

Developing Scientific Article Writing Materials Using a Hybrid Learning Approach: Insights from an Indonesian Language for Foreign Speakers (BIPA) Program

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ABSTRACT

Abstract: This study aims to develop learning materials for writing scientific articles for international students using the hybrid learning approach. This approach was chosen by utilizing the advantages of offline classes combined with online classes. This approach is in accordance with the characteristics of students as millennials. For product development, we used a method consisting of product design, product design, production, and product testing. In the end, we produced learning materials to write scientific articles packaged in the form of a module of writing process-genre-based scientific articles with a hybrid learning approach for international students. The module consists of the debriefing of concepts (f2f), planning of writing (f2f), writing a draft (ol), and editing the draft (f2f)

The commitment of the Indonesian government to develop human resources in developing countries is realized through the provision of the Developing Country Partnership (KNB) scholarship. This scholarship is given to potential students from developing countries, enabling them participate in responding to global challenges in their home countries by being given the opportunity to study at various Indonesian universities that have been set by the government (Kemdikbud, 2019). In 2018, the government determined sixteen universities to receive KNB scholarship recipients (Kemdikbud, 2019)). Each of these tertiary institutions is given the mandate to organize Indonesian Language learning tutorials for Foreign Speakers (BIPA) to prepare international students to undergo the undergraduate or graduate programs at these various universities.

Mastery of the Indonesian language is vital to attend lectures properly as language is a communication tool needed in the academic life of international students in Indonesia. Therefore, it is necessary to implement a BIPA (Indonesian for Foreign Speaker) tutorial for the KNB class to help international students prepare for their academic life, especially in academic writing. International students are required to have academic writing competence since, as academics, they have to produce a lot of scientific works, primarily scientific articles. Moreover, many universities require students to publish scientific articles in accredited national journals or indexed international journals.

Academic writing competence can refer to various taxonomies, such as Bloom (Krathwohl & Anderson, 2009), (Gagne & Driscoll, 1988) and (Lickona, 2001). Bloom's taxonomy defines that, the competence to write scientific papers includes (1) the cognitive domain of academic writing in the form of knowledge of definitions, types, structures, systematics, formats, linguistic rules, and steps for writing scientific papers, (2) the psychomotor domain of academic writing in the form of writing scientific papers skills at the beginning, core, and end, and (3) the affective domain of academic writing in the form of honesty, courage, respect, responsibility, and hard work in writing scientific papers.

To improve the writing scientific articles competence, international students must be provided with systematic and continuous teaching materials. Based on our personal observations, learning materials for writing scientific articles for international students are presented through modules in the KNB class. Thus, the development of materials for writing scientific articles for international students is required.

The developed materials for writing scientific articles can be presented according to the characteristics of international students. Generally international students can be categorized as the millennial generation, who are accustomed to processing information through gadgets and internet access. This generation can be referred to as millennials (Rosenberg & Foshay, 2002), digital natives (Palfrey & Gasser, 2011), generation Z (Marsh, 2012) (Tapscott, 1999), and so forth. Therefore, various learning materials must be presented through hybrid learning, following the characteristics of the millennial generation. Hybrid learning enables students to attend the course online and offline.

The emergence of hybrid learning follows the presence of blended learning. Blended learning is not a new concept because the integration of technology in learning is a hardly studied old concept (Marsh, 2012). It was initiated through the emergence of Computer-Assisted Language Learning (CALL) in 1960 (Marsh, 2012) which, evolved into Computer-Assisted Language Instruction (CALI) in 1980 (Higgins, 1983), followed by Technology-Enhanced Language Learning (TELL) in 1990 (Bush & Terry, 1997), then it was developed into blended learning in 2000 (Bonk & Graham, 2012) and hybrid learning (Rutkowski, 2001). Blended learning can be classified into two types, namely, the combination of meetings and the combination of meeting, media, and learning models. The first concept only combines online and offline meetings (Watson, 2008), while the second concept is more dynamic because it combines online or offline meetings, learning media, and learning models (Saliba et al., 2013).

Referring to the international students' characteristics as millennials, learning materials for writing scientific articles can be presented through a hybrid learning approach. A number of previous research on writing skills using blended or hybrid learning have been reported. Adas and Bakir conducted a study on blended learning as an approach to improving writing skills (Adas & Bakir, 2013). Meanwhile, Mahfouz investigated the use of blended learning in learning to write with technology (Wasfy et al., 2011). Prokhorets, Plekhanova, and Scherbinina, designed foreign language learning using blended learning (Prokhorets et al., 2015). Also, Challob, Bakar, and Latif focused on the effect of hybrid learning on students' writing skills (Challob et al., 2016). Kadri and Hamada examined the effects of blended learning in improving students' academic writing performance and motivation (Kadri & Hamada, 2016). Sulisworo, Rahayu, and Akhsan also reported the academic writing results from applying blended learning through Facebook. Besides, Mofrad also investigated the students' writing skills improvement through a blended learning environment as an impact of learning styles (Mofrad, 2017). Santosa and Permana also reported the effect of blended learning on students' writing comprehension and performance (Permana & Santosa, 2018). Lastly, Abbas investigates the results of writing courses using blended learning and achieving student satisfaction (Abbas, 2018). Based on the nine previous studies, scientific article writing research materials specifically designed for international students have not been developed. Thus, it is crucial to develop learning materials for writing scientific articles with a hybrid learning approach, in the form of a module, for international students.

METHOD

This development research used development model adapted from R2D2 (Willis, 2009), a Blended or Hybrid Learning Curriculum (Huang et al., 2008), and a Blended or Hybrid learning Design Process (Bath & Bourke, 2010). Our development stages, included product design, product design, production, and product testing. In the product design stage, we carried out literature and empirical studies in verbal data types. The literature review data was collected by using the documentation technique with, a document review guide. Meanwhile, the empirical data were collected by observation techniques using an observation guide document. The literature review involved various books, articles, and research reports, while the data for the empirical study were collected from international students and BIPA tutors for the BIPA class KNB program at the State University of Malang. The results of the literature review were a map concept of the theory and previous research, while the empirical study resulted in a description of needs and product design formulations.

In the product design stage, we formulated the KNB program for BIPA tutors. The program was constructed following verbal data collected through a questionnaire for BIPA tutors. The research subjects at this stage were five BIPA tutors for the KNB program at the State University of Malang. From these data, we constructed a hybrid-based learning material design. During the production stage, designed learning materials and their scope using the hybrid approach. These two products were made based on the results of the product design stages. This stage resulted in the draft of a series of learning materials for writing scientific articles for international students using a hybrid learning approach.

The fourth stage was the, expert test. In this stage, our draft was validated by the BIPA learning experts. Through the validation process, we obtained verbal data through a questionnaire distributed to three BIPA learning experts. The obtained results were used to improve the product. The final result of this stage was a series of learning materials for writing scientific articles for international students with a hybrid learning approach.

RESULTS

This study developed learning materials for writing scientific articles for international students with a hybrid learning approach. These materials were constructed based on the writing process, starting with (a) briefing on article concepts, (b) planning for writing draft articles, (c) writing draft articles, and (d) editing draft articles. Our product has minimum differences from learning to write scientific articles for native speakers. However, in the description of the results, the difference is not visible because their real difference is only in the text presentation of teaching material. The four materials are discussed in the following.

Material 1: Briefing of Article Concept

In this section, students are presented with reading materials on the definition of article texts from various sources. Students are asked to define articles based on these opinions and write down the keywords. Further, students are also provided with material on the types of scientific articles, including reports on the results of literature studies (thoughts) and research. This material is also equipped with the presentation of the structure chart of the literature and research results. Then, students are asked to order the systematics of writing the two articles.

In the second material, the students are presented with the technique of writing text, tables, pictures, and lists of references. The module also presents examples of writing quotes, tables, pictures, and lists of references. Additionally, students are given practice questions to improve their writing skills in texts, tables, pictures, and lists of references. For reference list writing exercises, students are given material in various styles of writing reference lists as the APA, MLA, Harvard, and Vancouver versions.

In debriefing this concept, linguistic materials also provided, including spelling, words, sentences, and paragraphs. Students are presented with forms of spelling errors. They are also given exercises accuracy using spelling. To understand the use of common words, students are presented with standard forms of writing, idioms, connecting expressions, and synonymous phrases. Then the module also provides the practice of editing standard words in sentences. To understand effective sentences, the material on how to write effective sentences is also provided. Besides, students are also asked to determine the accuracy of effective sentences. Finally, to develop paragraphs, students are presented with definitions and examples of deductive and inductive paragraphs, followed by paragraph development exercises.

In writing a good article, authors must follow the writing format determined by the journal. Therefore, to understand the writing format, students are presented with an example of a specific writing format from a journal, namely the Journal of Humanities Education, Postgraduate, State University of Malang. They are also given the essence of the writing format.

Material 2: Planning for Writing Draft Articles

In this section, students are presented with materials on exploring and selecting topics, exploring reference sources, and creating draft frameworks. The material for exploring and selecting a topic contains direct exercises to explore and choose a topic through guided questions. The exploration of reference sources material contains text reading about exploring written sources and exercises to determine the reference sources. Meanwhile, the material for constructing a draft outline contains an exercise in making an outline of the article. The literature review article material consists of title components, author's identity, abstract, introduction, discussion, conclusion, suggestions, notes, and a list of references. This is different from the research article which contains components of research methods and results.

Material 3: Writing Draft Articles

This material consists of three parts, namely the beginning, the core, and the end of article writing. At the beginning of the article writing, for literature review and research articles, the students are presented with material for formulating the article's title and the identity of the author. Students are presented with a text on how to develop a title for a research report and research article. Then, they are asked to match the titles of the research results with the title of the article for the purpose of scientific publication. Next, students are also presented with an example of an author's identity from the journal Humanities Education, Postgraduate, the State University of Malang, followed by the practice of writing the author's identity.

In the core section, the components of the literature review and research article are presented. First, for the literature review article, the material consists of writing abstracts and keywords, an introduction, a discussion, and a closing section. Students are given examples of abstracts, keywords, introduction, discussion, and closing sections. Then, they are asked to practice writing the core part of a literature review article based on examples.

For the research articles, students are presented with material about writing abstracts and keywords, introduction section, research methods section, results section, discussion section, as well as conclusions and suggestions section. Students are given examples of writing abstracts, keywords, introductory sections, research methods, research results, discussions, conclusions, and suggestions. After that, they are asked to practice writing the core part of the research articles, following the examples.

In the close section, the material for both literature review and research consists of writing the notes or information section and reference list section. Students are given examples of writing notes or descriptions and asked to practice writing notes or descriptions based on examples. Further, students are provided with an example of writing a list of references based on the APA style and asked to write a list of references following the same style.

Material 4: Article Draft Editing

In this section, the material presented shows the procedure for editing draft content, editing draft writing systematics, editing technical drafts, editing linguistic aspects of the draft, editing draft writing formats, presenting draft articles, and publishing articles. First, students are given a table with indicators and a checklist (finished or not), as well as a follow-up to help them find

out what aspect to edit regarding draft content. The module also provides a systematic chart for writing a literature review and research article. Next, the students are provided with questions to check their articles, along with a checklist of indicators and follow-up. The following learning activity is editing the draft writing format. Students are presented with a checklist of indicators and follow-ups. Furthermore, students are given a check list based on the results of the article presentations and get advice from other students. Lastly, the students learn to publish articles. They are given general steps on how to publish articles. In particular, these steps depend heavily on the journal being addressed.

As for the presentation, learning materials for writing scientific articles for international students can be presented offline (face to face [f2f]) and online (online learning [ol]). Materials 1, 2, and 4 are presented offline, while material 3 is presented online. This means that briefing on article concepts, planning for writing draft articles, and editing article drafts are discussed face to face, while article draft writing materials are presented individually so that international students get enough time to write.

Learning materials that are presented offline can be used at face-to-face meetings in the form of a printed module. Learning materials are presented online through Sipejar, developed based on a Moodle content management system. Thus, practically the entire system follows the display template in Moodle, even though the themes may vary in appearance.

In order to access this page, international students, must register as course participants. Once they get approved, international students can access these teaching materials. In addition, there are flash electronic teaching materials that can accessed on the Moodle-based page.

DISCUSSION

Learning materials for writing scientific articles have a significant role in achieving learning objectives. These materials are presented systematically and continuously in a particular module format of teaching materials. Teaching materials are essential tools in learning (Ranjit, 2015). Teaching materials describe the materials used to achieve learning objectives (Lewis, 2019).

In terms of targets, learning materials for writing scientific articles are specifically designed for international students. Thus, the learning materials are certainly different. Language learning for native speakers and foreign speakers is clearly different (Weigle, 2002). Likewise, the writing materials in the context of the first and second languages have clear differences. This difference can be seen in the learning objectives, learning needs, and learning methods. The principles of learning to write as a second language must (1) reflect real-life contexts, (2) have the same goals as writing as a first language, and (3) be taught systematically, not randomly. (Abrams, 2008). Writing activities in a second language must emphasize knowledge of content, systems, processes, genres, and contexts (Hyland, 2004).

In terms of language proficiency level, this learning material can be delivered to international students who have C2 level Indonesian language proficiency. This level refers to the guidelines of the American Council on The Teaching of Foreign Language (ACTFL) (ACTFL, 2012), Common European Framework of Reference (Council of Europe, 2001), or *Uji Kemahiran Berbahasa Indonesia* UKBI (Badan Bahasa, 2015). Level C2 is the highest level in proficiency ranking. Language proficiency of international students is needed because they are projected to study in various universities that have been appointed by the Indonesian government. Thus, with specific language proficiency levels, they will have no difficulty in studying in class with native speakers, especially if they are required to produce scientific writings in the form of articles following academic culture.

In terms of content, it appears that the produced learning materials are presented in a genre-based writing module. Product, process, and genre-based writing approaches must be combined (Badger & White, 2000). Process-based writing activities show stages from pre-writing (preparation) to editing (Tompkins & Jones, 2008).

The process approach carries the idea that writing is a thought process by emphasizing creativity, while the genre approach emphasizes writing as a social activity and highlights the reader and the product (Hyland & Hyland, 2006). Thus, the genre process approach combines product, process, and genre approaches.

The process approach starts from the planning stage to peer revision, while the genre approach emphasizes understanding and considerations related to the purpose of writing, reader elements, and context (Nordin, 2017). In formulating research plans, the author organizes their ideas so that they are written in full form. Then, the draft is edited by their colleagues, inducing thinking activities. The planning and revision stages follow these three aspects, namely; the purpose, the reader, and the context of the writing. Those three influential factors present, social activity in writing.

Stages of genre-process-based writing can follow a variety of models (Pujianto et al., 2014). Specifically, the academic writing process begins with background writing, reading reference sources and developing a critical approach, preventing plagiarism, writing plans, finding keywords and taking notes, paraphrasing, summarizing, citing, combining sources, paragraph organization, introduction, and conclusion, as well as rewriting and reading the final draft (Bailey, 2014).

Based on the aforementioned description, the learning material produced in this study uses a genre-process approach. The process approach in the teaching materials is represented in the planning to draft editing process of scientific articles. The genre approach in the produced teaching materials reflects the purpose of writing, the target audience, and the context as a written social activity.

In terms of presentation, it appears that the produced learning material is presented with a hybrid learning approach. Hybrid learning has the advantage of recording exercises and learning processes, reflecting on learning activities, designing and refining learning plans and outcomes, providing a strong basis for learning evaluation materials, to determining face to face and online learning activities (ulster.ac.uk, 2022). These two meetings are conducted through two hybrid learning environments centered on formal learning at school or outside the school (Zitter & Hoeve, 2012).

Ideally, the effectiveness of produced learning materials for writing BIPA scientific articles with a mixed learning approach should be assessed. However, hybrid learning has proven influential in improving students' writing skills (Challob et al., 2016). Blended learning is an approach capable of improving writing skills (Adas & Bakir, 2013). Likewise, blended learning is also reported to enhance students' motivation to learn academic writing (Kadri & Hamada, 2016). Nevertheless, this study has successfully developed learning materials for writing scientific articles with a mixed learning approach.

CONCLUSIONS

This study has successfully developed learning materials for writing scientific articles with a hybrid learning approach in the form of modules consisting of four materials, namely (a) briefing on article concepts (12 activities, from understanding the definition of articles to writing formats), (b) planning to write draft articles (3 activities, from exploring and selecting topics to create a draft outline), (c) article draft writing (14 activities, from formulating article titles to writing reference lists), and (d) article drafting editing (6 activities, from editing draft content to publish articles. Materials (1), (2), and (4) are presented offline (f2f), while material (3) is presented online (ol).

With this learning material, the learning needs of international students can be realized. With this developed module, international students are expected to have academic writing competence to produce various scientific papers, especially articles. Our developed product is essential as there has not been any specific regulation on an Indonesian language course for postgraduate students. Thus, the Indonesian language tutorial for Foreign Speakers in the KNB program can be better directed at the academic realm.

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