

## 研究ノート

# 思考整理に焦点をあてた協働的ライティング活動の試み —プレライティング活動が学生の学習に及ぼす影響—

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本稿は、思考整理に焦点をあてた協働的なライティング活動がいかに学生のライティング学習に影響するかを分析し、本活動の妥当性を纏めたものである。具体的には、主体的・対話的で深い学びを意識したライティング指導の一環として、執筆前の協働的ライティング活動（プレライティング活動）をプロジェクト発信型英語プログラムの授業に導入し、プロセス重視の指導を展開した。何をどう書いてよいか分からない学生に独自に構築した補助教材を提示し、論理的且つ客観的に思考を整理する機会を可能な限り与え、執筆前の思考整理の方法とその重要性を強調した。

本活動が学生の学習に及ぼす影響をアンケートにより検証したところ、学生の思考を活発化させ、アカデミックライティングにおける根本的・基礎的知識を習得させる効果があったと言えよう。本研究は、ライティング指導に従事されている関係者にとって教育的示唆を伴う一例となるであろう。

キーワード：思考整理、学生の認識、協働的ライティング活動、プロジェクト発信型英語プログラム

## 1. Introduction of Prewriting Activities

With the globalization of academia and research, where English is entrenched as the common language of communication, second language (L2) learners of English have more opportunities, and demands, to write English papers. As a matter of fact, more than 95% of published research papers in the scientific field was written in English (Nederhof, 2006). In such academic research environments, written communication has been reasonably considered as one of the most workable skills (Matsuda, 2010). In that context, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) required higher education institutions to develop students' English language skills necessary to achieve at academic study or research. Specifically, it has emphasized reforms such as super science high schools and the top global university project. In accordance with the government-led reforms, the development of L2 writing proficiency has been more stressed in the field of English education. In spite of such attempts, Japanese EFL (English as a Foreign Language) students have not improved their writing skills much. Yomiuri Shimbun (2015) states that a 2015 survey conducted by the MEXT found that 80% of third year high school students had writing skills equivalent to that of students at the junior

high school level. It can thus be assumed that university level students have a similarly low writing proficiency level. In fact, looking at the L2 texts of university level students, it is clear that the main points of argument in their writing compositions are not comprehensible due to missing information or incoherent sentences (Tsuji, 2016). As students do not know what to discuss in a paper and how to organize the arguments, they write what comes to mind without organizing thoughts or arguments (Yoda, 2012). Since writing is the complicated set of mental processes according to McLaughlin (1987, cited in Rao, 2007), writers need to logically organize their critical thoughts and arguments prior to the start of their writing texts. Lally (2000) regards the pre-writing or idea-generation stage as an essential component of process-oriented writing instruction. Kellogg's 1990 study put emphasis on the importance of the role of pre-writing strategies for the production of higher-level writings. The author, an instructor of Project-based English Program (PEP), therefore, turned to a process-focused instruction, and introduced prewriting activities to her actual classrooms in a pilot study. There are many types of prewriting activities. The prewriting activity entails a core writing task in which students identify key concepts, a logical order, and an organizational structure for writing an

academic paper. To effectively initiate the activities, two worksheets are uniquely constructed: the what-to-write and how-to-write worksheets. The prewriting activities<sup>1</sup> would provide students with an opportunity to reflect what to write or discuss in a paper and how to organize the ideas/arguments.

## 2. The Study

### 2.1. Aims

This preliminary classroom study aims to examine the efficacy of the prewriting activity on students' perceived learning. The activities are conducted solely on the section of introduction for this study. Most of students' texts fail to clearly state the project purpose/research question (RQ) in the introductory (Tsuji, 2016). Moreover, the descriptions of the background/current issues do not logically flow into the RQ. Students did not understand how to properly write an introductory paragraph due to a lack of instruction. Therefore, the author focused on providing students with training in this area. The primary purpose for the study is to help students' cognitive process for a better writing performance, and evaluate the prewriting process in a Japanese EFL pedagogical context. The study addresses the following two research questions.

- (1) Does the prewriting activity influence the development of students' attitude to consider what to write/discuss in the introductory paragraph and how to organize the arguments in the paragraph?
- (2) What are the students' perceived learning through the prewriting process?

The first examination is related to the impact of the activities on students' perceived learning, and the second seeks to identify their perceived achievements through the process.

### 2.2. Participating students

The subjects were 80 sophomores in the College of Life Sciences and Pharmaceutical Sciences. They enrolled in the Project English 3 (P3) during the spring semester of 2016 at a large private university in western Japan. Students who registered this course were required to have taken P1 and P2 during the previous semesters. The P1 course adapts the aspects of EGP (English for General Purposes) focusing on applications in general situations, while the P2 gradually introduces the practice of EAP (English for Academic Purposes). Over the period of the two preceding courses, they were assigned weekly writing assignments on a wide

variety topic related to their interests or researches. Due to the PEP learning environment where the development of fluency is much more emphasized than the achievement of surface-level accuracy, the students are open to writing L2 texts. All participants had never experienced the prewriting activities of this study.

### 2.3. Contexts

The P3 is a required undergraduate-level language class. It largely integrates the aspects of EAP for the development of students' English language skills required to achieve at academic study. The course had 15 classes in total. Students were required to bring their laptop computers at every class. Each class was 90 minutes. While the P3 had some major projects regarding academic debates and panel discussions, this study focused on the prewriting process for the introductory section. The process required three 90-minute classes to implement the following three activities: 1) the what-to-write (WW) activity 2) the how-to-write (HW) activity 3) the group collaborative-writing activity. The participants were provided with two worksheets as aids to learning: the WW worksheet (See appendix A), and the HW worksheet (See appendix B).

The instructor employed team-based learning as an instructional approach to L2 writing based on the Michaelsen's 2002 statement: the team-based learning prompts students to take responsibility for their own and their peers' learning, which leads to the enhancement of students learning quality. The 80 participants were, therefore, randomly divided into 18 groups, with four or five students each. Students were assigned group collaborative writing on a research: students in a group created a written project together as a team. Specifically, a group planned and outlined the writing task together, one member wrote the draft of the assigned 350-word paragraph, and all group members revised the draft. In the final phase, all of the assigned parts were put together to produce one completed paper. Each group submitted the finalized paper at the end of the course.

## 3. Two Support Materials for Prewriting Activities

### 3.1. The what-to-write worksheet

The what-to-write (WW) worksheet aims to enhance students' discussions to sharpen their arguments. Students determine what to write/discuss in the introductory prior to the start of their writing texts. The WW worksheet is

divided into two sections: 1) The section A of determining a research question (RQ), and considering the reasons why the RQ is decided. 2) The section B of elaborating the statements of the section A with more required details.

The section A is for the establishment of the straight-line logic in the paragraph. This section requires the students to clearly state a RQ, and demonstrate why the RQ warrants research. Students are required to keep considering the why of situations or happenings until they can reach the persuasive answer responding to the question of why the RQ should be investigated. Putting in another way, the answers to Q2 in the WW worksheet should logically flow into the answer to Q3. The answer to Q3 should smoothly go into the answer to Q4. This why-questioning activity helps students logically establish the main thread of the arguments (Yoda, 2012). The descriptions in the section A can be an indicator of whether students' ideas/arguments maintain a story integrity.

The section B plays an important role in the shaping of the main threads described in the section A. Students flesh out the statements in the section A with missing 5W1H information: They elaborate the main threads by incorporating some required details regarding the who, what, when, where, why and how of the situations/happenings. This 5Ws and 1H approach<sup>2</sup> is one of the effective writing methodologies to help writers avoid missing important details in reports and academic papers (Regoniel, 2012). The required details include some appropriate reference, data, or concrete examples. The detailed information should draw reasonable connections with the statements in the section A in order to maintain a consistency.

### 3.2 The how-to-write worksheet

The how-to-write (HW) worksheet aims to develop students' understanding about academic writing formats, and encourage students to construct the easy-to-understand structure. The writers of academic papers should be responsible for organizing their arguments in a logical flow so that the audience can easily follow and understand the contents. The participants are asked to fill the HW worksheet in the same order as the elements stated in the introductory framework shown in Figure 1.

[Introductory paragraph]

- 1) Introduce the general topic and discuss current issues using appropriate reference/data.
- 2) Clearly state the purpose of the project and demonstrate how it will address current issues.
- 3) Describe the research methodology and organization of the term paper.

**Figure 1 The introductory framework**

Tsuji (2016) constructed the framework of the course paper, inspired by Suzuki (2014). The introduction needs to communicate at least the following three elements. Students start with introducing the backgrounds of current issues, and then logically and reasonably narrow down on the statement of the RQ. Appropriate evidence for the current issues should be clearly described. After the explicit RQ statement, students should clarify what research methodology to use, and how to organize the entire paper.

### 4. Procedure of the Prewriting Activities

Each prewriting-activity class began with clear guidance on how to conduct the activity. The instructor clearly stated the importance of the prewriting session, and explained the appropriate way to use the worksheets. As none of the participants had experienced such an activity prior to this study, a teacher assistant was indispensable for the fruitful accomplishment (Min, 2005).

The prewriting activities for constructing argumentative writings required three classes: 1) The group activity for considering what to write/discuss in the introduction. 2) The group activity for considering how to organize the ideas or arguments in the section. 3) The group activity for writing the introduction.

After thorough consideration of what to write and how to write, students moved towards the collaborative writing. Each activity required 90 minutes.

#### (1) The what-to-write activity

The participants hold a group discussion<sup>3</sup> to determine a RQ: they shared their interests or concerns related to their daily life or happenings around them, found the research area which all group members were interested in, and identified their research theme. They were given 30 minutes to decide a RQ, and verbalized the reasons why the RQ would warrant research. After the discussion, students shared their RQ and the reasons for the decision with the

whole class, and received some constructive feedback. The instructor explained how to use the WW worksheet for about 15 minutes, and asked students to work on the worksheet for about 45 minutes. Firstly, students worked on section A: They filled the answers to Q1-Q4. In the case that the answer to Q4 was not a specific reason to investigate the research, students went back to Q2 and did it over from answering to Q2. On the contrary, in the case that the answer to Q3 was reasonable and persuasive enough to understand why the RQ should be examined, students stopped the section A at Q3. After having completed the section A, students moved on the section B. Lastly, students checked whether the straight-line logic was established. In case of inconsistency in the contents, they tapped fresh ideas to

have a linkage with the previous or following statements.

All groups were required to write the worksheet in Japanese<sup>4</sup> since the native language is the fundament for logical and creative thinking (Yamamoto, 2016). Table 1 presents an example of students' collaborative activity for the WW worksheet. With minimal supervision of the instructor, this group constructed the most comprehensible WW worksheet of all groups. The RQ for this group is whether or not Artificial Intelligence (AI) should be further developed in the world. The instructor slightly fine-tuned their completed version at the word level to make it the sample WW worksheet for other students. This small modification was judged adequate not to disturb students' original version. This example illustrates how the students worked on the WW activity.

**Table 1 The example of students' collaborative work on the WW worksheet**

Section A: Constantly considering the reason for the situation/happening	Section B: Elaborating the Section A: Incorporating missing 5W1H details
<p>Q1. What is your RQ? Your answer: 人工知能のさらなる開発を進めるべきか否か?</p>	<p>人工知能の定義: 人間と同じ知能をコンピューター上で再現するための技術。</p>
<p>Q2. Why did you focus on this RQ? Your answer: 近年になって人工知能の開発が急速に進んでいる。AI は今や私たちの生活に影響を与えるほどになっている。多くの期待と危惧がうまれている。</p>	<p>人間と同等の知能をもった人工知能の出現: ゲーグルが開発した AlphaGo という人工知能が 2016 年に韓国のプロ囲碁士に四勝一敗で勝った。 →映画や小説の中の存在だと思われていた人工知能 (人間並の知能を持つ) が出現した。 →開発に期待する意見と危惧する意見が生まれる。</p>
<p>Q3. Why did the answer to Q2 happen? Your answer: 期待: 人工知能は労働軽減や医療への応用など多くの利点がある。 危惧: 人工知能は雇用の機会を奪ったり、戦争に利用される危険性がある。 ⇒ RQ: 本当に開発を進めてもいいのか? この二つの側面を理解したうえで人工知能の開発の是非についてもっと真剣に議論するべきだ。 人工知能の開発を進めるにせよ、しないにせよ、知識を持ったうえで判断することが大切だ。</p>	<p>期待の例: AP 通信社は WordSmith と呼ばれる自動文章作成人工知能を導入した。これにより企業の利益報告記事が四半世紀で 330 本から 4400 本まで書き上げられるようになった。また、IBM の開発した人工知能ワトソンが膨大な医学論文の中から癌治療に役立つ未発見の蛋白質 6 つを見つけた。 危惧の例: DeepMind の共同創業者である Shane Legg が人工知能の危険性を示唆。「テクノロジーに人類は滅ぼされるだろう。人工知能は今世紀で一番危険な存在だ」 オックスフォード大学の Carl Benedikt Frey と Michael A. Osborne は「The Future of Employment: How Susceptible are Job to Computerization (2013)」という論文の中で 10~20 年後の間にアメリカの雇用の 47% が人工知能に奪われると予想した。</p>

**(2) The how-to-write activity**

As the subsequent activity, students were encouraged to rearrange their ideas/arguments aligned with the introductory framework shown in Figure 1. The activity promoted students' understanding on writing formats. The instructor explained how to do with the HW worksheet for about 10 minutes. Then, students started to write down their

arguments on the HW worksheet for about 40 minutes. After that, they read the proofs of the worksheet for approximately 40 minutes. All groups were required to critically check whether the arguments were reordered in an explicit and logical flow. If any implicit or illogical parts were found in the worksheet, students needed to consider how to do a rewrite of the parts.

Table 2 presents an example of students' collaborative activity for the HW worksheet. It was created by the same

group as the WW worksheet shown in Table 1. This example illustrates how the students worked on the HW activity.

**Table 2 The example of students' collaborative work on the HW worksheet**

Reorganizing the arguments	Your arguments
1. The reason for choosing the RQ (No. 2 in the WW worksheet)	近年になって人工知能の開発が急速に進んでいる。AIは今や私たちの生活に影響を与えるほどになっている (例: AlphaGo)。多くの期待と危惧がうまれている。
2. No. 3 in the WW worksheet	期待: 人工知能は労働軽減や医療への応用など多くの利点がある。 (例: AP 通信社と IBM の話) 危惧: 人工知能は雇用の機会を奪ったり、戦争に利用される危険性がある。 (Shane Legg などが危険性を示唆)
3. The statement of RQ (No. 1 in the WW worksheet)	人工知能のさらなる開発を進めるべきか否か? 人間の想像できないレベルに達すると思われる技術をこれからどう扱っていくか?
4. The research methodology and text organization	二つの側面を理解したうえで人工知能の開発の是非についてもっと真剣に議論するべきだ。本論では、世界で起きた事件やデータを挙げて、賛成と反対の考えを述べる。 本論① 賛成意見: 人工知能は、医療分野で今後の発展と可能性が期待されている。 (例: 癌の悪性腫瘍を的確に発見出来るシステム等) 本論② 反対意見: AIが人間の能力を超えてはいけない理由 (人に危険を及ぼす可能性) があることを語る。(例: AIのトラブル・仕事を奪われる) 本論③ 反対意見: 人工知能は人間を超え、人間の生活を脅かす存在になりかねない。 (事例: ロシアで研究中の人工知能ロボットが逃げ出した事件)

Note. In this HW worksheet, No.1-3 indicate the answers to Q1-3 in the WW worksheet.

**(3) The group collaborative-writing activity**

Based upon the two worksheets composed by all group members, one team member prepared the draft of the 350-word introduction as a representative prior to this activity. During the class, the draft was shared with the group members through manaba course<sup>5</sup>, a cloud-based educational support system. Students were allotted 60 minutes for the revision. All group members examined whether the arguments in the draft were easily and understandably structured to the audience. They discussed the parts to be improved, and the representative revised the draft based on their opinions.

Next, the activity moved on to the 30-minute surface-level corrections such as grammar, word-choice, or punctuation. Students were required to thoroughly consider the subtle nuance of linguistic meanings. The contextually appropriate usage of words was emphasized in order not to mislead the audience. The completed writing tasks were submitted to manaba at the end of the class, or any time prior to the next class.

**5. Data Collection Procedure**

The pre- and post- web-based questionnaires were administered during the course. Before introducing the

prewriting activities, the learners were asked to evaluate themselves. Of several questions in the questionnaire, the author focused on the following five inquiries for this study.

- (1) When you construct an introductory paragraph, do you gather the main thread of the arguments?
- (2) Do you consider why you direct your eyes on the RQ?
- (3) Do you consider why the RQ warrants research?
- (4) Do you describe the 5W1H detailed information?
- (5) Do you consider the academic writing formats of the introductory paragraph?

The first four questions are associated to the influence of the WW worksheet on students' perceived learning, and the last one examines the influence of the HW worksheet. The instructor facilitated students' response by explaining the meaning from the questionings, which avoided students' misunderstanding.

After having experienced all the activities, the participants were asked to evaluate themselves during and after the process from the same viewpoints as the pre-questionnaire. All questionnaire items were requested to respond on a five-point scale (5 = quite positive, 4 = somewhat positive, 3 = average, 2 = somewhat negative, 1 = quite negative).

The following inquiry was added for the post-questionnaire: did the prewriting process influence your learning? This

was the yes-or-no question. Students who answered yes were asked to briefly describe their perceived learning or achievements through the process.

## 6. Results and Discussion

### 6.1. The pre- and post- web-based questionnaires

The average mean for each pre and post-questionnaire across the five inquiries are provided in Table 3. Standard Deviations (SD) are shown in parentheses. The outcomes of questionnaires revealed significant differences in the average mean prior to the prewriting process and following the process. To assess the efficacy of the intervention, a paired-samples *t* test was conducted to evaluate whether the intervention of the prewriting activities would result in a more positive students' perceived learning. The results can be also found in Table 3.

The results revealed that the treatment had a large impact on the students' perceptions in each item. They can be interpreted as follows: 1) The WW activity provided the participants with an opportunity to gather the main thread of the arguments. 2) The WW activity encouraged students to consider why the RQ was focused on, and why the RQ warranted research. 3) The WW activity developed students' understanding on the importance of 5W1H details. 4) The HW activity promoted students to consider the writing formats. Therefore, the author concluded that the prewriting activities did enhance students' attitude to consider what to write/discuss in the introduction and how to organize the ideas/arguments in the section.

### 6.2. Brief description of students' perceived achievement

The participants were primarily asked about the most perceived achievements through the process. When the 80 participants were asked whether the prewriting process

influenced their learning, 92.5% of the participants (*n* = 74) answered yes. The vast majority of the respondents (*n* = 74) perceived the positive influences of the prewriting activities on their learning. The participants' perceptions described in the post-questionnaires are classified according to the keywords. The keywords are presented in descending order of frequency as follows: 1) a straight-line logic 2) the consideration of the why 3) 5W1H 4) objective perspectives 5) communicative competence 6) a linkage 7) text organization 8) explanation of abstract words. The author highlights each of the aforementioned keywords in students' postings, and counts the number of students having used each keyword. Some respondents gave multiple answers, although they were asked to provide only one answer. Looking at the context in which each keyword was used, the author noticed that students used the keywords in similar contexts. Therefore, she has summarized how the students generally used each keyword in Table 4. The author divides students' perceived achievements into the following four categories: the WW activity, the HW activity, collaborative writing activity, and unspecific. These categories illustrate the aspects of the prewriting process that students were most influenced by.

The WW activity most influenced students' perceived learning. Participants' fundamental perceived achievements acquired through the WW activity were to establish a straight-line logic in the arguments (*n* = 24), develop the attitude of considering the why (*n* = 16), explain the arguments with more 5W1H details (*n* = 13), and establish a linkage between the sentences (*n* = 8). The HW activity contributed to students' consideration of organizational structure (*n* = 4). Due to the collaborative learning activity that centered on the prewriting discussions with group members, students developed diverse perspectives on the specific matter (*n* = 11), and the communicative ability to convey information to others (*n* = 9).

**Table 3 Results of the pre- and post- web-based questionnaires (N = 80)**

	Pre	Post	<i>t</i> -value
	Mean (SD)	Mean (SD)	
Q1: Establishing the main threads	2.65 (0.93)	4.41 (0.65)	14.57
Q2: Considering why the RQ is focused on	2.43 (0.82)	4.35 (0.62)	17.60
Q3: Considering why the RQ warrants research	2.28 (0.86)	4.39 (0.63)	17.90
Q4: Describing the 5W1H details	2.26 (0.95)	4.25 (0.63)	16.04
Q5: Considering the writing formats	2.28 (0.87)	3.96 (0.63)	15.68

*p* < .01

**Table 4 Students' perceptions on the developed achievements**

AA	DF	Students' perceived achievement	N
	Section A (Why)	Establishment of a straight-line logic in arguments	24
		Development of the attitude of considering the why	16
WW activity	Section B (5W1H)	Further explanation with 5W1H details	13
		Establishment of a linkage between the sentences	8
		Explanation/Definition of abstract words	3
HW activity	Considering the formats	Consideration of overall text structure	4
Collaborative writing activity	Discussion with peers	Development of scientific/objective perspectives	11
		Improvement of a communicative skill	9
Unspecific	N/A	Establishing a consistency between written scripts and presentation slides	1
		Organizing ideas firstly in Japanese, secondly in English	1
		Usage of reliable and persuasive evidences	1

Note. AA = Affecting activity DF = Direct Factor

## 7. Pedagogical Implications

The vast majority of the participants in this study perceived some positive influences of the process on their learning. Especially, the WW activity helps students learn about the fundamentals of an academic paper. The development of the attitude to consider the why was the direct product of the section A in the WW worksheet, which constantly asked students the why of situations or happenings. As the secondary effect of the why-questioning activity, the 24 students perceived the establishment of a straight-line logic as one of their fundamental achievements. The answers in response to the why ultimately created the main thread of the arguments.

The section B asked students to elaborate the information of section A. It basically asked students to incorporate missing 5W1H information. The 13 students' perceived the further 5W1H explanation as their achievement. It was the direct efficacy of the section B activity. Since the further 5W1H description filled the information gaps to some degree, the audience attracted less attention for further inquiry regarding the 5Ws and 1H. The activity of incorporating missing 5W1H information resulted in heightening a linkage with the previous or following statements. On reflection, the formation of a linkage was the secondary effect of the section B activity.

Lastly, the collaborative learning environment encouraged students to have discussions with group members during the activities. This pedagogical environment promoted objectivity in students' perspectives and developed their communicative skills.

The prewriting process activated students' ability to think more analytically and critically. It ultimately renewed students' focus on the fundamentals of an academic paper: the importance of establishing an argumentation with logical flow, and of strengthening the linkage between sentences. Therefore, the author concludes that the prewriting activities did enhance students' learning.

Students' perceived benefits in the process, however, did not necessarily guarantee the production of higher-level revisions. While the prewriting activities have a possibility to improve students' writing quality (Kellogg, 1990), this study did not include an examination of how the activities influenced the participants' revised texts. Keeping in mind the fact that this study only examined the influences of the prewriting activities on students' perceived learning, future research will include an examination of students' writing quality. The author hopes that both studies on the prewriting activities will make a promising contribution to Japanese EFL education.

### Note

<sup>1</sup> The prewriting activities did not put much emphasis on the development of fluency or accuracy, but the achievement of mutual intelligibility between student-writers and the audience. The success of mutual intelligibility is required for a productive communication.

<sup>2</sup> While Regoniel (2012) states that the 5Ws refer to the what, when, where, who and why of an incident and the 1H is the How of that event, the 5W1H in this paper includes not only the 5Ws and 1H but any interrogative questions such

as in terms of what, in what way, how long, and how much.

<sup>3</sup> The group discussion during the activities was emphasized based on Shi's 1998 study. Her study highlights the positive affect of prewriting discussion on the quality of students' writings.

<sup>4</sup> After having completed the Japanese-versioned worksheet, the participants were asked to translate it into English. When they did this extra work as an out-of-class group activity, their motivation and initiative earned them additional credit. Only a few groups submitted English-versioned worksheets.

<sup>5</sup> The instructor frequently used this learning management system as a tool to enhance the students' learning.

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**Appendix A**

The what-to-write worksheet

Section A: Constantly considering the reasons for the situation/happening *	Section B: Elaborating the Section A: Incorporating missing 5W1H details **
Q1. What is your research question (RQ)? Your answer:	
Q2. Why did you focus on this RQ? Your answer:	
Q3. Why did the answer to Q2 happen? Your answer:	
Q4. Why did the answer to Q3 happen? Your answer:	

\* Please continue to ask the why of situation/happenings until the answer suggests that RQ is meaningful to be examined for a certain field or people.

\*\* 5W1H required details includes the description of appropriate reference/data/examples.

**Appendix B**

The how-to-write worksheet

Reorganizing the arguments	Your arguments
1. The reason for choosing the RQ (No. 2* in the WW worksheet)	
2. No. 3 in the WW worksheet	
3. No. 4 in the WW worksheet	
4. The statement of RQ (No. 1 in the WW worksheet)	
5. The research methodology and text organization	

\* In this how-to-write worksheet, No.1-4 indicate the answers to Q1-4 in the what-to-write worksheet.

## Teaching Argumentative Writing through a Process-focused Instruction: The Effects of the Prewriting Activity on Student Perceived Learning

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This article describes an exploratory study investigating the effects of prewriting activities on students' perceptions of their own learning. The author implemented a process-focused activity in a project-based English program during the spring semester of 2016, and here discusses the findings of the study. The participating students were 80 sophomores in the College of Life Sciences and Pharmaceutical Sciences. The students were provided with two support worksheets to logically organize their critical thoughts and arguments prior to the start of the writing task. During the process, they conducted a core writing task, in which key concepts and a logical order were identified, and then developed an organizational structure for writing an academic paper. Web-based questionnaires, including a free description element, were conducted before and after the prewriting process, in order to evaluate the participants' perceived achievements. The results demonstrated that the process had a positive influence on students' perceptions of their learning. The author therefore concludes that the prewriting activity did enhance students' learning.

This empirical study illustrates that prewriting activity can refocus students' attention on the fundamentals of an academic paper: the importance of establishing an argumentation with logical flow, and of strengthening the linkage between sentences. Furthermore, the process-focused activity improves students' cognitive processes, and activates their ability to think analytically. Indeed, said cognitive ability may become a potential resource to improve their writing in the future. It is therefore suggested that the teaching of argumentative writing should take a more process-focused approach.

Keywords: Prewriting activity, student perception/achievement, collaborative writing, Project-based English Program