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Improving evidence-based argumentation on socioscientific issues through problem-based learning in science students

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Improving evidence-based argumentation on socioscientific issues through problem-based learning in science students

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ABSTRACT

In the scientific education, improving the argumentation skills in socioscientific issues was very important to educate young people as an active society. The aim of this research was to evaluate the implementation impact of problem based learning to the students skills of evidence based argumentation of socioscientific issues. Total of 21 students of Grade XII MIPA of senior high school at surakarta city were used as the sample in the learning process with biotechnology topic. The times taken for the learning activity were 4 week with 4 times of class meeting every week. Pre-test and post-test were applied to 21 students in order to measure of students skills in constructing the argument of socioscientific issues. The differences between pre-test and post-test scores for each aspects of evidence-based argument, in sequence, are as follows: 61,11 and 92,06 for claims; 30,16 and 84,13 for evidence; and 28,97 and 78,17 for connection claim to evidence. Statistically test for Wilcoxon rank test score for evidence based argument resulted p-value (0,00) which was $< 0,05$. This means that score of evidence based argument was improved significantly. In the case of qualitative data used, observation during learning process, learning transcript, result of students works within learning activity as well as interview activity showed that PBL learning had improved the skill of evidence-based argument of science students.

1) Submission Jurnal Melalui OJS

The screenshot shows the OJS Submission Library interface. At the top, the journal name 'Biosfer: Jurnal Pendidikan Biologi' is displayed, along with a 'Tasks' indicator showing 0 tasks. The user is logged in as '9luthfiananurtamara9'. The main content area shows the submission details for the article 'The Improving evidence-based argumentation on socioscientific issues through problem-based learning in science students' by Luthfiana Nurtamara and Dewi Amelia Widyastuti. The submission is currently in the 'Production' stage. Below this, the 'Submission Files' section lists two files: '9luthfiananurtamara9, Luthfiana&Dewi Amelia_Biologi_FKIP_ULM.docx' (uploaded May 25, 2023) and 'rhrstanto, 35534-Article Text-98318-1-2-20230525.docx' (uploaded July 27, 2023). A 'Download All Files' button is located at the bottom right of the files section.

2) Konfirmasi Melalui E-mail Naskah Jurnal telah terkirim

The screenshot shows a Gmail inbox with an email from 'Biosfer Jurnal Pendidikan Biologi' (biosferjpb@unj.ac.id) received on Tuesday, June 13, 2023, at 11:33 AM. The email content is as follows:

(no subject) External Inbox x

LUTHFIANA NURTAMARA <luthfiana.nurtamara@ulm.ac.id>
to biosferjpb

Dear Editorial Team of Biosfer:Jurnal Pendidikan Biologi UNJ

I Have recently published my article in Biosfer, titled Improving Evidence Based Argumentation about Biotechnology as Socioscientific Issues by Problem Based Learning in Science Students with number article 35534-Article Text-98318-1-2-20230525.

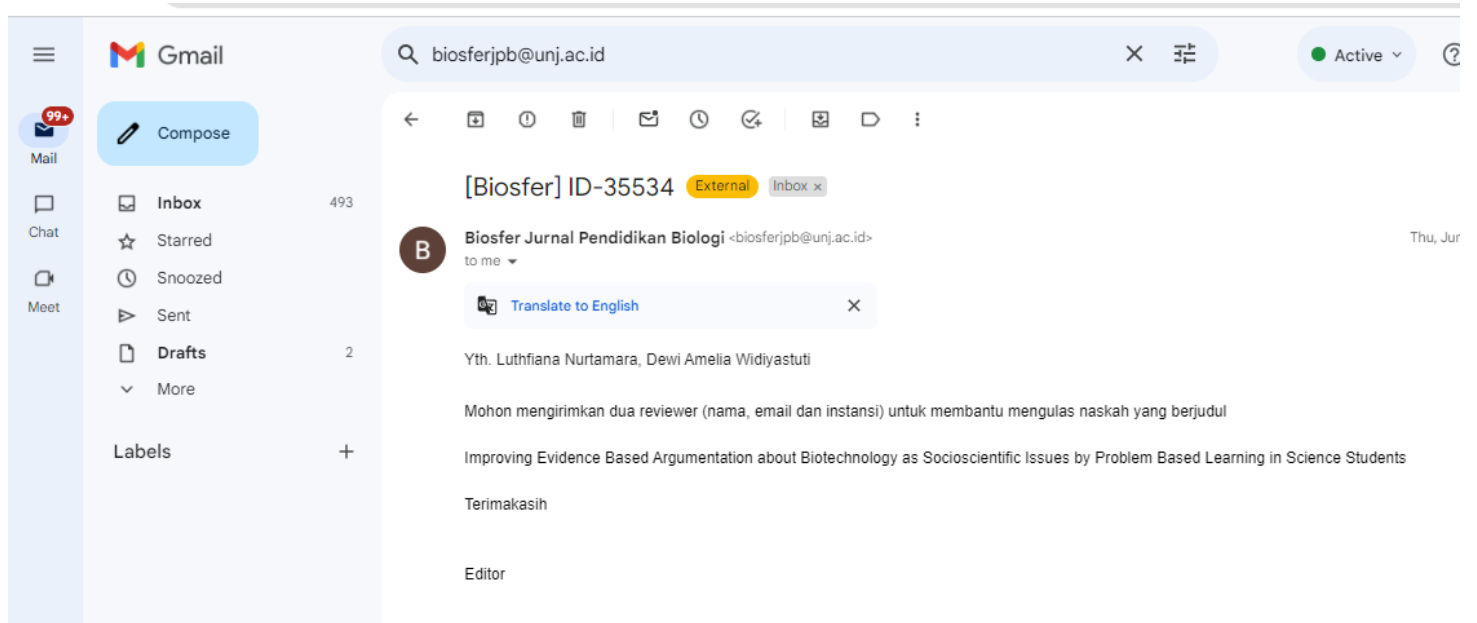
I would appreciate it if you are reviewing my article, and I hope for your kind consideration to reply to my email. thankyou

Sincerely
Luthfiana Nurtamara and Dewi Amelia Widyastuti
Pendidikan Biologi Universitas Lambung Mangkurat

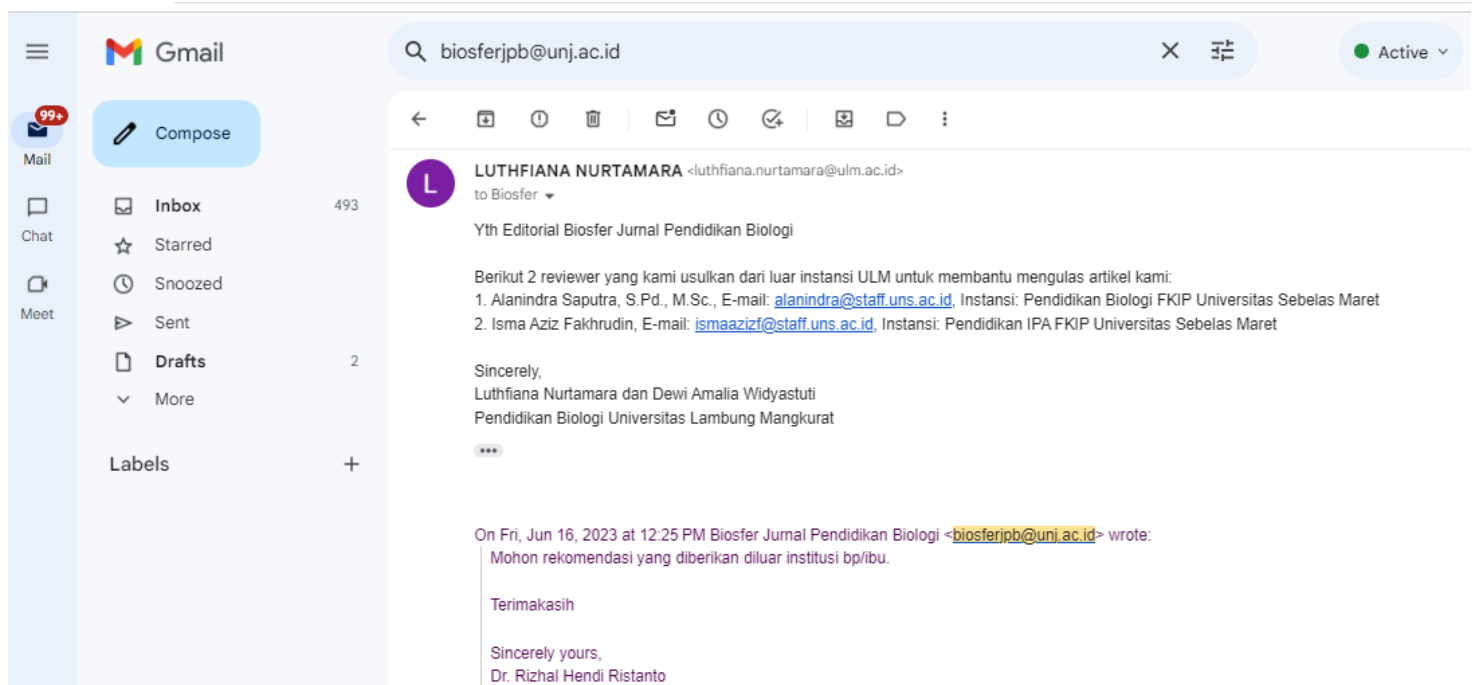
Received with thank

From: LUTHFIANA NURTAMARA <luthfiana.nurtamara@ulm.ac.id>
Date: Monday, 5 June 2023 02.10
To: Biosfer Jurnal Pendidikan Biologi <biosferjpb@unj.ac.id>
Subject: <no subject>

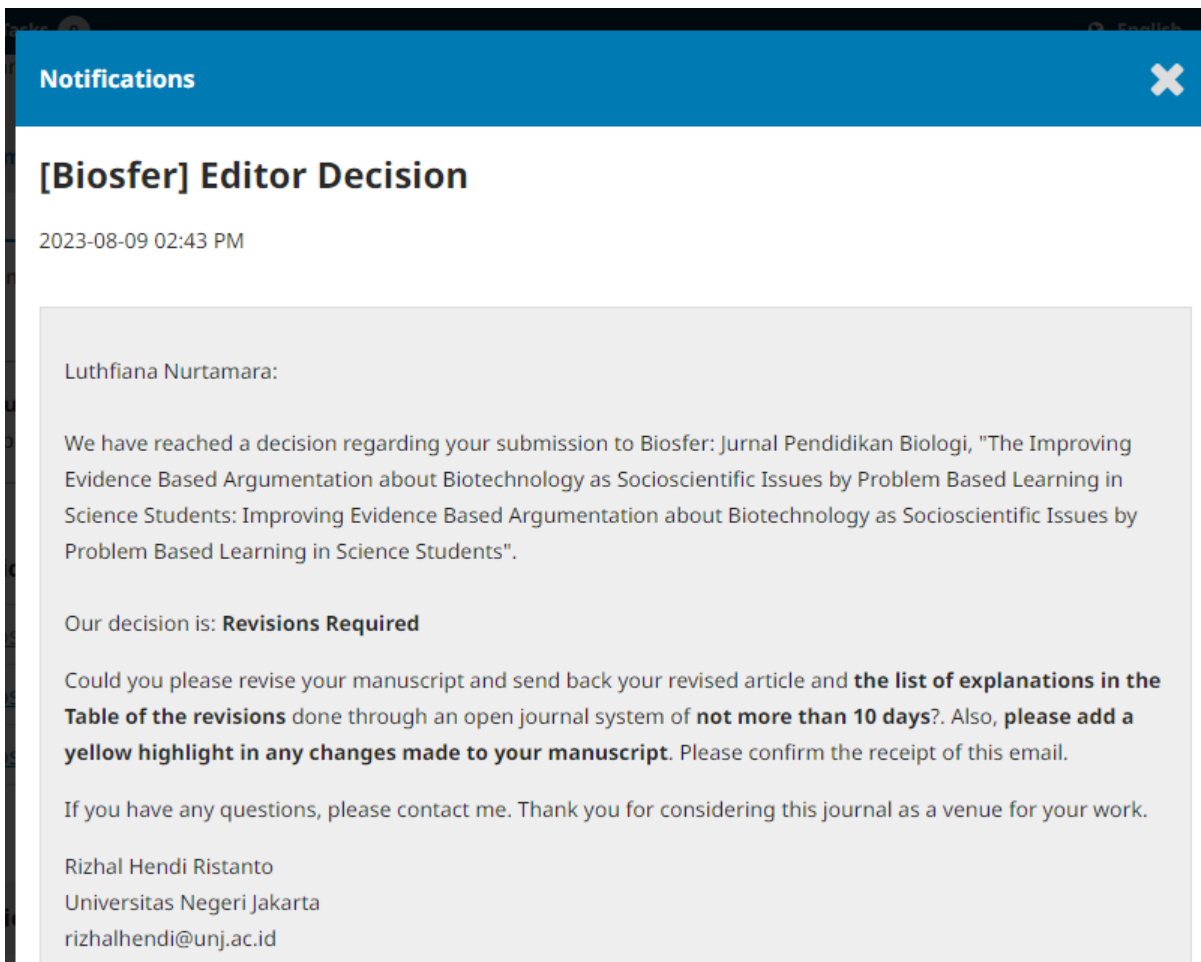
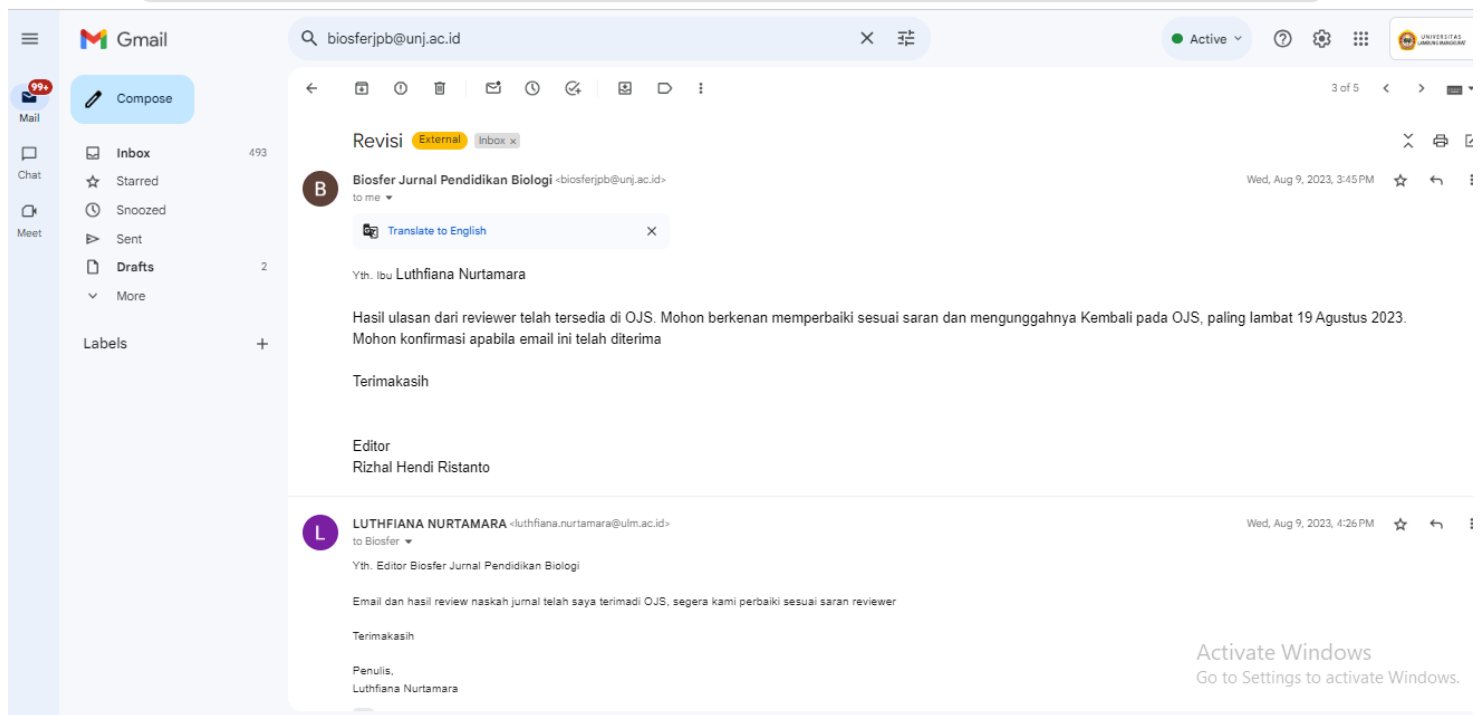
3) Pihak Jurnal meminta reviewer dari luar instansi Penulis



4) Penulis mengirimkan dua reviewer dari Universitas Sebelas Maret



5) Penulis Menerima Hasil Revisi Melalui Email dan OJS



7) Perbaiki Naskah Sesuai Saran Reviewer di Bawah ini

Reviewer A:

The idea of this research is interesting. It would be even better if it is written systematically and comprehensively, especially in the introduction and methodology sections. In the discussion section, recent relevant studies could also be added. Hopefully, the revisions of this article will give beneficial to the readers, especially educator.



Recommendation: Revisions Required


Reviewer B:

1. the background section needs to be sharpened, especially those related to the context of biotechnology problems in society
2. It is necessary to distinguish between population and sample, and what technique used to sampling. as well as population and sample displays and what technique used to sampling.
3. the instrument needs to be explained in detail including the number of questions and indicators used and it must be explained whether it has been validated
4. distinguish between descriptive and inferential analysis and include the table or formula used for the descriptive quantitative test
5. the discussion needs to be deepened to see how the research was carried out, how the results and theories or supporting research from the findings and please show the results of each indicator of the variable argumentation
6. focus only answer the question research
7. need to be added to strengthen the background and discussion

Recommendation: Revisions Required

8) Mengirimkan Naskah hasil revisi

Reviewer's Attachments		Q Search
 103908-1	, Hasil Review.docx	July 28, 2023
 104759-1	, 35534-Article Text-103884-1-4-20230727-review.docx	August 9, 2023

Revisions		Q Search	Upload
 105371-2	Article Text, Revisi 28 Agustus 23_Jurnal Biosfer_Luthfiana Nurtamara & Dewi Amalia.docx (2)	August 28, 2023	Article Text

9) Pengumuman Jurnal Diterima

The screenshot shows a Gmail interface with a search bar containing 'biosferjpb@unj.ac.id'. The email list on the left includes 'Compose', 'Inbox (493)', 'Starred', 'Snoozed', 'Sent', 'Drafts (2)', and 'More'. The selected email is titled 'Letter of Acceptance' and is from 'Biosfer Jurnal Pendidikan Biologi <biosferjpb@unj.ac.id>'. The email content is as follows:

Letter of Acceptance External Inbox x

Biosfer Jurnal Pendidikan Biologi <biosferjpb@unj.ac.id>
to me

Date : 28 August 2023
Ref. No. : 75/Biosferjpb/2023

Dear Author (s),
Luthfiana Nurtamara

We have reached a decision regarding your submission to Biosfer: Jurnal Pendidikan Biologi, "The Improving Evidence Based Argumentation about Biotechnology as Socioscientific Issues by Problem Based Learning in Science Students: Improving Evidence Based Argumentation about Biotechnology as Socioscientific Issues by Problem Based Learning in Science Students"

Our decision is: **Accept Submission**

We Also convey that you have already made the payment for journal publication fee IDR 600.000,- for the article publication and 350.000 IDR for the proofreading and check plagiarism fee. Payment were recorded on 26 August 2023, as reported in our journal system.

Thank for your contribution.

Best regards,
Editor in Chief

The notification message is titled '[Biosfer] Editor Decision' and is dated '2023-08-26 08:46 AM'. The content of the notification is as follows:

Notifications

[Biosfer] Editor Decision

2023-08-26 08:46 AM

Luthfiana Nurtamara:

We have reached a decision regarding your submission to Biosfer: Jurnal Pendidikan Biologi, "The Improving Evidence Based Argumentation about Biotechnology as Socioscientific Issues by Problem Based Learning in Science Students: Improving Evidence Based Argumentation about Biotechnology as Socioscientific Issues by Problem Based Learning in Science Students".

Our decision is to: **Accept Submission**

Please send 600,000 IDR for the article publication and 350,000 IDR for the proofreading and check plagiarism fee to our BNI account at 0827846125 (Rizhal Hendi Ristanto) before 31 August 2023. A letter of acceptance will be sent after payment is received. Please don't hesitate to contact us if you have any inquiries.

Rizhal Hendi Ristanto
Universitas Negeri Jakarta
rizhalhendi@unj.ac.id

[Biosfer: Jurnal Pendidikan Biologi](#)



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Hasjim Asjarie Building 5th Floor, Universitas Negeri Jakarta, Jl.
Rawamangun Muka, Jakarta, Email: biosferjpb@unj.ac.id
<http://journal.unj.ac.id/unj/index.php/biosfer>



Date : 28 August 2023
Ref. No. : 75/Biosferjpb/2023
Subject : Letter of Acceptance

Dear Author (s),
Luthfiana Nurtamara

We have reached a decision regarding your submission to Biosfer: Jurnal Pendidikan Biologi, "The Improving Evidence Based Argumentation about Biotechnology as Socioscientific Issues by Problem Based Learning in Science Students: Improving Evidence Based Argumentation about Biotechnology as Socioscientific Issues by Problem Based Learning in Science Students"

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Thank for your contribution.

Best regards,
Editor in Chief

Dr. Rizhal Hendi Ristanto

Biology Education, Universitas Negeri Jakarta
rizhalhendi@unj.ac.id



✕
Notifications

[Biosfer] Editor Decision

2023-08-28 09:30 PM

Luthfiana Nurtamara, Dewi Amelia Widyastuti:

The editing of your submission, "The Improving evidence-based argumentation on socioscientific issues through problem-based learning in science students," is complete. We are now sending it to production.

Submission URL: <https://journal.unj.ac.id/unj/index.php/biosfer/authorDashboard/submission/35534>

Rizhal Hendi Ristanto
Universitas Negeri Jakarta
rizhalhendi@unj.ac.id

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10) Jurnal Copyediting

English View Site 9luthfiananurtamara
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Luthfiana Nurtamara, Dewi Amelia Widyastuti

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11) Jurnal diproduksi

Biosfer: Jurnal Pendidikan Biologi | Tasks 0 | English | View Site | 9luthfiananurtamara9

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The Improving evidence-based argumentation on socioscientific issues through problem-based learning in science students

Luthfiana Nurtamara

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Biology Education, Faculty of Education an Teacher Training, Universitas Lambung Mangkurat, Banjarmasin, Kalimantan Selatan, Indonesia

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Keywords: Evidence based argument, PBL

Abstract

In the scientific education, improving the argumentation skills in socioscientific issues was very important to educate young people as an active society. The aim of this research was to evaluate the implementation impact of problem based learning to the students skills of evidence based argumentation of socioscientific issues. Total of 21 students of Grade XII



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