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**IGNITING CURIOSITY AND CRITICAL THINKING:
THE IMPACT OF HIGHER-ORDER QUESTIONS
IN EFL CLASS**

Effective questioning plays a significant role in English as a Foreign Language (EFL) instruction. Well-crafted questions stimulate student interaction and engagement, boosting their language learning experience in meaningful ways. The paper examines the potential of integrating questioning techniques into teaching English for Academic Purposes (EAP)/English for Specific Purposes (ESP) and offers guidance for designing communicative tasks that foster the development of foundational critical thinking abilities. It discusses the importance of higher-order thinking in nurturing inquisitive and independent learners and highlights the role of student-generated queries in enhancing creativity, autonomy and problem-solving skills.

Key words: critical thinking, lower/ higher-order questions, EFL, EAP/ESP, funneling technique, closed/open-ended questions

Introduction

When it comes to creativity or divergent thinking, the capacity to conceive of original solutions to problems, children are known to excel adults. Convergent thinking becomes more prevalent as we age, and most people see a reduction in their creative abilities. George Land and Beth Jarman created a test in 1968 that was initially intended for NASA scientists to determine how many creative solutions a person could come up with using paper clips. Later they were interested to see how young children would respond to the same test. They tested 1,600 4-5-year-old children to find out that 98% excelled at a “genius” level of creativity. The study turned into a longitudinal one. They re-tested the same children five years

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later with an astounding result of 30% creativity. In five years, the same cohort of children (then 15-year-olds) scored at only 12%. In 1985, adults aged 25+ were given the same test only to manifest 2% creativity. The researchers concluded that the inherent creativity in children is contained when they start school as the latter opt for knowledge and quick answers rather than seek innovative solutions to familiar problems. High levels of creativity should be nurtured through designing proper critical thinking and problem-solving activities (Vint, 2006).

According to Stephen Shapiro (Shapiro, 2001, as cited in Vint, 2005), children's remarkable creativity stems from their ability to collect information, data and details which they eventually combine and synthesize. Fueled by curiosity, they start gathering information from adults as soon as they are able to formulate questions. A systematic study of the emergence and structure of children's questions from a linguistic perspective was conducted by Klima and Bellugi who studied developmental changes in the grammatical structure of children's questions (Klima & Bellugi, 1966). Further research (Bloom et al., 1982; Tyack & Ingram 1977; Frazier et al., 2009) was carried out to investigate the sequence of acquisition of various forms of questions asked by children, i.e., using *what*, *where*, and *who* before progressing to *how*, *why* and *when*. Later acquisition of *why* and *when* questions by children is explained by the fact that the latter pertain to less tangible concepts than *what* and *where* (Bloom et al., 1982).

Callanan and Oakes requested mothers of three to five-year-olds to keep a diary of their child's queries over a period of two weeks. The analysis of the diaries showed that children as young as three years of age were posing their mothers causal *why* and *how come* questions about a range of phenomena in their everyday lives. Inquisitive three-year-olds turning to preschool age increasingly and repeatedly ask lots of *why* questions to get information about a world they do not fully understand and are curious to explore (Callanan & Oakes, 1992). Unfortunately, as children grow, the quantity and quality of questions decrease like in the famous paper clip experiment about creative thinking.

This paper aims to provide insights into the effectiveness of implementing questioning approaches that are theoretically based upon asking higher-order questions, focusing on the application and impact of closed, open-ended and funnel questions in enhancing learning in an EFL classroom. To illustrate their utilization in EAP/ESP classes, practical examples are offered, aiming to stimulate more profound learning in both a foreign language and a subject area. Undoubtedly, all educators possess in their arsenal a variety of strategies, resources, and tactics to maintain a spark of curiosity and creativity in their students. These techniques have already been refined and are offered ready-made in textbooks. However, if not systematically applied, such efforts may prove fruitless. Additionally, several constraints, such as lack of motivation, changes in socio-cultural norms, insufficient class hours, and the depth and quality of the students' prior knowledge and experience are placing pressure on the process.

Asking ‘good’ questions will undoubtedly boost deeper understanding and perception enabling learners to be better informed, as well as exercise sound judgment and decision-making. However, most people are not skilled questioners. Voltaire once remarked, “Judge a man by his questions, not by his answers.” It is indisputable that well-crafted questions are more important than the answers.

Questioning is considered to be one of the most powerful tools that teachers have to help students build understanding and encourage them to think and act upon the material they have structured (Almeida, 2012; Brualdi, 1998; Rimmer, 2019; Tofade et al., 2013). Questions can be classified according to structure, type of information sought, and anticipated answers. The information we receive depends very much on the question we ask. Hence, the questioning technique determines the desired outcome.

Employing Bloom’s taxonomy in questioning

A valuable instrument for integrating critical thinking queries into EFL classrooms is Bloom’s taxonomy (1956). It offers a structured approach to fostering cognitive abilities, progressing from fundamental comprehension to advanced processes such as analysis, evaluation, and creation. By formulating questions at different cognitive levels, instructors can prompt students to explore topics more profoundly, promoting a more rigorous and meaningful comprehension.

Below is an illustration of how cleverly designed questions can be tailored from general to specific tasks, for instance, related to *Brands* and *Branding* in a business English class. The following questions can be integrated into various stages of instruction, such as pre-/while-/post-material coverage to enhance the learning experience.

Remembering: What are some of the qualities of a good brand? What are the key characteristics of a successful brand in the current market? List some of your favourite brands.

Understanding: How would you explain the concept of brand positioning to someone who is new to marketing?

Applying: Based on the target audience and market trends, propose a branding strategy for a new product launch.

Analyzing: Compare and contrast the branding strategies of two competing companies in the same industry. How do they differentiate themselves from each other?

Evaluating: Assess the effectiveness of a recent rebranding campaign. Did it successfully enhance the brand's image and resonate with the target audience? Provide specific examples and evidence to support your evaluation.

Creating: Design a comprehensive brand identity package for a startup company, including the logo, tagline, color palette, and brand guidelines.

Further benefits of using higher-level questions in accordance with Bloom's taxonomy include active engagement with the content, applying previously obtained knowledge to new situations that promote active learning, and help students develop problem-solving and decision-making skills. By tapping questions from different levels, teachers resort to diverse learning styles, thus offering ability-based differentiated instruction for all the students. Bloom's taxonomy levels also provide a useful structure for assessing students' learning outcomes, in evaluating the effectiveness of teaching methods and identifying areas where students may need additional support or instruction.

Funnel questioning technique

Funneling is another useful technique to actively engage learners in the educational process and foster interactive dialogues. It serves as a strategic approach to direct conversations or interviews by commencing with broad, open-ended inquiries and progressively transitioning towards more specific and targeted ones, or conversely. Through adept questioning, one can systematically channel the respondent's answers, employing a sequence of questions that incrementally refine or broaden the scope. This technique facilitates a methodical exploration of a subject, initiating with general queries and then gradually honing in to extract intricate details. The efficacy of funneling questions lies in their ability to establish a fluid and natural conversational flow, providing a framework that ensures the acquisition of pertinent information.

The concept of funneling questions is applied to several disciplines, including psychology, sociology, education, communication studies, interviewing methods, and research methodology. Researchers offer significant perspectives within their specialized field on the principles and employment of funneling inquiry methods in diverse settings (Wiggins & McTighe, 1998; Marzano, 2001; Willis, 2005).

As an illustration of funnel questions, while discussing the topic of Traveling in a General English class and Risk Management in an EAP/ESP class, the instructor may start with initial open-ended questions to guide students sequentially towards more focused and specific closed-ended queries:

Travelling	Risk Management
<i>Start Broad</i>	
Tell me about your most recent trip.	How do you define risk?
What factors do you consider when choosing a particular travel destination?	Can you identify some of the primary risks an organization faces?

<i>Get more specific</i>	
Would you like to live there? Why? Why not?	How do organizations assess and prioritize different types of risk?
What was the most challenging or rewarding part of your trip?	How do organizations prepare for, and respond to potential crises?
<i>Get even more specific</i>	
Who did you travel with? What were the locals like? Did you do a lot of sightseeing?	What are some examples of a crisis organizations faced and how were they managed?
How long was your trip? Did you try the local dishes?	How do organizations communicate risk information to stakeholders?
<i>Dig deeper</i>	
How has your traveling experience shaped your worldview and perspective on different cultures?	What changes were implemented as a result of the lessons learned?

The use of this technique can also take the reverse direction, i.e. progressing from closed-ended questions that require brief and specific responses to open-ended questions that prompt the students to provide more elaborate and subjective information. Consider the following sequence:

Travelling	Risk Management
<i>Start with specifics</i>	
Have you traveled recently? When was your latest trip? Where did you go? Did you travel alone or with someone?	What strategies do organizations have in place to mitigate or manage risks?
<i>Expand to broader concepts</i>	
What was the purpose of your trip? How would you rate your overall experience?	How do organizations assess the potential impact of the risks?
<i>Move to more specific inquiries</i>	
How would you rate your overall experience?	What methods or tools do organizations use to identify potential?

Can you describe the activities you engaged in during your trip?	
<i>Conclude with a broad opening</i>	
What were some highlights of your trip? How did your trip impact your perspective on travel?	What is your understanding of risk management? How important do you think risk management is for organizations?

As we can see from the examples above, closed-ended questions are effective for assessing students' comprehension of factual information or specific details, eliciting concise answers. As the questioning progresses towards open-ended inquiries, students are given the opportunity to delve deeper into their understanding, express personal opinions, and engage in thoughtful discussions that cultivate critical thinking and broader perspectives. This shift encourages a more dynamic and interactive learning environment, stimulating students to articulate their thoughts, experiences and insights with greater depth and nuance.

Implications of students’ questions for classroom instruction

Skillfully constructed questions help to promote creativity and curiosity. Traditionally, questioning is centered around educators asking questions. According to Tamas & Wang (2017), 93% of questions in class are asked by teachers, which leaves little space for peer and group interaction (Tamas & Wang, 2017, as cited in Cardenas, 2021). With the shift to student-centered learning the approach to who poses questions should be revisited. Bowker (2010) advocates practicing question-centered pedagogy, proposing handing question-posing over to students. Rather than depending on the teacher’s question, students are encouraged to ask insightful questions which eventually allows them to become independent thinkers. Bowker recommends starting each class with answers that then transition into generating questions which subsequently lead to even more complicated answers. This strategy is not easy to implement and needs effort. Student-generated questions are indispensable in honing higher-order thinking skills through self-directed queries. Asking appropriate questions is a learned skill that requires rigorous training which in turn assumes fundamental knowledge of the students’ subject area.

In order to investigate the efficacy of higher-order questioning strategies in EFL instruction, this study employed qualitative content analysis and a mixed-methods approach, which were used to identify and analyze the questions generated by students on the given material, as well as to observe how the use of special techniques and strategies can transform the nature, and types of questions, thereby improving the learners’ reasoning skills.

For the purposes of the study, first-year intermediate level students in the Economics and Management Department at Yerevan State University were asked to watch two movies – *The Founder* and *Erin Brockovich*, in line with their textbook (*Market Leader*) topics – *Companies* and *Business Ethics* respectively, and ask 10-15 questions on the films. No instructions were given as to question types or complexity. Around 18 students responded to the task. For further discussion we will sample the responses of six students to *Erin Brockovich*, as many of the questions are of the same kind. The original writing (with minor changes) of the students is retained.

Student A

How much money does the judge order PG&E to pay the residents of Hinkley?

What type of creature does Erin find floating in a ditch near PG&E?

What does George call the babysitter?

What was the profession of the man who hit Erin's car?

What is the name of the law firm that the story centered around?

What is the last name of the very first client in the lawsuit?

Why is Erin suing a doctor?

What was Beth's first word?

What are the names of Erin's three children?

What was the substance that was making people sick?

How many forms/types of chromium are there?

What kinds of symptoms did the people who lived in Hinkley present?

What friend does Matthew want to play roller hockey with?

What did Erin tell George he had to do to prove that he wasn't like her other husbands?

Student B

What has Erin always dreamed of? (she mentioned it during the interview in the laboratory)

Why did Erin miss her chance to study in a medical college?

Where did she work after graduating from school and what did she start to love most?

Who offered to take care about Erin's children, when she was at work?

Why was she fired from the Law Office in the first days of the work?

Which was the first word of Erin's little baby girl?

What was the main cause of the health issue of the residents living near PG&E company?

What did PG&E company use which caused the water's pollution?

What did PG&E lie to people about the hexavalent chromium they used?

How much money did Erin earn after winning the trial?

Student C

How many ex-husbands and kids does Erin have?
What was the cause of cancer cases in the town of Hinkley?
How much percent does Mr. Masry get from each case?
What was Erin's daughter's (Beth's) first word?
How much money was paid to the group and how much of it was paid to Jensen?
What kind of dead creature did Erin find on the floor of the pool?
How much money was Erin awarded in the end?
How did Erin call her previous babysitter?
Did Erin like Teresa's shoes and how did she call them?

Student D

How many kids did Erin have in the movie?
How did Erin get her job back at the law office?
Why was Erin suing a doctor?
What did Ed hand to Erin at the end of the movie?
What information was included in the real estate files that confused Erin?
What was the substance that was making people sick?
How much were the damages awarded to the Jensen Family?
What kind of dead creature did Erin find in the ditch near the PG&E water pools?
How much in debt was Erin because of the medical bills?
What injury did she get as a result of accident?

Student E

How many children did Erin Brockovich have?
What did you like most about Erin Brockovich?
What was his marital status?
What did you dislike about Erin Brockovich?
Describe her in one word.
Was she looking for a job only for children?
What prevented him from working?
What did this film give you?
And what would you do if you were in such a difficult situation?
What do you think are Erin's mistakes?

Student F

Did you know Erin Brockovich played in the movie? Why didn't she play her own role in the film?
What do you think, why has the director of the movie invited Erin Brockovich as an actress?

How can affect one's clothes on her ability to perform well on the job?
How did Erin learn what was happening?
How did people get sick and how did it behave?
Who was responsible for the problem and why hasn't the problem been solved?
What was the main character's motivation?
Do you consider the finale as a victory? Why?
Is it possible this story happens in today's reality? Why?
As for you, what was the message of the movie?

Reflecting on the set of questions in Student A, B, C and D's writing, it can be observed that lower-order questions abound, the majority of which start with *what* question forms and refer to recall question type seeking for predetermined short answers. They are intended to test memory and comprehension of the film's storyline. To spark a broader discussion about the messages of the film, more open-ended questions are needed. Conversely, the questions constructed by Students E and F range from lower-order to higher-order question types, the latter prevailing. These questions prompt deeper analysis, evaluation, critical thinking, and exploration of complex issues related to environmental justice and corporate accountability, as well as inviting discussion and investigation into the broader context.

The brief overview of the student questions in this small-scale study indicates that some students are deeper thinkers innately, while others need to improve their thinking skills. Albeit, the question landscape might have been different if the students were initially instructed to ask 'intelligent' questions. In other words, if the purpose of questioning was clearly stated at the outset, the results would have yielded more higher-order questions. It should be taken into account that linguistic constraints also impact the quality and complexity of questions: in a foreign language class, most students place emphasis on form rather than meaning, being most concerned with grammar, vocabulary, structure, and mechanics. Further discussion classifying the questions into good or poor, convergent or divergent, lower order or higher order will be illustrative and can be used as a pedagogical tool to improve student understanding of producing well-thought questions. To sum up, the questions generated by students can be regarded as a relevant diagnostic tool to improve their question-asking behaviour in class.

Effective use of questions as a teaching tool

Researchers and educators offer various approaches and techniques that may be employed in a language classroom to enhance critical thinking. Hughes (2014) suggests practical activities that can be incorporated into the language program.

Each activity pursues a dual goal: “to develop a sub-skill or aspect of critical thinking, to teach and practice a language point” (p.9). The activity based on critical questioning uses closed and open questions consecutively. The *wh*-questions are written on the board. A list of closed questions is distributed to each pair. The students are first to answer with a *yes* or *no* and then slightly change the question for more extended and cogent answers. Here is an example:

Do you think meat is bad for you?
Why do you think meat is bad for you?

For higher-level learners, the questions are more focused:

What evidence is there that...
How do you know that ...

Foreign language textbooks employ the given questioning approach to a great extent. Consider the following examples from Business English textbooks:

Closed question: *Do you have a career plan?*
 Open question: *Where do you want to be in 10 years' time?*
 (Cotton et al., 2012, p. 6)

Closed question: *Do you think that working 66 hours a week is always stressful?*

Open question: *How do you combat stress?*
 (Mascull, 2017, p. 21)

Modern ELT textbooks incorporate tasks that aid EFL practitioners not only to enhance the linguistic performance of their students, but also to refine the latter's reasoning skills, which are essential for business professions and career success. For instance, in managerial positions, critical thinking is “*critical*” for decision-making, problem-solving, negotiating, communicating and so on. In business English textbooks *Case Studies* contribute to stimulating critical thinking by encouraging the students' deep engagement in real-life scenarios that require analysis, evaluation and synthesis of information.

Another technique used to encourage “critical thinking with three questions” is suggested by educator Brian Oshiro, who discusses how instructors can increase their efficiency in fostering critical thinking (TED, 2018). One aspect he was watching for in his observations was the types of questions asked by instructors. For educators, using questions to assess understanding, engage students, and ensure they can apply and further implement the stuff they have learned on their own is a great approach to make the textbook material come to life. Oshiro's research and observations of multiple Chinese schools revealed that 90% of the questions teachers asked in class were of a lower order. A similar study examining instructors' questioning strategies conducted by Shen and Yodkhumlue revealed a

predominant use of lower-cognitive questions (79.2%) by the teacher, with higher-cognitive questions constituting only 20.8% of the overall questioning approach (Shen & Yodkhumlue, 2012).

Not all questions are equal in terms of their evaluative potential. To help teachers formulate good questions, Oshiro suggests the implementation of the following technique which we have modified to suit the topic of corruption in a business English class.

A) Do you know what corruption is? B) What are the main three causes of corruption?

In this context, question *B* emerges as the more favourable choice, as it solicits a specific, knowledge-based response, allowing students to either provide an answer or not. However, the complexity increases with the introduction of question *C*:

C) Why do some claim that corruption is the biggest threat to the welfare of society? |

The intricacy of question *C* requires students to engage in independent thinking about the societal implications of a potential threat. In an ideal classroom setting, teachers would commence with question *B* to establish foundational knowledge regarding the roots of the problem. Subsequently, they would progress to question *C*, providing students with the opportunity to apply previously acquired knowledge for analytical and creative thinking. In a scenario where teachers predominantly pose questions of type *A* and *B*, students might miss the chance to apply their knowledge effectively. This approach risks leaving the upper levels of Bloom's taxonomy untapped, resulting in an incomplete and less efficient knowledge acquisition process. Conversely, if teachers exclusively present questions of type *C*, the potential ambiguity and difficulty may lead to confusion, discouragement, and frustration among students, hindering their ability to proceed further in their critical thinking endeavors.

The aforementioned aspects beg the question "How can we support critical thinking, by asking better and deeper questions?". Oshiro proposes three methods to attain this objective. Initiate with a *what* question, but consider it merely as the starting point. For instance, begin by asking, "What are three causes of corruption?", a query that is easily answerable or searchable. However, to further engagement, move beyond standard responses. By introducing a slight transformation and incorporating the term 'explain,' such as "Explain the three primary causes of corruption," students are prompted to provide more in-depth responses, encouraging risk-taking and exploration. Once the foundation is established with *what*, establish connections through a series of *why* questions. These queries prompt students to relate the topic to personal experiences or imagination, such as, "Why is combating corruption important for me/us residing

in ...?" or "Why should I, as a student, be concerned with corruption now rather than later?" and "Why is it specifically relevant to us?".

Naturally, once students have grasped the subject matter, making the abstract information from the textbook pertinent, they can recognize the significance of higher-order questions and contemplate how to creatively apply the information. After laying the groundwork with *what* and determining connections with *why* questions, the next phase involves engaging in the more enjoyable aspect of problem-solving through *how* inquiries. Here are a few examples of *how* questions:

How do you know? With this question, students have to back up their answers, provide some sort of evidence and defend their reason towards logical attack. Or:

How might your perspective be different from that of others? Here the students need to take a different, sometimes contrary stance, and search for alternatives. This type of questions makes them empathize with others, and implement the intellectual traits of humility and fair-mindedness.

How can you solve this problem? This is a great question to stimulate imagination, creativity and originality. To cope with it, students have to synthesize their previous knowledge, in order to be able to apply it.

Conclusion

Integrating critical thinking into the teaching of foreign languages can help students become more accomplished language learners who are able to look beyond language proficiency alone. Educators frequently resort to questioning as a powerful pedagogical tool to develop and challenge student thinking. For effective instruction, they need to balance between lower and higher-order questions, as well as provide opportunities for students to construct their questions. If not guided, student-generated questions are mostly convergent; therefore, effective questioning is to be taught and practiced. Skillful application of higher-order questions in the classroom is pivotal in making informed judgements and decisions. Attaining a higher level of thinking skills requires first to achieve lower-order thinking skills. Hence, it is crucial to navigate students through various question types to enable them to formulate accurate questions and improve their questioning technique. If the implemented strategies fail to enhance efficiency and stimulate critical thinking, a reconsideration of teaching methods and activities should be warranted. The knowledge and skills acquired through exercising effective questioning are indispensable for students as they transition from school or university to careers, emphasizing the importance of learning ‘how to think rather than what to think’.

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Լ. Բարսեգյան, Լ. Օվակիմյան – Стимулирование любознательности и критического мышления: влияние вопросов высокого порядка при обучении английскому языку как иностранному. – Умение правильной постановки вопросов играет важную роль при обучении английскому языку как иностранному. Верно сформулированные вопросы улучшают процесс обучения и стимулируют взаимодействие и вовлеченность учащихся. В статье рассматривается потенциал инкорпорирования вопросов высокого порядка при обучении английскому для академических целей/английскому для специальных целей (ААЦ/АСЦ) и предлагаются способы их моделирования для достижения задач, нацеленных на развитие фундаментальных способностей критического мышления. Особое внимание уделяется развитию креативных навыков и автономии учащихся посредством обучения стратегий для самостоятельного конструирования вопросов.

Ключевые слова: критическое мышление, вопросы низкого/высокого порядка, английский язык как иностранный, английский для академических целей (АИЦ), английский для специальных целей (АСЦ), метод воронки, закрытые/открытые вопросы

Լ. Բարսեղյան, Լ. Հովակիմյան – Հետաքրքրասիրության և քննադատական մտածողության խթանումը. բարձր կարգի հարցերի կարևորությունը անգլերենը որպես օտար լեզու դասավանդման գործընթացում. – Արդյունավետ հարցադրումը կարևոր դեր ունի անգլերենի որպես օտար լեզու դասավանդման մեջ: Ճիշտ ձևակերպված հարցերը խթանում են ուսանողների փոխգործակցությունն ու ներգրավվածությունը՝ ընդլայնելով լեզվի ուսուցման փորձառությունը և դարձնելով այն ավելի բովանդակալից: Հոդվածում ուսումնասիրվում են անգլերենը ակադեմիական նպատակների համար (ԱԱՆ)/անգլերենը հատուկ նպատակների համար (ԱՀՆ) ուսուցման ընթացքում հարցադրման տարբեր մոտեցումների կիրառման հնարավորությունները, ինչպես նաև ներկայացվում են հիմնարար քննադատական մտածողության կարողունակությունները զարգացնող առաջադրանքների կադապարներ: Հետազոտության մեջ կարևորվում է բարձր կարգի հարցերի դերը ուսումնառության գործընթացում. առանձնահատուկ ընդգծվում է ուսանողների հարցերի միջոցով ստեղծագործական մտքի, ինքնուրույնության և խնդիրներ լուծելու հմտությունների խթանումը:

Բանալի բառեր. քննադատական մտածողություն, ցածր/բարձր կարգի հարցեր, անգլերենը որպես օտար լեզու, անգլերենը ակադեմիական նպատակների համար, անգլերենը հատուկ նպատակների համար, ձազարի մեթոդ, փակ/բաց հարցեր