Digital Multimodal Composing Using Visme: EFL Students’ Perspectives

Quang Nam Pham · Mimi Li

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Abstract Due to the importance of digital multimodal composing (DMC) in the current educational context, the researchers in this study implemented infographic tasks in an English for Specific Purposes (ESP) course at a Vietnamese university and examined the EFL students’ perceptions on individual and collaborative composing of infographics using Visme. The students’ responses to open-ended questions suggested that Visme is a convenient and suitable tool for the infographic tasks which enhanced their learning experience and fostered creativity and writing skills. The main perceived advantages of individual DMC tasks are the enhancement of learner autonomy, and information literacy skills; the challenges the students encountered while working individually included insufficiency of writing ideas and lack of peer support. In comparison, collaborative DMC enabled group members to provide mutual scaffolding, generate more ideas for writing contents, and develop their collaboration skills, but the students complained about difficulty in reaching consensus within groups as well as unequal individual contribution to group work. This research study provides insights for both DMC research and ESP writing pedagogy.

Keywords Digital multimodal composing · EFL students · Infographic · Visme · Perception

Introduction

With the development of digital technologies, second language (L2) students have been engaged in multiple modes of communication and meaning making nowadays (Hafner, 2018). Their writing practice is no longer confined to print products but rather involves a wide range of multimodal types (Belcher, 2017). Kress (2003) initially drew our attention to multimodality, involving the use of different modes (i.e., textual, aural, linguistic, spatial, and visual) for communication and meaning making. Through digital multimodal composing (DMC) tasks, students can freely express their ideas by combining a variety of available resources such as texts, images, hyperlinks, emoticons, drawings, and photographs (Kohnke et al., 2021).

DMC has been found to motivate L2 students to write (Jiang & Luk, 2016; Kim & Belcher, 2020), develop their literacy skills (Jiang, 2017; Yi & Angay-Crowder, 2016; Yi et al., 2019), and enhance their awareness of audience and learning autonomy (Hafner, 2015). The infographic, a new form of DMC, is “an innovative and engaging method of visually communicating information in a colorful and concise manner” (McCrorie et al., 2016, p. 71) and is increasingly used for real-life communication (e.g., healthcare communication) in the digital age. Accordingly, DMC tasks (e.g., infographics construction) implemented in the English for Specific Purposes (ESP) class can prepare students for real-world digital communication in the specific discipline. In language classrooms, DMC tasks have been conducted mainly individually, with collaborative DMC tasks starting to capture researchers’ and instructors’ attention due to its potential to enhance collaborative skills and digital literacy skills simultaneously (Li & Zhang, 2021).

Little research has reported the use of Visme for DMC in ESP classes and previous studies have barely compared the

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L2 students’ perceptions of individual DMC and collaborative DMC. Such perspectives would enhance our understanding of the interactions between the new technology tool and new tasks in the ESP context, which would thus contribute to the broader area of ESP and writing in the digital age. Therefore, we implemented two infographic tasks in an ESP class with EFL medical students at a Vietnamese university and examined how they perceived the individual and collaborative DMC tasks using the infographics tool called Visme. This study was guided by the following two research questions:

1. How did EFL students perceive Visme as a tool to complete DMC, i.e., infographic tasks?
2. How did EFL students’ perceptions of individual DMC using Visme compare with their perceptions of collaborative DMC using Visme?

Literature Review

Given its potential benefits, multimodal approach has been increasingly incorporated into the course curricula in diverse learning contexts. Franceschi (2018) supported a multimodal approach to teaching medical English because communication does not only involve linguistic and cognitive capacity but also the ability to use a range of non-verbal elements. Belles-Fortuno (2018) explored the importance of multimodality in medical students’ learning products regarding the English for Health Sciences module. It was found that multimodality added further meaning and broadened the communicative spectrum of leaflets completed by the students. Li (2020) explored the role of multimodal pedagogy in language teacher education. The pre-service and in-service teachers perceived that multimodal tasks enabled them to enhance content learning, retain and deepen knowledge, foster mutual learning in the online community, and improve digital literacy skills.

The development of technologies has facilitated the widespread use of DMC in multiple L2 learning settings, including North America (e.g., Miller & McVee, 2012), Australia (e.g., Mills, 2016), and Asia (e.g., Jiang et al., 2020). As Tour and Barnes (2021) posited, DMC was developed in response to the various application of digital technologies and to the belief that texts include one or more semiotic systems (i.e., multimodal). In the digital world, text can be understood as ‘complex semiotic entity that includes linguistic and non-linguistic meaning-making resources’ (Yi et al., 2020, p. 2).

Previous research studies have addressed EFL students’ perceptions of DMC. In Jiang’s (2017) study, a group of 22 EFL students completed the DMC project of five small videos and reported that the technology allowed them to replay videos in a real-time manner, revise content at their own pace, and translate content from one sign system to another, and the DMC tasks enabled them to enjoy new learning experiences, extend their knowledge, and develop multiple literacy skills. While most L2 learners expressed their positive experience with DMC tasks, Jiang (2018) discovered a student who viewed DMC as a labor-intensive and time-consuming task. This student acknowledged the fact that DMC could improve the accuracy of his language use, but he was a very exam-oriented student, so he held a negative view of the time and effort he invested on this type of writing. Moreover, Kim and Belcher (2020) compared Korean EFL learners’ perceptions of traditional essay writing (i.e., monomodal writing) and DMC regarding argumentations of current social issues. This study revealed the EFL students’ mixed perceptions of traditional essay writing and DMC in terms of helpfulness, anxiety, attention to language form, motivation, and effectiveness. More students preferred DMC to traditional monomodal writing because DMC could generate their interests in writing and assisted them in meaning making.

More recently, the DMC tasks started to be utilized in conjunction with collaborative writing. Teng (2021) discovered that when EFL students completed collaborative writing tasks using interactive whiteboard technology, they showed a higher level of engagement in metacognitive activities and co-regulation. Akoto (2021) explored French as a FL learners’ experiences of collaboratively completing a digital postcard task in pairs/small groups using Google docs, and the students reported multiple benefits of DMC (e.g., improvement in their writing skills, genre awareness and semiotic awareness, and mutual learning through peer assessment) and some challenges (e.g., unequal participation, lack of control over the joint text, and technical glitches). Li and Pham (2022), drawing on the data collected from the larger project of this study, compared collaborative DMC products and individual DMC products, finding that collaborative infographics received overall better scores than individual infographics.

Although increasing studies on DMC have been implemented in L2 contexts, research on DMC in the ESP setting is still scarce. The infographic, a new form of DMC, was reported to be suited in ESP classes in recent studies (e.g., Kohnke et al., 2021). The use of infographics could increase students’ interest in the learning process (Fadzil, 2018), improve their learning and interaction skills (Parra, 2015), assist students’ language acquisition (Kohnke & Chan, 2019), and facilitate the instruction of complex ideas or facts (Gruber, 2015; Naparin & Sadd, 2017). After finishing infographic tasks, students exhibited a high level of task engagement and expressed a positive attitude towards the learning process (Alrwele, 2017; Dahmash et al., 2017). Therefore, in this study, we implemented infographics tasks
in an ESP course at a Vietnamese university. Due to the lack of empirical studies on individual DMC in comparison with collaborative DMC (Li & Pham, 2022), we focused on the Vietnamese EFL students’ perceptions of using the digital tool Visme for both individual and collaborative DMC.

Methods

Context and Participants

This study came from a larger project that investigated the implementation of DMC in the ESP context. This project was conducted with 185 first-year medical students at a public university in south Vietnam. These students were trained in a 6-year undergraduate program to become medical professionals specializing in traditional medicine. During their first year in the program, they took required medicine-oriented courses such as Biology, Statistics in Medicine, and English in Medicine.

When this research project was conducted in the Spring of 2021, these students were taking an ESP course which carried 3 credits. The students’ English language proficiency was at the Intermediate low or higher levels according to the ACTFL Guidelines. This ESP course required students to attend 15 class meeting sessions in person, pass the midterm quiz, join classroom activities, and take a final exam. The goal of the course was to provide students with opportunities to practice integrated English skills (e.g., listening, speaking, reading, and writing) in the medical field (particularly in anatomy and physiology). The readings texts included the required textbook named *English in Anatomy and Physiology* and online resources selected by the instructors, the first author’s colleagues. The researchers were not involved in any classroom teaching activities.

Digital Multimodal Tasks

Two DMC tasks were implemented in this ESP course. In Task 1, the students were asked to create an infographic instructing their friends and family to prevent Covid-19 virus infection. In Task 2, the students created an infographic for their patients to control high blood pressure. Because the students were learning medical/technical vocabulary about diseases and the corresponding treatments, these two DMC tasks aligned well with the course objectives and contents. Both tasks required them to identify the audience that their infographics intended to reach, orchestrate semiotic resources (e.g., words, images, icons, hyperlinks) obtained from reliable sources (e.g., public newspaper, journal articles, websites), and include a footer listing all cited resources at the end of the poster (See Figs. 1, 2 for sample infographic posters). Details regarding how each task was completed individually or collaboratively will be discussed in the procedures section.

The DMC tasks were evaluated according to a multiple-traits rubric adapted from the one discussed in Hafner and Ho (2020). Three grading criteria were included: organization/contents, visual effects, and language, each
accounting for a total of 5 points. The participants were expected to present and organize information clearly, logically, and in original ways; fully address the topic with well-supported ideas; and cite references appropriately. The multimedia and visual effects criteria involved using visuals and multimodal resources appropriately (e.g., texts, hyperlinks, images, emoticons; tables, graphs, video clips) to construct meaning and engage audience. The language criterion evaluates participants’ language accuracy and the use of various lexicons related to the topic.

Visme

The students were instructed to use the digital tool Visme (https://www.visme.co/) to create their infographics. Visme is a tool that can support the creation of presentation, infographics, and visual content in a web-based platform. Users can enjoy its free version to create professional infographics with available templates and icons, drag-and-drop capabilities, and collaboration functions. In particular, Visme offers various free editable infographics templates and thousands of free infographic elements to choose from. Its collaborative design feature with multiple annotation/commenting tools allows group members to provide feedback and discuss with each other in the form of discussion threads (see Fig. 3). Visme also allows users to save their infographics as portable or image files.

Procedures

According to the IRB protocol, a total of 185 students were recruited after the first week. With the permission of the instructors, the first author held an in-person orientation with the participants and collected their completed consent forms. During the orientation, the first author introduced the two DMC tasks and the corresponding grading rubrics (see digital multimodal tasks section). He then presented some sample infographics from the WHO website (https://www.who.int/westernpacific/emergencies/covid-19/information) for the students to visualize their future products in terms of contents, layouts, and multimedia effects. As most of the participants in this study had no prior experience with Visme, a 3-hour training session was offered on how to use Visme to create infographics, including how to open a Visme account, create a new project, invite collaborator, use existing templates, and insert images or texts. Afterward, the students had an on-site practice of using Visme to create a sample infographic using their own laptops.

The participants were divided into two halves, called Section A and Section B. Students in each section were randomly assigned into small groups of 2–3 members. Participants in Section A were asked to work collaboratively within their assigned groups while those in Section B worked individually to complete Task 1. For Task 2, the participants in Section A created an infographic poster individually, whereas those in Section B collaborated with their assigned group member(s). Each task was completed within two weeks. The participants were free to consult
online resources for ideas and images or discuss with their group members, and they did not report any concerns during their DMC process. A total of 125 infographic posters were collected from Task 1, and 129 collected from Task 2, which were assessed using the grading rubric mentioned above.

After participants submitted their two infographics, they were invited to complete a Qualtrics survey consisting of 5 short open-ended questions (Q3–Q7), which sought their perspectives on the Visme tool, collaborative DMC, as well as individual DMC. The 5 questions are as follows:

1. Q3. What do you think of Visme?
2. Q4. What did you LIKE about the multimodal project completed individually?
3. Q5. What did you LIKE about the multimodal project completed collaboratively?
4. Q6. What did you NOT LIKE about the multimodal project completed individually?
5. Q7. What did you NOT LIKE about the multimodal project completed collaboratively?

The students were allowed to express their opinions in either English or Vietnamese. A total of 185 responses were collected from the students. The first author sent the Qualtrics survey link to participants’ email, and they had one week to complete the survey. As some responses to the open-ended questions were written in Vietnamese, the first author created a spreadsheet in which he input the English translations of the Vietnamese responses next to the original English responses, one sheet for each question.

Data Analysis

The Qualtrics report recorded all the participants’ responses to the questionnaire. The spreadsheet recording the participants’ written responses was shared with the second author, who conducted the content analysis (Denzin & Lincoln, 1994) of the participants’ perceptions in an inductive manner. Allowing themes to emerge from the data rather than imposing on pre-determined categories, the second author read and reread the data to derive the thematic categories and individual codes. Specifically, she coded the students’
comments with key words that could represent the gist of their responses, and on most occasions employed in vivo coding (Saldaña, 2016), placing emphasis on the actual words of the participants. For instance, the students used words such as “convenient,” “helpful,” “creative,” and “developing writing skills” in the responses to Q3 (What do you think of Visme?), and in vivo coding applied as these terms captured the gist of their comments. After the first author reviewed one-fifth of the data and agreed on all the codes, the second author then completed the coding of all the participants’ responses to Question 3 through Question 7.

To address the research question about the students’ perceptions of the technology tool Visme, the content analysis of students’ responses to Q3 was conducted. Two main themes emerged from the data: benefits (coded as A) and constraints (coded as B). The five specific codes were established for the benefits (i.e., A1 convenience/helpfulness, A2 suitability for infographics tasks, A3 enhancing (digital) learning, A4 fostering creativity, and A5 fostering writing development) and three codes for the constraints (i.e., B1 limited function with free version, B2 difficulty in use, and B3 low-quality image).

Regarding the students’ perceptions of individual DMC using Visme, the two main themes of advantages (coded as A) and disadvantages (coded as B) emerged. Based on the students’ responses to Q4 (What did you LIKE about the multimodal project completed individually?), the codes for the advantages of the individual project were derived (i.e., A1 allowing for independence/autonomy, A2 fostering creativity, A3 time efficiency, A4 developing writing skills, and A5 developing digital/information literacy skills). Likewise, based on their responses to Q6 (What did you NOT LIKE about the multimodal project completed individually?), the codes for the disadvantages were derived (i.e., B1 less writing perspectives, B2 heavy workload/time consumption, and B3 lack of peer scaffolding).

To address the question about students’ perceptions of collaborative DMC using Visme, the same procedure was conducted to derive the codes for the advantages and disadvantages of the collaborative project, drawing on the students’ responses to Q5 (What did you LIKE about the multimodal project completed collaboratively?) and Q7 (What did you NOT LIKE about the multimodal project completed collaboratively?). The established codes for advantages of collaborative multimodal writing are A1 developing collaboration skills, A2 more writing perspectives, A3 reduced workload/work efficiency, A4 peers’ mutual scaffolding, A5 better writing products, A6 facilitating learning (language and writing). The established codes for disadvantages are B1 difficulty reaching consensus, B2 sheer division of labor, B3 unequal contribution, B4 being time-consuming, and B5 inability to have synchronous communication.

After the second author completed the coding, the first author, according to the coding schemes, reviewed all the coding shown on the spreadsheet, and made a few revisions, which were agreed upon via the discussion with the first author. Afterward, the descriptive data analysis (e.g., frequency counts) was conducted by tallying the number of occurrences for each code.

Results

As noted in the previous section, this study focused on the Vietnamese EFL students’ perceptions of using Visme for individual and collaborative DMC. Based on the analyses of the answers to the open-ended questions from the online questionnaire survey, this section discusses (1) the students’ perceived benefits and constraints of Visme, (2) the students’ perceptions of individual DMC, and (3) the students’ perceptions of collaborative DMC.

Benefits and Constraints of Visme

Regarding the students’ perceptions of Visme as a tool to create infographics, we discuss below eight themes addressing both benefits and constraints, as shown in Table 1.

As mentioned in the previous section, not all the participants responded to the survey or completed all the survey questions. Therefore, the total frequency counts shown in Tables 1, 2, and 3 are lower than the total number of the participants (n = 185). It can be seen from the table that most students (n = 28) indicated that Visme was convenient or helpful in completing infographics tasks. As one student expressed, ‘this tool is convenient, nice, and easy to use’ (Survey, 07/26/2021). Some students (n = 9) commented that the nature of Visme matches the task of infographic posters. One of them stated that ‘this is a powerful tool that could help me complete infographic tasks’ (Survey, 07/26/2021). Other students (n = 7) thought that Visme enhanced their learning experiences. A few more students hold positive opinions about Visme in that it fostered their creativity (n = 4) and writing development (n = 4). One student remarked,

Visme is very interesting. Before I was assigned the tasks, I had no idea about this tool. When completing the tasks based on the teacher’s instruction, I am pleased to make something new with my own creativity. (Survey, 07/26/2021).

Students also encountered some challenges while using Visme for their infographic tasks. Because Visme is not a completely free web-based application, most students (n = 20) could not enjoy all of its functions using the free version. One mentioned that ‘the tools for designing were...
Table 1  Students’ perceptions of the technology tool Visme

| Benefits                                             | Frequency |
|------------------------------------------------------|-----------|
| A1. Convenience/helpfulness                          | 28        |
| A2. Suitability for infographics tasks               | 9         |
| A3. Enhancing learning experience                    | 7         |
| A4. Fostering creativity                            | 4         |
| A5. Fostering writing development                    | 4         |
| **Subtotal**                                         | **52**    |

| Constraints                                          | Frequency |
|------------------------------------------------------|-----------|
| B1. Limited functions with free version              | 20        |
| B2. Difficulty in use (e.g., icons being hard to edit)| 8         |
| B3. Low-quality image                                | 2         |
| **Subtotal**                                         | **30**    |

Table 2  Students’ perceptions of individual multimodal writing using Visme

| Advantages (Q4)                                      | Frequency |
|------------------------------------------------------|-----------|
| A1. Allowing for independence (autonomy)             | 63        |
| A2. Fostering creativity                             | 28        |
| A3. Time efficiency                                  | 13        |
| A4. Developing writing skills                        | 7         |
| A5. Developing digital/information literacy skills   | 11        |
| **Subtotal**                                         | **122**   |

| Disadvantages (Q6)                                   | Frequency |
|------------------------------------------------------|-----------|
| B1. Less writing perspectives                        | 11        |
| B2. Heavy workload/time consumption                  | 27        |
| B3. Lack of peer scaffolding                         | 12        |
| **Subtotal**                                         | **50**    |

Table 3  Students’ perceptions of collaborative multimodal writing using Visme

| Advantages (Q5)                                      | Frequency |
|------------------------------------------------------|-----------|
| A1. Developing collaboration skills                   | 32        |
| A2. More writing perspectives                         | 27        |
| A3. Reduced workload/work efficiency                 | 23        |
| A4. Peers’ mutual scaffolding                        | 21        |
| A5. Better writing products                           | 11        |
| A6. Facilitating learning (including writing and language) | 14        |
| **Subtotal**                                         | **128**   |

| Disadvantages (Q7)                                   | Frequency |
|------------------------------------------------------|-----------|
| B1. Difficulty reaching consensus (including compromising one’s ideas) | 33        |
| B2. Division of labor                                | 4         |
| B3. Unequal contribution                             | 12        |
| B4. Being time-consuming                             | 8         |
| B5. Inability to have synchronous communication       | 8         |
| **Subtotal**                                         | **65**    |
limited because I had to upgrade it. It was not completely free of charge.’ (Survey, 07/26/2021). Also, quite a few students \( (n = 8) \) expressed difficulty in using or navigating Visme. They complained that it ‘was hard to edit images’ on Visme or Visme ‘was hard to use’ (Survey, 07/26/2021). Two students also reported their issue with generating a high-quality infographic with the free version of Visme. Because they had prior experiences producing infographics with other applications, they realized that the image quality that Visme generated was not as good as those applications. As one student commented, ‘Visme is not good to support students, because its functions are quite limited compared with other applications like PTS, Ai and also it can only generate low-quality images’ (Survey, 07/26/2021).

### Student Perceptions of Individual DMC

In terms of the students’ perceptions of individual DMC using Visme, we present below eight themes addressing both advantages and disadvantages, as shown in Table 2.

Many students \( (n = 63) \) acknowledged that an individual DMC task could promote their independence and enhance their learning autonomy. As they indicated in their responses, an individual DMC task could allow them to freely express their viewpoints, fully determine the contents, and complete the task quickly without worrying about their peers. One student also noted that as to the DMC task, ‘working individually helped my writing skills, content organization, information search and therefore can increase my awareness’ (Survey, 07/26/2021). Other students \( (n = 28) \) perceived that an individual DMC task could foster their creativity. These students remarked that they could be creative throughout the task and the task helped increase their creativity. Some other students \( (n = 13) \) perceived that they could manage their time more efficiently when creating an infographic individually. Still other students \( (n = 11) \) reported that they improved their digital or information literacy skills after an individual DMC task because they knew how to search information or learned how to use a new digital tool. A few students \( (n = 7) \) reported that individual DMC improved their writing skills; as one of them noted, it could ‘not only improve my writing skills but also enhance my structure of writing, content development’ (Survey, 07/26/2021). This perspective is encouraging, which helps instructors alleviate the concern that DMC tasks might decrease the opportunities for students to learn the language (Qu, 2017).

Three main themes regarding the disadvantages of individual DMC were also recorded. First, heavy workload and time consumption were two main challenges that most students \( (n = 27) \) encountered. They highlighted the fact that it took them much time to complete the task individually because there was so much work to complete on their own. Lack of peer scaffolding was the next challenge for EFL learners. Some students \( (n = 12) \) maintained that they had to do everything on their own and did not receive any support from their peers. One stated that ‘when working individually, I had so many ideas and did not know where to start. But if I work collaboratively, I had a chance to discuss and find the best ideas’ (Survey, 07/26/2021). Another challenge was the lack of writing perspectives, as perceived by a portion of students \( (n = 12) \). In their perspective, working individually constrained brainstorming for ideas, which, unfortunately, was a big issue for those who could not come up with relevant sufficient information regarding the topic.

### Student Perceptions of Collaborative DMC Task

We also identified advantages and disadvantages that L2 students perceived regarding collaborative DMC, as depicted in Table 3.

Comparing Tables 2 and 3, we derived that the EFL students reported more advantages of collaborative DMC using Visme as well as more disadvantages. In terms of the advantages, six themes emerged from the students’ written responses in the survey. First, most students \( (n = 32) \) agreed that a collaborative DMC task could enhance their collaboration skills. One of them admitted that ‘although I’m into doing alone more, I still can work together with other people since it helps me enhance my social interaction skill and learn to collaborate’ (Survey, 07/26/2021). Second, working collaboratively was helpful for students \( (n = 27) \) who struggled with writing perspectives. These students indicated that they were pleased with working in small groups because they could receive more ideas, opinions, and feedback from their peers, which, as they believed, enriched the infographic contents. One student, after experiencing collaboration with peers, shared that ‘I can have more ideas to choose from’ (Survey, 07/26/2021). Third, the collaborative work using Visme reduced student workload and increased their efficiency. The students \( (n = 23) \) explained that they could share the workload with peers and complete the tasks sooner than expected. One student, for example, was positive about the collaborative work because ‘I can share the workload with other people, thus reducing the amount of work to complete’ (Survey, 07/26/2021). Fourth, many students \( (n = 24) \) stated that they benefit from peers’ mutual scaffolding during task negotiation. As one expressed, ‘friends can give their opinions and we will filter the best ideas, contents to carry out’ while at the same time ‘we can complement on each other and have discussion or interaction’ (Survey, 07/26/2021). Having better writing products was another theme emerging from students’ response in relation to their perceptions of collaborative DMC work. The collaborative work helped them ‘create beautiful graphics and finish all parts’ and ‘improve the quality of the product’ (Survey, 07/26/2021).
Finally, some other students \( (n = 14) \) mentioned that working collaboratively facilitated their learning in both writing and language, including their writing competence as well as language skills. As they pointed out, the collaboration assisted them in exchanging information, practicing writing skills, and learning new things. Again, the students’ positive attitude towards the role of DMC in language learning would motivate instructors to implement DMC in the L2 learning contexts. When working collaboratively, they can ‘learn many new things,’ ‘practice writing skills,’ and then ‘improve writing skills’ (Survey, 07/26/2021).

Despite the perceived benefits of collaborative DMC, many students reported challenges with this type of writing task. The challenges addressed five themes. Students \( (n = 33) \) had difficulty reaching consensus and compromising ideas in their groups during discussing on how to complete the task. The students complained that it was hard for them to reach an agreement with peers because of many different opinions from group members. They also encountered conflicts among members, and therefore had to make extra efforts to resolve. One student commented that

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\text{It takes time to reach an agreement. There were many different opinions. We had to find time that worked best for all of us. (Survey, 07/26/2021).}
\]

\[
\text{It was hard to work on my own perspectives. I need to mitigate all ideas from other members. (Survey, 07/26/2021).}
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Moreover, a few students \( (n = 4) \) had issues with equal labor division. Believing labor division is essential for collaborative writing, they maintained that it was not easy to assign the workload equally among group members. They shared that ‘it was hard to assign the workload within a task’ and ‘the labor division was not smooth’ (Survey, 07/26/2021). Some students \( (n = 12) \) also experienced the problem of unequal contribution. They were not happy with the co-working process because their partners were passive or did not make enough contributions; it made them even more unhappy that those free riders received the same grade for the final product. One student pointed out that

\[
\text{Some members were not active but still received the grade. Random group assignment led to unequal groups: some groups consisted of excellent students while other groups had members who could not do anything. The work capacity among groups was not equal. The grade could not accurately reflect the contribution each member made. (Survey, 07/26/2021).}
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Being time-consuming was the next disadvantage that some students \( (n = 8) \) reported. One of them was quite negative about the collaboration because he/she ‘had to depend on my partners to complete my part, so I could not complete the task with my own schedule’ (Survey, 07/26/2021). Some other students \( (n = 8) \) complained that they were unable to have synchronous communication during collaboration. As one student addressed, it was hard for his/her team to schedule a group discussion or chat, thus lowering their interest in group work that the students reported it was ‘hard to have a group meeting,’ ‘not convenient when working remotely’ (Survey, 07/26/2021).

Discussion

This study presents the Vietnamese EFL students’ multiple perspectives regarding individual and collaborative DMC, specifically, using Visme to create infographics related to the healthcare discipline they engage in. By integrating DMC into the ESP curriculum, the EFL students had opportunities to practice their DMC skills and reflect on this novel learning experience. The main finding in this study is that the students had positive experience in using Visme for infographics, and perceived both advantages and disadvantages of individual and collaborative composing of infographics. Students’ prior experience with collaboration for a writing task may account for some students’ difficulty with collaborative DMC. Prior to this study, they had little or no prior experience collaborating with peers in the online platforms to complete a given writing task. Therefore, they felt it challenging to divide labor, communicate, and negotiate during the online co-working environment. The pre-task training session in this study focused on the use of Visme for DMC but did not provide sufficient instructions on how to conduct collaborative writing.

Together with the previous studies (Arnold et al., 2012; Bikowski & Vithanage, 2016; Kessler & Bikowski, 2010; Lee, 2010) exploring applications of Web 2.0 such as Wiki and Moodle in second language writing, this study also noted constraints and affordances of Visme in DMC. These challenges, and those discussed in the previous studies, indicate that language students should be provided with the necessary resources prior to their use of Web 2.0 platforms to complete DMC tasks.

Regarding the infographic tasks, the findings of this study echoed positive perspectives of infographics as digital writing tasks reported in previous studies (Alrwele, 2017; Parra, 2015; Dahmash et al., 2017; Fadzil, 2018; Kohnke & Chan, 2019). The infographics increased students’ learning interests and engaging them throughout the learning process. The results of the study also echoed Jiang’s (2017) finding that DMC project could help students develop their writing and collaboration skill. The infographic project, in the students’ perspectives, allowed them to improve their writing skill (i.e., writing English sentences) as well as information literacy skills (i.e., searching information from the Internet for their writing).
Moreover, in line with the findings reported in Kim and Belcher (2020), DMC tasks were found to foster students’ creativity. To achieve the creativity of their infographics, students in this study looked for relevant resources, and employed multimodal resources (e.g., colors, fonts, visuals) to convey their meaning and construct knowledge in their unique ways.

Worthy of note, this study reinforced the results that DMC helps with the enhancement of learner autonomy (Jiang & Ren, 2020). As some participants in this study noted, the individual DMC task enhanced their learning autonomy, being more aware of their role as an independent learner/writer and working diligently to create an infographic using Visme. Echoing Jiang’s (2018) finding, we also found that a few EFL students considered DMC as a labor-intensive and time-consuming task. Despite this issue, some EFL students appreciated collaborative DMC for the opportunities of peer scaffolding that facilitate their DMC process. However, this perspective was not concurred unanimously. For a few students, DMC could take even more time if the group members could not reach agreement and had to spend extra time resolving conflicts. They complained about the unequal division of labor and unequal individual contribution, which was also reported in Akoto’s (2021) study. Thereupon, the training of collaborative writing in the beginning of the research project is a crucial component (Li, 2018; Li & Zhang, 2021). It seems important that the training should integrate both collaborative writing knowledge (e.g., co-ownership, mutuality, and equality of interaction) and technology use so as to facilitate collaborative DMC processes.

Conclusion

This study, conducted with 185 Vietnamese EFL students enrolled in a tertiary-level ESP course, responded to the call for the research of DMC in diverse educational contexts (Kim & Belcher, 2020; Zhang et al., 2021). The findings of this study echoed L2 students’ positive perceptions on the use of infographics tasks in language classrooms, reported in previous studies (e.g., Alwele, 2017; Parra, 2015; Fadzil, 2018; Kohnke & Chan, 2019). Also, our study reiterated the affordances of DMC for learning, including enhancing learner autonomy and creativity, and developing digital writing and information literacy skills, and also reinforced the important role of collaboration in writing tasks, such as providing peer scaffolding, developing collaboration skills, broadening writing perspectives, and potentially creating better writing products. We derived the students’ mixed perceptions about individual and collaborative DMC tasks in this study. This finding supported Storch’s (2017) recommendation for instructors about giving their students options to choose and decide on their own, working individually or working collaboratively for course assignments.

Limitations and Contributions of the Study

We need to acknowledge the limitations of our study before further discussing the pedagogical and research implications. First, the researcher position may have an influence on the data interpretation of the study (Creswell, 2007). The co-authors’ backgrounds in language education, instructional technologies, and research interest in CALL may influence their interpretations of the students’ responses in the study. It would have been ideal if we got a chance to do member checking with the participants and also invited a Vietnamese colleague to verify the first author’s translations of some participants’ written responses in Vietnamese. Second, the groups were assigned randomly in this study, not taking the students’ working styles and preferences for partnership into consideration. Some students did not know group members well and found it hard to collaborate. Thus, students’ attitude towards collaborative DMC found in the study cannot be representative.

However, our study contributes to the current body of literature on DMC in general and the use of infographics in L2 classrooms specifically. This is an initial study that implemented both individual and collaborative DMC in the L2 contexts. From the EFL students’ perspectives, both collaborative and individual DMC had their respective advantages and disadvantages. Some strengths of individual DMC could offset the weaknesses of collaborative DMC, and vice versa. For instance, students who lacked ideas for their individual writing might find a collaborative task helpful because they could be scaffolded by their peers. Likewise, students who complained that a collaborative DMC task was time-consuming due to the large amount of time they spent to reach peer consensus might work better individually in terms of work efficiency. The perceived benefits and challenges of individual and collaborative DMC provide further insights on how L2 teachers can effectively implement DMC tasks in their classrooms. Moreover, our study initially examined the use of Visme for the infographic tasks in L2 classes, particularly the affordances and constraints of Visme for collaborative multimodal writing, which bridges the gap in the literature and sheds light on digital L2 writing pedagogy.

Pedagogical Implications

Given multiple perceived benefits of DMC highlighted in this study, DMC offers opportunities for curriculum planners, especially ESP educators, to consider the importance of DMC in today’s connected workplace. Also, Language teachers should acknowledge readily accessible multimedia resources when designing L2 writing tasks (Hafner,
If students in the digital world miss the opportunity to access these multimedia resources in their language practice, it appears that language teachers are doing “a disservice to language and literacy learners” (Kim & Belcher, 2020, p. 87). In response to Qu’s (2017) argument that language learning/communication should still be given priority in L2 classrooms, and DMC might risk decreasing learners’ attention to linguistic development, the students’ response in our study seemed to alleviate Qu’s concern: the EFL students commented on their language learning and writing development through DMC tasks, which was also reflected in their final DMC products as discussed in Li and Pham (2022).

Drawing on this study’s finding that mixed feelings were conveyed among the EFL students as to individual writing and collaborative writing, instructors need to have the students choose to work either individually or collaboratively when implementing individual/collaborative DMC tasks. Based on the EFL students’ complaint about unequal individual contribution and division of labor, instructors need to train students on how to collaboratively work on the writing tasks using the technology tool. In our study, although the students received much instruction on how to create infographics using Visme, training on how to collaborate with group members via the technology was not sufficient; how to take advantage of the features of Visme for collaboration should have been highlighted. We could also have included the instruction about the knowledge of collaborative writing, such as the constructs of co-ownership and equality and mutuality of peer interaction, as well as their operationalizations. In future practices, to facilitate students’ collaborative process, we need to create assessment criteria that reward both the writing process and the product, both the quality of individual contributions and that of the jointly constructed text (Li, 2018; Li & Kim, 2016; Storch, 2013; Zhang & Chen, 2022). Regarding the technology training, the participants in this study received only one 3-h training session to learn how to use Visme. This short training might not be sufficient for the students who had limited computer skills or digital literacy skills in the developing country. Accordingly, recorded instructional digital videos shared with students can be very helpful in that students can access and review it whenever needed both in classes and outside classes. If students had prior experience with other similar technology tools, as revealed in this study, it would be useful to have students compare the different tools and be clear about the distinctive features of the new tool.

**Future Research Directions**

With multimodal realities in the digital age, DMC will continuously attract researchers’ and instructors’ increasing attention. Future studies should continue to explore how DMC tasks (infographics, in particular) can be integrated into the L2 writing curriculum that gears to the students’ real-life environment, as this study intended. To get a thorough picture of the students’ perceptions, long-term case studies or narrative inquiry approaches can elicit in-depth understanding of students’ stable or changed perceptions on individual/collaborative DMC. Future research can also zoom in on the students’ collaborative multimodal writing processes and explore how students scaffold each other while employing multiple semiotic resources to complete the DMC task. In addition, how the assessment of DMC can facilitate students’ learning will constitute another important research direction. Future research work on DMC in ESP classes will shed new light on how DMC practices can inform digital L2 pedagogy and better serve our L2 students in the digital age.

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