

Enhancing High School Students' Research Skills in Economics

Alibekova A.,

Nazarbayev Intellectual School of Astana, Kazakhstan

alibekova.aiym@nisa.edu.kz

Beisenbayev A.,

Nazarbayev Intellectual School of Astana, Kazakhstan

beisenbayev.askhat@nisa.edu.kz

Serjan B.

Nazarbayev Intellectual School of Astana, Kazakhstan

serjan.balgin@nisa.edu.kz

Abstract

Developing research skills is essential in modern education, especially for high school students, as international education requires them to enter university with some background in their chosen field. One of the most recognized international education systems is the International Baccalaureate (IB), which equips students with the necessary skills for success in higher education. The IB Diploma Program in Economics, at both Higher Level (HL) and Standard Level (SL), is a challenging course. Students should demonstrate a strong understanding of economic theory by writing economic commentaries, which are considered a part of the Internal Assessment (IA) reflecting individual research assignments completed with some guidance from teachers. Over two academic years, students must write three economic commentaries, which contribute 20% of the final grade for HL and 30% for SL (International Baccalaureate Organization). This action research analyzed the effectiveness of a designed open-question handout in terms of article analysis hence research skills. Mixed-methods research approaches were used, including surveys, semi-structured interviews and analysis of students' works. As a result, the usage of the designed open-question handout (OQH) has a positive impact on students' research skills by improving students' ability to analyze articles. Therefore, it can be used for development of students' research skills in the educational process of economics lessons as it helps students to identify problems and solutions of economic phenomena hence better performance.

Key words: Research skills, designed open-question handout, article analysis, economics, internal assessment.

Introduction

The research aims to enhance students' skills in finding sources and processing data in internal assessment assignments. Internal assessment is a key component of the IB Diploma Programme, accounting for 20% of the final grade. Economics students are required to write three internal assessments over two academic years. Each involves an 800-word commentary based on a news article, with each commentary linked to a different unit of the syllabus.

The hypothesis of the research - if students use a designed open-question handout, it helps them find and analyze articles for writing economics commentaries.

Research objectives:

- measure students' understanding of the requirements of the internal assessment;
- identify what challenges students face during writing the assessment;
- evaluate the effectiveness of the open-question handout for developing student research skills.

There are a lot of different teaching strategies to develop student's research skills, however, by literature review the conclusion is made that teachers can design specific instructions to help students to better analyze real life economic problems and solutions as students should be more independent during the IA commentary writing process. Therefore literature review explores existing research on developing students' research skills in educational practice, particularly in data analysis and research methodologies. Quirao, Bual, and Madrigal (2023) acknowledged that students experience difficulties when dealing with real-life issues, where they are expected to apply concepts, theories, and principles they have learned. This suggests that students struggle to find relevant sources, process data, and connect their studies with economic theories, which is highly connected to the problems of our students. According to Idika (2020), students can develop research skills through experiential learning, either by receiving structured instruction or actively engaging in their own learning experiences. Therefore developing an open-question handout can be necessary for the teaching and learning process to make sure students have guiding questions for analysis of real life cases. One of the most effective approaches for developing research skills in economics education is problem-based learning (PBL). Shepperson (2017) highlights that PBL creates a structured environment that encourages students to investigate, search for, and select appropriate resources, ultimately leading them to develop well-reasoned solutions. Therefore teaching of economics lessons should encourage students to think critically by answering *why* and *how* questions, furthermore an open-question handout provides students with the opportunity to apply knowledge from theories to practices because it helps students identify and explain real life problems, as well as evaluate solutions which improves students' academic performance by higher quality commentaries. Moreover, it provides students with solid foundations for writing economic essays in both internal and external exams. Hence, the study investigates the effectiveness of the open-question handout in terms of development of research skills and commentary writing. Yin,(2018)

Methodology

A mixed-methods research approach was chosen for this study to investigate the enhancement of high school students' research skills in Economics, particularly for writing economic commentaries in the IB Diploma Program. This approach enabled a comprehensive examination of the research problem by integrating both quantitative and qualitative data. According to Creswell and Clark (2017), mixed-methods research combines numerical trends and in-depth insights, offering a holistic understanding of complex educational phenomena.

For the quantitative component, surveys were administered to 31 Economics students across HL and SL courses. The surveys consisted of closed-ended questions on a Likert scale to measure students' understanding of the internal assessment requirements and their perceived effectiveness of the open-question handout. This method was chosen to provide measurable data on students' confidence and research skills, allowing for a comparative analysis before and after implementing the handout.

The qualitative component involved semi-structured interviews with a purposive sample of 4 students, selected to represent a diverse range of achievement levels and backgrounds within the cohort. Purposive sampling was conducted by reviewing students' formative and summative assessment data, class participation, and teacher observations to ensure the inclusion of individuals who could provide rich, varied insights into the research process. Specifically, one high-achieving student, two average performers, and one low-achieving student were selected. Additionally, the sample reflected diversity in terms of gender, course

level (HL and SL), and linguistic background, thereby increasing the representativeness and depth of the qualitative findings. These students were also chosen based on their willingness to participate and articulate their experiences during the interview.

The interviews aimed to explore students' experiences, challenges, and feedback on using the handout. This approach was selected because it allowed a deeper exploration of students' perspectives, providing context and explanations for the quantitative results (Denzin & Lincoln, 2018).

Furthermore, students' works were analyzed to compare the quality of trial and final commentaries before and after using the open-question handout (Figures 4 and 5) (Patton, 2015).

Using a mixed-methods approach enabled data triangulation, enhancing the validity and reliability of the findings by cross-verifying results from multiple sources (Creswell, 2017).

Findings

The survey aimed to measure students' understanding of IA requirements, identify challenges and evaluate effectiveness of the open-question handout in enhancing research skills. The collected quantitative data provided valuable insights into students' experiences.

Figure 1 demonstrates most students (83.9%) face the biggest challenges with finding relevant articles and choosing a topic (45.2%) when they write the trial commentary 1.

10. What were the biggest challenges you faced while working on your IA?

31 responses

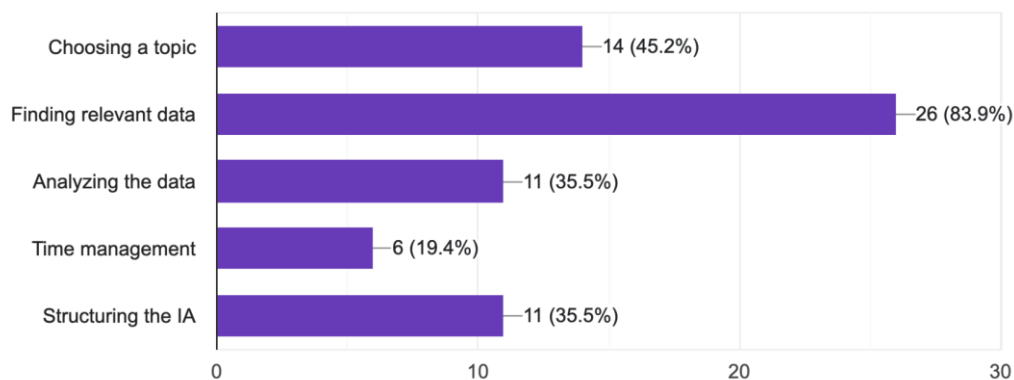


Figure 1

Figure 2 is consistent with Quirao, Bual, and Madrigal's (2023) assertion that students struggle with connecting theoretical knowledge to practical applications. Most students (51.6%) feel challenged in Criterion C application and analysis. Furthermore, Figure 3 highlights a need for clearer guidelines and instructional support from teachers according to 83.9% students. Hence, there is a strong need for teachers to develop guidelines to guide students and to provide feedback.

12. What is the most challenging criterion in IA ?

31 responses

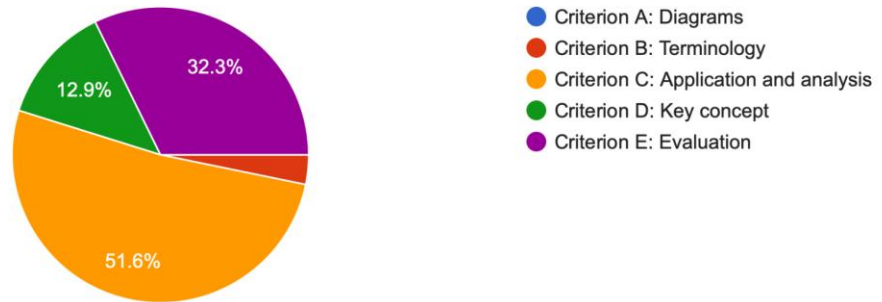


Figure 2

8. What additional support would have been helpful in completing your IA? (Select all that apply)

31 responses

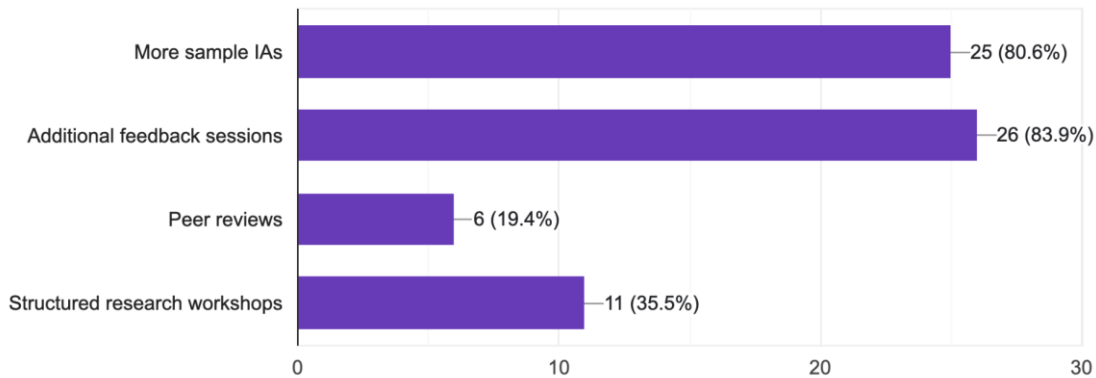


Figure 3

Figure 4 revealed that 48.4% of students found it challenging to find relevant news articles for commentaries. According to the interview, this challenge was more sound in the Global Economy unit, where 62% of students reported difficulties due to the complexity and abstract nature of concepts involved. As most of the students struggled to connect economic theories with real-world scenarios, reflecting the need for better instructional strategies to bridge the gap between theory and practice.

5. Did you find it easy to identify relevant news articles and sources for your topic?

31 responses

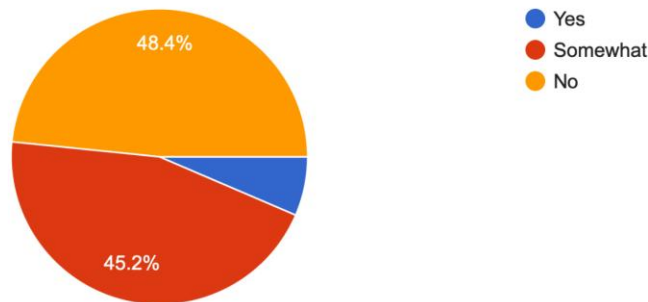


Figure 5 illustrates the student's work before using the OQH. In Commentary 1, students face concept explanation issues. There is a lack of clear problem-solution analysis. Insufficient reasoning and evidence, more qualitative or quantitative data should be included to back up claims. The evaluation is too general and lacks depth. More structured reasoning would improve clarity. The conclusion lacks balance and proper judgment. It should weigh both arguments for and against, and assess their effectiveness.

Commentary 1
(Microeconomics)

Date: 15.03.2024
Word count: 809

The article demonstrates government action to accelerate the transition to electric vehicles (EVs) and support the evolution of the automotive industry towards sustainability; the government has announced a significant package of grants and loans (\$12 billion). This government intervention shows the government's commitment to help with innovation and ensure the viability of the automotive sector. The initiative was a response to concerns from automakers and the United Auto Workers (UAW) union over proposed environmental regulations designed to ease EV adoption; by offering financial incentives to retool auto plants to produce modern vehicles, the government seeks to mitigate possible job losses and facilitate a smooth transition for workers heavily dependent on traditional auto manufacturing. Thus, the subsidies (grants and loans) allocated demonstrate a strategic effort to stimulate investment in EV technologies, while at the same time addressing labor issues. Also, with the imminent expiration of the current labor contract (+threat of strikes), the government's intervention aims to promote cooperation, ensuring the transition to clean transport in line with the interests of both companies and workers.

Concept not well explained, just stated and confusing which concept you choose? Sustainability or intervention?

Confusing point, which problem government tries to solve? Analyze better

Definition?

Not clear relation between investment and subsidies.

Analyze this point in the article more and connect with the concept. Problem and solution not explicitly clear. Show evidence from the article.

Qoq? check labellings, and outcomes according to the article

Diagram above illustrates the impact of government intervention in an automobile (EV) market in the USA in 2023 by depicting the effects of a subsidy on supply and demand. Initially, in the absence of subsidies, the equilibrium ($P_1 \cdot Q_1$) in the automotive market is determined by the intersection of the demand ($D=MPB=MSB$) and supply ($S=MPC$) curves, establishing a price and quantity of vehicles produced but with the introduction of government subsidies, the supply curve shifts downward ($S=MPC \rightarrow S+sb=MSC$), effectively reducing production costs for automakers. So, this results in a new equilibrium characterized by a lower price for electric cars for consumers ($P_1 \rightarrow P_c$) and higher price for electric cars for producers ($P_1 \rightarrow P_p$), and a higher quantity supplied and demanded. The subsidy effectively bridges the gap between the socially optimal quantity of advanced vehicles and the quantity demanded at the market price; as a result, consumer surplus increases due to lower prices (under P_1), while producer surplus expands as firms receive higher prices (above P_1) for their products. However, the subsidy also incurs a welfare loss represented by the deadweight loss (red triangle), which signifies the inefficiency arising from

Not correct initial outcome

Why? Analyze correctly

Why so? Provide reasoning

Why? Reasoning? Evidence from article?

Why? Econ Theory explain more detailed

overproduction induced by the subsidy. Moreover, government spending increases as a result of the subsidies disbursed to automakers and suppliers. In the context of the article, the \$12 billion in grants and loans (subsidy) offered by the US government serves as a direct subsidy to incentivize the production of EV, effectively shifting the supply curve downward. This intervention aims to address industry concerns over proposed environmental regulations while safeguarding jobs and fostering the transition to cleaner transportation technologies.

Good, expl but needs evidence, from article one or two qualitative or quantitative data

In economic theory, government intervention often takes the form of subsidies, designed to alter market outcomes in favor of specific industries or activities deemed socially beneficial. In the context of a subsidy diagram, the government intervenes by offering financial incentives to producers, effectively reducing their costs and shifting the supply curve downward. This leads to an increase in production and consumption beyond what would occur in a free market, aligning with the interventionist approach in economics. However, subsidies can also result in inefficiencies, such as deadweight loss, reflecting the trade-offs inherent in government intervention strategies.

Too vague, not explained reasons and consequences. Revise

The impact of subsidies on stakeholders can be multifaceted. In the case of the article, automakers and suppliers stand to benefit significantly from the \$12 billion in grants and loans offered by the Biden administration (government). These subsidies incentivize investment in advanced vehicle production, potentially safeguarding jobs and bolstering the transition to cleaner transportation technologies; additionally, workers and communities reliant on traditional automotive manufacturing may experience relief as the subsidies mitigate potential job losses and economic disruptions.

Evidence? Reasoning and results? Too general and vague, evaluation is poor

Subsidies can offer various advantages and disadvantages. On the positive side, they can stimulate economic activity, promote innovation, and address market failures such as externalities. In the context of the article, subsidies for advanced vehicle production can accelerate the transition to cleaner transportation technologies and support the automotive industry's evolution. However, subsidies also entail costs, including the burden on taxpayers, potential inefficiencies, and the risk of market distortions; moreover, subsidies may not always achieve their intended objectives and can create dependency on government support, raising concerns about long-term viability.

Too vague! Lack of reasoning. Too descriptive. Provide detailed explanation.... Use because... therefore ...as a result linking works to open up the point

Evaluating subsidies in terms of their short-term and long-term impacts is essential. In the short term, subsidies can provide immediate relief to industries facing challenges or undergoing transitions, as seen in the article's provision of grants and loans to automakers and suppliers. These subsidies may help mitigate job losses and stimulate economic activity, providing a temporary boost to affected stakeholders. However, in the long term, the sustainability of subsidies comes into question, as they may create dependency, distort market signals, and burden taxpayers; moreover, subsidies may hinder the emergence of more efficient solutions and delay necessary adjustments to changing market conditions, potentially impeding long-term economic growth and innovation.

Алибекова Айым Төлөухановна
Weak and poor conclusion! Provide arguments for subsidies as gov intervention and contradict. Balanced view. Provide value of judgment, which means effectiveness of the intervention. Connect with the concept and explain also. Support with evidences. Do not add any new information in the conclusion.

Figure 5

The open-question handout (Table 1) was designed to guide students through the research and writing process by breaking down complex requirements into manageable steps. According to the interview, 80% of students found it helpful in structuring their commentaries and enhancing analytical skills. Students who used the handout showed a 15% improvement in their ability to identify key economic concepts and link them to current events. This finding supports Idika’s (2020) argument that structured, student-centered learning tools are essential for developing research skills.

Table 1.

Success criteria:	Evidence from the article:	Marks awarded:
Relevant to the IB syllabus International trade unit (specific name of the topic)		[1 point]
Follows IB requirement (one year, news media did not use twice)		[2 points]
Allows drawing the diagram for the problem and (solution (draw diagrams)		[2 points]
It is possible to create a link with one of 9 key concepts (a key concept is identified, and a specific quote that allows creating a link is provided)		[2 points]
The article includes the causes of the problem (one macroeconomic objective)		[2 points]
Solution is explicitly written in the article (name and quote)		[2 points]
The article includes a discussion that might be used for evaluation minimum 3 balanced discussion points (for each must be quoted)		[6 points]

Semi-structured interviews were conducted with four students who demonstrated different levels of success in writing economic commentaries. Analysis of interview transcripts revealed several key themes.

All respondents agreed that open-question handout provided clear guidance, particularly in the problem identification and solution analysis sections. One student noted, “The table helped me break down the article step by step, making it easier to connect economic concepts with real-world issues.” This reflects the effectiveness of scaffolding complex tasks, as advocated by Shepperson (2017) in problem-based learning environments.

Despite the handout’s effectiveness, students faced challenges in analyzing complex articles. Unit: Global Economy posed the most difficulty, a student stating, “It was hard to find

articles with enough evidence for global economic issues, unlike micro or macroeconomics.” This indicates a need for more targeted support in selecting and analyzing articles for this unit.

Students reported that open-question handout enhanced their critical thinking hence analytical skills. They found it useful in identifying causes and consequences of economic issues, structuring their arguments, and maintaining a balanced evaluation. One student highlighted, “It forced me to think about the causes and consequences in a structured way, which improved my overall analysis.”

However, students suggested that handout could be enhanced by including examples of key concepts and evaluation techniques, as they found these areas most challenging.

The mixed-methods approach allowed for triangulation of quantitative and qualitative data, ensuring the validity and reliability of the findings. The survey data provided broad insights into common challenges and overall effectiveness of the handout, while interviews offered in-depth narratives that contextualized these challenges and highlighted the handout’s impact on individual research skills development.

The results revealed a positive correlation between the use of open-question handout and improved analytical and research skills in the commentary 2 (Figure 6). Low-achievers demonstrated higher levels of understanding, application of concepts, supporting the research hypothesis.

Macroeconomics Commentary 2:

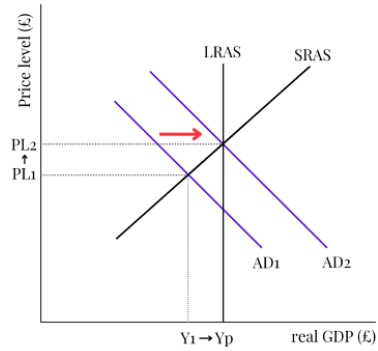
England was fighting with high inflation with contractionary monetary policy since 2022. As England reached its target inflation rate of 2% in 2024, the Bank of England decided to stimulate economic growth and implement expansionary monetary policy, decreasing the bank rate from 5.25% to 5%. The article shows that monetary policy was conducted to improve the **economic well-being** of people, who were restricted with their spendings due to high interest rates, as it allows them to pay less interest in mortgage payments, consume higher quality products, and enjoy higher living standards.

Figure 1: Interest rates change in England in 2024

Good explanation of the problem and

Works, as per article

Figure 2: The economy of England in 2024



Works. good

The economy starts at the intersection of SRAS and AD_1 , in a deflationary gap: the economy produces below its potential level of output Y_p , at level of output Y_1 (Figure 2). To address this issue, the central bank increased the supply of money (Figure 1). It led to surplus appearing at 5.25% interest rate, which was followed by a decrease to 5% interest rate in order to restore money market equilibrium. Lower interest rates decrease cost of borrowing, pushing consumption and investment up, resulting in rise of AD. Therefore, the AD curve shifts to the right from AD_1 to AD_2 . As AD increases, for any given price level, more is demanded, which results in excess aggregate demand. This creates shortage at the original equilibrium price level, which puts upward pressure on price level, and results in a price level increase from PL_1 to PL_2 . As a result, real GDP increases from Y_1 to Y_p . Now, the deflationary gap is closed, and the economy has reached the LRAS curve, meaning that it operates at the potential level of output, at a natural rate of unemployment.

Good analysis, but connection to concept? evidences

The expansionary monetary policy has a significant impact on the **economic well-being** of the population. General public is better off because the fall in interest rates results in a reduction of monthly mortgage payments, loans payments and low borrowing cost, increasing disposable income that people can use to raise consumption. Purchasing power grows, which improves citizens' ability to satisfy their needs and

Good reasoning

<p>wants. This also “improves consumer confidence”, boosting consumption and GDP. Consequently, with a strengthening economy and increased purchasing power, the general level of living standards <u>rise</u>, which results in higher levels of economic well-being. Same pattern is observed with businesses. As decreased interest rates “lower the payments on business loans”, business confidence improves, rising economic well-being of business owners and their employees. It also will drive investment up, leading to higher GDP and lower rate of unemployment due to creation of new job places to be able to supply <u>Y_p</u> value of goods and services.</p>	<p>Evaluation to be improved. Vague</p>
<p>In contrast, in the long run, the policy might be not so effective to improve economic well-being. It is predicted that an increase in GDP might put inflationary pressures (increase from PL1 to PL2). In fact, the Bank of England expects a rising level of inflation in winter, due to excessive consumption, which is further inflated with high energy bills (because of a need to heat accommodation). Moreover, the important disadvantage of the monetary policy is discouraging savings. Before interest rates decreased, the profitability of savings was higher. Now, people are likely to save less. This can have a negative impact: in case of an economic crisis, the economy will recover longer due to absence of savings needed to increase consumption or investment, which can help to increase economic growth. It will also have a negative impact on people’s economic well-being, as in case of a crisis there will be insufficient savings to satisfy their needs before the economy bounces back.</p>	<p>Evaluation good, but concept explanation weak</p>
<p>Furthermore, it was better to implement monetary policy for improving economic well-being, compared to fiscal policy, as it did not “leave a £22bn “black hole” in public finances”. The Bank of England did not drain public finances as it is independent from the government. It makes a monetary policy a clear choice for healthy increase in GDP, which will not result in unsustainable debt or even default. Still, the British central banker suggests that monetary policy does not directly target economic well-being of people in need: while fiscal policy can impose a progressive taxation or increase its public investment, targeting low-income people, monetary policy affects everyone equally, and decrease of interest rates by 0.25%, might have little effect on low-income households.</p>	<p>Well evaluated. But how GDP and Monetary policy is interconnected?</p>

Figure 6

Conclusion

This action research aimed to enhance high school students’ research skills in IB Economics by implementing an open-question handout designed to guide them through the process of writing economic IA commentaries. The findings indicate that the handout significantly improved students’ abilities to structure their commentaries, link economic theories to real-world scenarios, enhance analytical and critical thinking skills.

Majority of students (80%) found the open-question handout useful in structuring commentaries. They demonstrated a 15% improvement in identifying key concepts and links to current events. This aligns with existing literature on the importance of student-centered learning tools in developing research skills (Idika, 2020).

Most (78%) reported a clear understanding of requirements for writing commentaries, although 22% still faced difficulties, particularly in the Global Economy unit, where abstract and multifaceted concepts such as exchange rates, balance of payments, and globalization presented notable difficulties for students. Despite clearer structure and guidance, 22% of students continued to struggle in applying theoretical content to current events, and 65% reported difficulty in sourcing relevant news articles, particularly for this unit. This indicates that while the handout effectively clarifies the commentary structure, additional instructional support is needed for complex topics.

Qualitative feedback from interviews revealed that students appreciated the clear guidance by the handout, particularly in problem identification and solution analysis. They reported enhanced critical thinking and analytical skills, corroborating the effectiveness of scaffolding complex tasks (Shepperson, 2017).

The open-question handout was effective in enhancing students' research skills, as evidenced by improved performance in commentaries. Students were able to break down complex requirements into manageable steps, enhancing analytical abilities. Challenges were noted in analyzing articles related to the Global Economy unit due to the abstract nature of the concepts involved. This suggests the need for more targeted support and examples specific to this unit. Although the handout facilitated improved research skills, 65% of students struggled to find relevant news articles, particularly for the Global Economy unit. This reflects a gap between theoretical knowledge and practical application, highlighting the need for enhanced instructional strategies. Additionally, while students found the handout useful, they suggested including more examples of key concepts and evaluation techniques, indicating areas for iterative improvement. The findings underscore the importance of structured, student-centered learning tools in developing thinking and research skills in economics education. Future studies could explore the long-term impact of the open-question handout on student performance in IAs.

These findings highlight key limitations in the implementation of the handout. While it facilitated analytical thinking, its current design may not provide sufficient scaffolding for more abstract topics.

To address these issues, specific revisions to the handout are recommended: (1) include exemplar commentaries focusing on the Global Economy unit, (2) integrate mini case studies or guided article analyses to model application of key concepts, and (3) offer a curated list of accessible, high-quality news sources categorized by unit. Such enhancements would better bridge the gap between theoretical knowledge and real-world application, particularly in challenging areas.

In conclusion, the action research validates the hypothesis that a structured, student-centered learning tool, open-question handout, significantly enhances research skills in IB Economics, particularly in writing commentaries. However, continuous refinement and targeted instructional support are necessary to fully address the challenges students face in complex units.

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