ relevance of ideas improved with feedback except for one sub-process. In addition, the students preferred teacher
feedback compared to peer feedback. This preference for teacher feedback is consistent with findings by Ferris (1997) and Paulus (1999). However, it is noted in this study that the students doubted the credibility of their peers’ feedback more when the complexity of the task increased. Thus, instructional designers should re-consider the inclusion of peer feedback in writing instruction for novice writers.

In addition, even though the students mentioned their need for more training in using the organizers for all three pre-writing processes, the students explained in the focus group discussion that the organizers made the feedback clearer (14 students) and afforded them the flexibility in grouping and re-grouping their ideas (12 students). This reflects that student opinions on use and helpfulness of a media are complicated (Burt, 1997). It is suggested that online courses that use a complex media mix should expand their curriculum so that prior training in the media could be conducted before the courses start.

Furthermore, the findings show the importance of scaffolding students’ metacognitive load. This is because the students’ metacognitive load affected the amount and relevance of the ideas generated. Concerns about the lack of training in using the organizers tapered out in the latter two pre-writing processes. Thus, the role of metacognitive load in students’ learning must be acknowledged and included in learning designs.

We would also like to propose ways in which visual organizers can scaffold students’ metacognitive load. In online courses, students need to coordinate information across representations. Visual organizers like metacognitive maps are helpful in scaffolding students’ metacognitive load. For example, Lee and Baylor (2006) proposed four frames in metacognitive maps for learners – learning contents, global map, local tracking map and planning space. The planning space is the
metacognitive component where students have to write down their learning goals and strategies for the section that they are learning. An explicit statement of their goals and strategies forces students to determine what type of information they are looking for and how the information aligns with their learning goals as they coordinate information across representations. Besides this, students could also be asked to check their work against their list of goals and strategies before submitting any section of their learning task.

In social collaborative environments, negotiations about the strategies to arrive at their learning goals could be graded. Students tend to plunge into the learning task without working out an agreed upon group strategy. Without shared goals and strategies, group dynamics and meaning negotiation falter. Visual organizers like graphic organizers could provide students with a simulation-like environment where as students negotiate their learning goals and strategies they could revise and re-group their ideas in the organizers, without the need to elaborate them in sentences, in order to see the possible outcome of a chosen strategy.

It is acknowledged that there are limitations in this study. We did not differentiate the effect of feedback from the use of graphic organizers in this study. This is because we did not intend to set up an experimental study to examine the effect of feedback and organizer separately. Rather, feedback in the students’ organizers is taken as a holistic strategy in this study. In addition, the inconsistent submission of the students’ organizers was due to the practical constraints that necessitated the students completing their assignment outside class hours.
Conclusion
The aim of this paper was to find out two outcomes of feedback in the novice writers’
graphic organizers which are: the novice writers’ ability to align their ideas to their
writing goal, and their perceived germane, metacognitive, extraneous and intrinsic
cognitive loads when generating and revising ideas based on the feedback. The
findings in this study show that the students’ relevance of ideas improved with
feedback except for one sub-process. In addition, the students’ metacognitive load
seems to affect their germane cognitive load.

Future studies on the use of graphic organizers as a feedback and revision tool
in a social collaborative environment could throw more light on how the timing and
intensity of the feedback affect students’ revisions and ultimately, their writing. In
addition, more research on how to scaffold students’ metacognitive load should be
conducted in this environment.
REFERENCES


Appendix 1. Perceived Mental Difficulty Questionnaire

1. Does the graphic organizer help you? For each of the following terms, place a cross (X) on the scale next to it to indicate the degree of helpfulness.

   a. Helps me get ideas down quickly
   b. Helps me remain focused when generating ideas
   c. Helps me identify main ideas
   d. Helps me to identify things to find out further
   e. Helps me organize information extracted from texts
   f. Helps me to diagnose my mistakes
   g. Helps me understand what the question wants
   h. Helps me identify relevant information from texts
   i. Helps me to develop my ideas
   j. Helps me to revise my mistakes

2. Are there any other ways that you think they help? Place a cross (X) on the scale next to it to indicate the degree of helpfulness.

   a. 
   b. 

3. What difficulties did you face using the organizers? How important are these reasons to you? Place a cross (X) on the scale next to it to indicate the degree of importance.

   a. Don’t know how to draw the organizers
   b. Takes too much time to draw
   c. Hard to understand the ideas in the organizers
   d. Need more training to use the organizers effectively
   e. Need more practice in using the organizers
   f. Organizers do not represent enough ideas to do the assignment
   g. Can’t relate the ideas in the organizers to my writing task
   h. Need more choice of organizers
i. Need more student feedback to use them effectively

j. Need more teacher feedback to use them effectively

4. Are there any other factors that limit you? Place a cross (X) on the scale next to it to indicate the degree of importance.