THE USE OF HIGH ORDER THINKING SKILLS (HOTS) ACTIVITIES IN PROBLEM-SOLVING SKILLS OF *Ahli Mughulha High School*

REZI APINO
RETNAWATI PURI

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CHAPTER 1

INTRODUCTION

SITUATIONAL ANALYSIS

Many pupils encountered difficulties when it came to posing inquiries during speaking class, as the majority of the classmates only posed queries that required minimal or advanced thinking. Furthermore, certain pupils lacked the motivation to participate in discussions due to the lecturer's request for brief video presentations as individual speaking assignments during the pandemic. Syafryadin, Alamysah, Astrid, and Haryana (2021) identified a number of challenges associated with encouraging students to utilize HOTs throughout the learning process. Lack of knowledge, reluctance to inquire, diminished lecturer stimulation, students' reliance on the lecturer's explanations as a substitute for speaking, and a number of students posing questions in the low-order thinking skill category constituted these issues. The instructor must foresee these challenges in order to enhance the students' HOTs proficiency.

The lecturer or teacher must implement higher-order thinking skills in the classroom. This is a cognitive part that should be introduced and owned by students. According to Brookhart (2010), there are six levels of cognitive domain in Bloom's taxonomy: remembering, understanding, applying, analyzing, evaluating, and creating.

Thomas and Thorne (2009) proposed that higher-order thinking Skills (HOTS) surpass mere rote memorization or regurgitation of memorized facts. Bloom (1956) hierarchically delineated thinking skills, ranging from concrete understanding to abstract thinking, progressing through levels such as knowledge, understanding, application,

analysis, synthesis and creativity. McBain (2011) specifically identified the last three levels of Bloom's Taxonomy – analysis, synthesis, and creativity – as constituting HOTS.

However, the Malaysian Ministry of Education (2014) defined HOTS as applying knowledge, skills, and values to engage in reasoning and reflection for problem-solving, decision-making, innovation, and creative endeavors. In accordance with this definition, the Revised Bloom's Taxonomy's upper levels – applying, analyzing, evaluating, and creating – are classified as HOTS.

FRAMEWORK OF THE STUDY

Critical thinking and problem-solving skills have a significant influence on academic achievement and learning capabilities beyond the classroom. Students who possess strong critical thinking abilities frequently achieve academic success and triumph over a range of obstacles. Higher-order thinking skills (HOTS) transcend lower-order learning outcomes such as memorization by requiring analysis, synthesis, and evaluation. The use of HOTS activities in problem-solving skills among students has a theoretical significance. The cognitive learning theory and constructivist theory are some educational theories that explain the phenomenon of HOTS activities in problem-solving skills. with the advancement of cognitive psychology, greater emphasis and effort were placed on the cognitive processes underlying learning and problem-solving. Determining the cognitive stages that problem-solving entailed constituted an early cognitive approach

to the process. Plas and Polya, two eminent cognitive psychologists, formulated a problem-solving paradigm consisting of four stages. Wallas identified the following as the four stages of problem-solving: (1) preparation—defining the issue and gathering pertinent data; (2) brooding—subconscious contemplation of the problem; (3) inspiration—a sudden insight into the solution; and (4) verification—confirmation that the solution was accurate.5 Likewise, Polya delineated the subsequent four stages comprising the process of problem-solving: (1) comprehend the issue at hand, (2) formulate a strategy, (3) execute the strategy, and (4) reflect from the past.

HOTS is a puzzling phrase that may be described as using critical and creative thinking to tackle complex challenges (Yeung, 2016). Based on observation, many did not understand the notion of HOTS. Increases the young person's ability to think critically children is one of the critical goals of contemporary education reform.

Lee and Lai (2017) point out that open-ended questions could allow students to create comparisons, provide rationale, or conduct research based on prior knowledge. It allows children to acquire the ability to think critically. In addition to successful inquiry approaches, Leung advises using active learning techniques to develop students' high-order thinking skills.

High-level thinking abilities (HOTS) are defined by King, FJ, Ludwika Goodson, and Faranak R. (2012) as rational, reflective, metacognitive, and creative thinking. Individuals will cultivate these capabilities when confronted with unfamiliar challenges, uncertainties, or novel phenomena that demand unanticipated solutions. An assessment is conducted on HOTS's third and highest level of Bloom's taxonomy, which is intended for

analysis, evaluation, and creation (Anderson and Krathwohl, 2001; Robert H. Ennis, 2014; Swartz and McGuinness, 2014).

Arter, J. A., Salmon, & Jennifer R. (1987) state that some of the features included in the HOTS rating are(1) problem-solving (problem-solving ability) and (2) decision-making (decision).

Susan M. Brookhart (2010) provides the following definitions of the three HOTS categories of judgment: (1) higher thinking skills, which encompass the capacity to connect unknown situations with others and transfer concepts to one another; (2) critical thinking skills, which involve the ability to comprehend logical problems, think reflectively, and engage in argumentation with a decision-making orientation; and (3) problem solving capability.

Inquiry-based learning (IBL) is an instructional approach that integrates scientific methods with students' pursuits to foster the development of their critical thinking skills while centering on their needs. IBL education is founded upon the constructivist paradigm, wherein pupils construct their own ideas and concepts by adhering to specific procedures while being guided and supervised by an instructor. Activity initiates the process, while conceptions result from that activity; conversely, concepts do not invariably circle back to the activity. IBL is characterized by the use of queries and the construction of problems to stimulate learning and involve students in lifelong learning via observations, data collection, evaluation, and application of acquired knowledge.

In an effort to provide a clearer understanding of the essence of inquiry, it delineates five primary attributes: "Learners must be involved in scientifically oriented questions; they

need to respond to the questions raised; they are to provide explanations from the evidence provided; their explanations are to be connected to scientific knowledge; and they are to communicate and justify their proposed explanations." Notwithstanding the manifold benefits associated with the inquiry method, the documentation of its implementation in Nigerian colleges is limited in scope owing to the curriculum's structure and instructors' insufficient understanding of inquiry practices. In spite of this, due to the increasing complexity of education and the need for technological advancements, it is vital that instructors are exposed to a variety of instructional methods.

DEFINITION OF TERMS

In order to enhance comprehension of this research report, the subsequent terms are defined operationally:

Higher Order Thinking Skills (HOTS) refers to cognitive skills beyond basic memorization and recall. These skills involve critical thinking, analysis, synthesis, evaluation, and creativity. In our study, we will implement HOTS activities to enhance problem-solving skills among BSED 2nd Year Science students.

Problem Solving Skills: Problem-solving abilities consist of the capacity to identify, evaluate, and resolve issues in an efficient manner. Critical thinking, logical reasoning, creativity, and decision-making are all components of these abilities. Our study aims to investigate how using HOTS activities can improve problem-solving skills among students.

CHAPTER 2

METHODOLOGY

RESEARCH DESIGN

The investigation employed a quantitative-descriptive survey design as its research methodology.

The descriptive approach is statistical in the research that describes the data regarding the use of higher order thinking skills (HOTS) activities in problem-solving skills.

The researcher administered a survey questionnaire, a strategy to describe the current situation state and assess the learner's practices and awareness (Mills, 2021). As a result, a comprehensive profile of the subjects was developed, which aids in accomplishing the objective of identifying patterns and analyzing frequencies in survey responses that evaluated the students' understanding of how to apply HOTS activities to problem-solving abilities.

The questionnaire consists of three parts. The first section requested fundamental respondent information, including their names (which are optional) and the program they were enrolled in. This second part contains the Use of HOTS activities on problem-solving skills. Lastly, the last part consists of the most preferred HOTS activities in problem solving skills of second year science students.

The response format for assessing learners about the use of HOTS activities, and most preferred HOTS activities is a five-point Likert Scale (5-Strongly Disagree, 4-Disagree, 3-Neutral, 2-Agree, 1-Strongly Agree).

The degree of the questionnaire's validity was assessed using a 5-point Likert scale. The researchers determined the tool's rating of validity using Table 2.

Scale	Description	Interpretation
5	Strongly Disagree	The indicator/s fully met in all respects, the purpose

		of the instrument.
4	Disagree	The indicator/s met in all respects, the purpose of the instrument.
3	Neutral	The indicator/s met the purpose of the instrument but some improvements are needed.
2	Agree	The indicator/s met minimally the purpose of the instrument and major improvements are needed.
1	Strongly Agree	The indicator/s did not meet the purpose of the instrument.

ANALYSIS OF DATA

In this research, various statistical treatments were employed to analyze the data. Ahli Mughulha High School in terms of their ability to analyze, evaluate, and do the problem-solving. This utilizes the frequency count by mode to assess the use HOTS activities impact problem-solving skills and most preferred HOTS activities.

Chapter 3

RESULTS AND DISCUSSIONS

The use HOTS activities for improving the problem-solving skills of second-year science students

The data in the table indicated that second-year science students were cognizant of the effectiveness of HOTS activities in enhancing problem-solving abilities. The learner's responses such as the HOTS activities have strengthened my decision-making skills and the use of HOTS activities to improve problem-solving skills. What shown in the table 1 with the most frequent response of 1.

Higher Order Thinking Skills (HOTS) are crucial for students as they go beyond rote memorization and encourage critical thinking, problem-solving and creativity. HOTS helps students analyze information, make connections, and apply knowledge in real-word scenarios, fostering a deeper understanding of subjects. Developing these skills prepared students for challenges they'll face in academic, professional, and personal aspects. (Main, P., 2023).

The survey responses evaluating the effect of Higher Order Thinking Skills (HOTS) activities on problem-solving abilities are represented in the tabled data. In analyzing the responses, a consistent positive perception emerges regarding the efficacy of HOTS activities in improving problem-solving skills, fostering creativity, and enhancing the ability to evaluate diverse perspectives. This alignment is congruent with existing literature emphasizing the positive influence of higher-order cognitive processes on adept problem-solving (Smith et al., 2020).

According to the data gathered, it appears the positive response on the use of HOTS activities. The incorporation of Higher-Order Thinking Skills (HOTS) activities in educational settings has garnered a substantial amount of positive response due to their profound impact on students' cognitive development and critical thinking abilities. HOTS

activities, which require students to analyze, synthesize, and evaluate information rather than simply memorize facts, have been shown to enhance intellectual engagement and promote a deeper understanding of subject matter (Azid, N., Ali, R.M., et. al. 2021). This shift towards a more inquiry-based and analytical approach not only prepares students for the challenges of the modern workforce but also fosters a lifelong love of learning by encouraging curiosity and independent thinking. Educators and researchers alike emphasize the importance of HOTS activities in nurturing a generation of learners who can adapt to complex situations, make informed decisions, and contribute meaningfully to society (Sellars et al., 2018).

Furthermore, the positive response to HOTS activities extends beyond academic achievement to encompass the development of crucial life skills. By engaging in activities that require higher-order thinking, students naturally cultivate problem-solving abilities, creativity, and effective communication skills (Allen et al., 2019). These skills are increasingly valued in the 21st-century workforce, where adaptability and innovation are key drivers of success. As educators witness the tangible benefits of HOTS activities in their classrooms, the enthusiasm for incorporating these methods continues to grow, with a recognition that they play a pivotal role in shaping well-rounded individuals equipped for the challenges of the future (Scardamalia, M.&Quellmalz, E.S, 2018)

These statements received the highest frequency of Strongly Agree responses, indicating a widespread acknowledgment among participants that HOTS activities positively impacted various aspects of problem-solving, including critical thinking, creativity, decision-making, and confidence in tackling complex issues.

Moreover, the data also indicates an affirmative trend towards the recommendation of HOTS activities for enhancing problem-solving skills. Statement 12, "I would recommend the use of HOTS activities to improve problem-solving skills," received predominantly Agree responses (2) along with a few Strongly Agree responses.

It's essential to note the absence of Strongly Disagree (SD) or Disagree (D) responses across all indicators, suggesting a strong consensus among respondents in favor of the positive impact of HOTS activities on improving problem-solving abilities.

This analysis reflects a consensus among participants that HOTS activities play a significant role in enhancing various facets of problem-solving skills, supporting previous research that emphasizes the effectiveness of these activities in fostering critical thinking, creativity, and decision-making (Wale, B. D., & Bishaw, K. S. (2020).

Table 2. The use HOTS activities in problem-solving skills of second-year science students

Indicators	Most Frequent Response	Description
1. HOTS activities have improved my problem-solving skills.	1	**SA**
2. HOTS activities have enhanced my critical thinking abilities.	1	**SA**

3. HOTS activities have fostered my creativity in problem-solving.		
4. HOTS activities have helps me analyze complex scenarios.	2	**A**
5. HOTS activities have improved my ability to evaluate perspective.	1	**SA**
6. HOTS activities have strengthened my decision-making skills.	1	**SA**
7. HOTS activities have increased my confidence in solving complex problems.	1	**SA**
8. HOTS activities have helped me apply knowledge to real-life situations.	2	**A**
9. HOTS activities have improved my ability to work collaboratively in problem-solving tasks.	1	**SA**
10. HOTS activities have increased my motivation to engage in problem-solving activities.	1	**SA**
11. HOTS activities have improved my overall problem-solving skills.	1	**SA**
12. I would recommend the use of HOTS activities to improve problem-solving skills.	1	**SA**
OVERALL MOST FREQUENT RESPONSE	1	**SA**

Legend:
5 = Strongly Disagree(SD)
4 = Disagree (D)
3 = Neutral (N)
2 = Agree (A)
1 = Strongly Agree (SA)

Most preferred HOTS activities in problem-solving skills of second-year science students

According to the data gathered, the most frequent response that indicates the most preferred HOTS activities in problem solving skills are concept mapping, debate, and brainstorming.

Concept mapping is a powerful educational tool that enhances learning by visually representing the relationships and connections between key concepts. Rooted in cognitive psychology, concept mapping provides learners with a structured framework to organize information, aiding in the development of meaningful understanding (Sundar, K., 2022). As individuals create concept maps, they actively engage in the process of synthesizing information and identifying the hierarchical structure of ideas, fostering deeper comprehension and retention. Research indicates that incorporating concept mapping into educational practices not only enhances academic performance but also promotes critical thinking skills and metacognition (Daley, J.B., Durning, S.J., &Torre, D.M., 2016). This pedagogical approach, with its emphasis on visualizing knowledge and promoting cognitive restructuring, proves to be an invaluable asset in facilitating effective learning across various disciplines.

Engaging students in debate serves as a dynamic strategy to cultivate Higher-Order Thinking Skills (HOTS) by encouraging critical analysis, argumentation, and the synthesis of information. The structured nature of debates requires participants to delve deeply into complex topics, consider multiple perspectives, and construct well-reasoned arguments (Rodger, D., & Lord, A.S., 2019). As students prepare for debates, they develop the ability to analyze information critically, evaluate the credibility of sources, and articulate their viewpoints persuasively. This process not only refines their abilities in research and communication, but also cultivates cognitive capabilities linked to more complex thought processes, including logical reasoning and problem-solving. The interactive and dynamic nature of debates provides a platform for students to apply

knowledge in real-time, promoting a deeper understanding of subject matter and preparing them for the complexities of decision-making in various contexts (Majidi, A., Janssen, D., & Graaff, R., 2021).

Moreover, brainstorming is a HOTS activity. Brainstorming is a highly effective collaborative idea-generation technique that considerably enhances the development of Higher-Order Thinking Skills (HOTS) through the promotion of critical thinking, creative thinking, and problem-solving capabilities. Research underscores the effectiveness of brainstorming in promoting divergent thinking, which is a key component of higher-order cognitive processes (Naser, A., &AlMutari, M., 2020). As individuals engage in a group brainstorming session, they are encouraged to explore a variety of perspectives, challenge assumptions, and generate a multitude of ideas. This process not only stimulates creativity but also requires participants to evaluate and prioritize the proposed solutions, promoting critical thinking skills. Moreover, the collaborative nature of brainstorming nurtures effective communication and the ability to build on each other's ideas, reinforcing the interpersonal and cognitive aspects of higher-order thinking. Integrating brainstorming activities into educational settings thus proves to be an effective strategy for cultivating the multifaceted skills associated with HOTS (Mind Tools, 2023).

Table 3. The most preferred HOTS activities in problem-solving skills of second-year science students

Indicators	Most Frequent Response	Description
1. Project- based learning	2	**A**
2. Creative thinking exercises	2	**A**
3. Concept Mapping	1	**SA**

4. Debate	1	**SA**
5. Brainstorming	1	**SA**
OVERALL MOST FREQUENT RESPONSE	1	**SA**

Legend:
5 = Strongly Disagree(SD)
4 = Disagree (D)
3 = Neutral (N)
2 = Agree (A)
1 = Strongly Agree (SA)

Most preferred HOTS activities for improving the problem-solving skills of 2E science students

Table 4 demonstrates that ideation is the preferred HOTS activity of 2E science majors. The purpose of the group creativity exercise known as "brainstorming" is to produce an abundance of ideas within a predetermined framework. The phrase was initially proposed by Alex Osborn, an advertising executive, in his book "Applied Imagination" published in 1953. The fundamental principle of brainstorming involves encouraging participants to freely and spontaneously contribute ideas without fear of criticism. The primary goal is to promote divergent thinking and the generation of a wide range of creative solutions. While the original concept of brainstorming focused on quantity over quality and deferred judgment, subsequent research has explored variations and adaptations to enhance the effectiveness of the technique (The Interaction Design, 2023). Brainstorming sessions can be structured or unstructured, but they generally emphasize collaboration, openness, and the stimulation of creative thinking among participants (The Brainstorming Guide, 2023).

The advantages of brainstorming are numerous, making it a widely used and effective technique for an idea generation and problem-solving. One primary advantage is the promotion of creativity and the generation of a diverse range of ideas. In a brainstorming session, participants are encouraged to think freely and share their thoughts without fear of criticism. This fosters a non-judgmental environment that allows for the exploration of unconventional and innovative solutions to challenges. The emphasis on quantity over quality in the initial stages of brainstorming, as suggested by Alex Osborn, encourages participants to think beyond conventional boundaries and tap into their creative potential. (KPCrossAcademy, 2023).

Several studies supported that brainstorming has the ability to foster team cohesion and collaboration. The social nature of the brainstorming process encourages interaction among group members, leading to effective communication and the exchange of ideas. Collaborative brainstorming sessions leverage the collective intelligence of the group, allowing individuals to build on each other's contributions. The collaborative atmosphere nurtured during brainstorming can enhance team dynamics, promoting a positive working environment where individuals feel valued and engaged in the creative process (Shukla, 2023).

Several studies supported that brainstorming is the most preferred HOTS activities in the problem-solving skills. Research has consistently demonstrated that brainstorming sessions prompt participants to explore a multitude of perspectives and generate a wide array of ideas, fostering a higher level of cognitive engagement. As a Higher-Order Thinking Skill (HOTS) activity, brainstorming encourages participants to

move beyond rote memorization and apply analytical thinking to address complex problems. The approach's focus on the generation of a wide range of concepts, as opposed to their immediate assessment, is consistent with the tenets of higher-order thinking. This promotes the investigation of inventive and imaginative resolutions to complex problems (Paulus, P., & Kenworthy, J.B., 2018).

Moreover, the collaborative aspect of brainstorming further supports its effectiveness in developing problem-solving skills. Engaging in this collaborative exchange not only enriches the level of analysis but also fosters the contemplation of varied perspectives, thereby fortifying the cognitive mechanisms linked to higher-order thinking. Thus, its capacity to stimulate both individual and collective higher-order cognitive skills renders brainstorming a versatile and valuable instrument in professional and academic contexts (Naser, A., & AlMutari, M., 2020). This is consistent with the preference for brainstorming in problem-solving.

Table 4. The most preferred HOTS activities in problem-solving skills of 2E science students

Indicators	Most Frequent Response	Description
1. Project- based learning	2	**A**
2. Creative thinking exercises	1	**SA**
3. Concept Mapping	1	**SA**
4. Debate	2	**A**
5. Brainstorming	1	**SA**

OVERALL MOST FREQUENT RESPONSE	1	**SA**

Legend:
5 = Strongly Disagree(SD)
4 = Disagree (D)
3 = Neutral (N)
2 = Agree (A)
1 = Strongly Agree (SA)

Most preferred HOTS activities for improving the problem-solving skills of 2F science students

Since the respondents rate the different HOTS activities from strongly agree to strongly disagree, the HOTS activities with the strongly agree answer, is the most preferred HOTS activities by 2F science students.

Table 5 shows that brainstorming is the most preferred HOTTS activities in problem solving skills of 2F science students. Brainstorming, within the context of Higher Order Thinking Skills (HOTS) activities in problem-solving, refers to a creative and collaborative process where individuals generate a multitude of ideas to address a particular problem or challenge. It involves divergent thinking, encouraging participants to explore a wide range of possible solutions without immediate judgment. (All kinds of Minds, 2020)

In HOTS activities, brainstorming serves as a mechanism to foster critical thinking, innovation, and analytical skills. Participants are encouraged to think beyond conventional approaches and consider unconventional or novel ideas. The goal is to cultivate a rich pool of potential solutions, encouraging participants to stretch their thinking and explore alternative perspectives (Schadt, S., 2021)

The process often includes open communication, a non-judgmental atmosphere, and the freedom to express ideas freely. After the brainstorming session, collected ideas can be analyzed, refined, and synthesized to develop well-thought-out solutions to the given problem. This approach not only stimulates creativity but also enhances problem-solving skills by encouraging individuals to explore diverse avenues for addressing challenges (Business Insights Blog, 2022).

Table 5. The most preferred HOTS activities in problem-solving skills of 2F science students

Indicators	Most Frequent Response	Description
1. Project- based learning	2	**A**
4. Creative thinking exercises	1	**SA**
5. Concept Mapping	3	**N**
4. Debate	1	**SA**
5. Brainstorming	1	**SA**
OVERALL MOST FREQUENT RESPONSE	1	**SA**

Legend:
5 = Strongly Disagree(SD)
4 = Disagree (D)
3 = Neutral (N)
2 = Agree (A)
1 = Strongly Agree (SA)

The respondents' viewpoints regarding the efficacy of different educational methodologies are captured in the dataset via a Likert scale ranging from 1 (Strongly Agree) to 5 (Strongly Disagree). This feedback aims to gauge the impact of these methodologies on learning experiences. Analysis reveals a prevailing trend toward the most frequent response being Strongly Agree (SA), indicating a consensus regarding the perceived positive influence of these methods on learning.

Project-based learning emerged as the most favored method among respondents, with a majority of Strongly Agree responses (2), emphasizing its effectiveness in facilitating enriched learning experiences (Statement 1). Similarly, Creative Thinking Exercises and Brainstorming received Strongly Agree responses (1), suggesting a unanimous agreement on their positive impact on learning (Statements 4 and 5, respectively).

Possible action plan can be proposed to address the result of the study about the use of HOTS activities in improving problem-solving skills

In the twenty-first century, Higher Order Thinking Skills (HOTS) are indispensable competencies that educators aim to instill in their pupils. This is due to the fact that learners employ intricate modes of thought when considering the material they are studying. Thought of a higher order elevates faith to an entirely new level. As opposed to simply memorizing intricate facets, students employ it to comprehend higher levels (Powell & Kalina, 2020).

In light of the study's findings, information education and communication material in the form of a brochure was developed to disseminate the results. Brochures stand out as a potent tool for conveying information due to their numerous advantages over alternative communication methods. The primary reason for selecting brochures to share the study's outcomes lies in their portability and ease of distribution. Brochures are not only easy to carry but can also be disseminated to a wide audience (Hartwig, S., 2018)

Another compelling aspect of brochures is their customization potential. They can be tailored to meet the specific requirements of both researchers and the target audience.

A study by the Content Marketing Institute (2018) highlights that custom content is more effective than generic content in engaging a target audience. Furthermore, brochures offer a visual appeal by incorporating elements such as photos, illustrations, and infographics, facilitating the effective communication of complex information. Research from the Nielsen Norman Group (2020) supports the idea that users pay more attention to information presented with relevant images.

Crucially, brochures can be utilized to target specific audiences, tailoring content for groups such as students and science teachers. According to a study by the Content Marketing Institute (2019), targeted content is more effective than non-targeted content in engaging a specific audience.

In summary, brochures provide a range of advantages in information dissemination, encompassing portability, customization, visual appeal, targeting, and measurability.

CHAPTER 4

Summary, Conclusions, and Recommendations

Summary

1. The objective of this research endeavour was to ascertain the assessment strategy thatresearcher at *Ahli Mughulha High School* of There were fifty-two (52) respondents who took part in this research. Utilizing a quantitative descriptive survey design, this study determined which problem-solving activities assessed higher order thinking skills were most favoured.

Conclusions

Based on the findings, conclusions were drawn:

1. Engaging students in HOTS activities helps them develop higher-level cognitive skills, such as analyzing information, making connections, and applying knowledge to real-world situations. These skills are crucial for solving complex problems and preparing students for future challenges.Research studies have shown that students

who engage in HOTS activities demonstrate improved problem-solving skills compared to those who only engagein lower-level thinking tasks. These activities provide opportunities for students tothink beyond memorization and recall, enabling them to develop a deeper understanding of the subject matter.

2. Based on the feedback from both sections, high school, the most preferred Higher Order Thinking Skills (HOTS) activity for problem-solving skills among 2nd-year students is brainstorming.
3. An info brochure, has been designed to promote the most effective assessment strategies.

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Part I. Basic Information

Name (Optional): _____
Age:
Gender:

Part II. Impacts of HOTS activities on problem-solving skills

Direction: Please rate the extent to which you agree with the following statements regarding the impacts of HOTS activities on problem-solving skills: putting a checkmark (√) to the corresponding column in every item being asked using the scale below:

5 – Strongly Disagree

4 – Disagree

3 – Neutral

2 – Agree

1 – Strongly Agree

SCALE	INTERPRETATION
5	Strongly Disagree
4	Disagree
3	Neutral
2	Agree
1	Strongly Agree

Statement	**5**	**4**	**3**	**2**	**1**
HOTS activities have improved my problem-solving skills.					
HOTS activities have enhanced my critical thinking abilities.					

Statement	5	4	3	2	1
HOTS activities have fostered my creativity in problem-solving.					
HOTS activities have helped me analyze complex scenarios.					
HOTS activities have improved my ability to evaluate perspectives.					
HOTS activities have strengthened my decision-making skills.					
HOTS activities have increased my confidence in solving complex problems.					
HOTS activities have helped me apply knowledge to real-life situations.					
HOTS activities have improved my ability to work collaboratively in problem-solving tasks.					
HOTS activities have increased my motivation to engage in problem-solving activities.					
HOTS activities have improved my overall problem-solving skills.					
I would recommend the use of HOTS activities to improve problem-solving skills.					

Part III. Most Preferred Hots Activities in Problem-Solving Skills

Direction: Please rate the extent to which you agree with the following statements regarding the most preferred HOTS activities in problem-solving skills putting a checkmark (√) to the corresponding column in every item being asked using the scale below:

SCALE	INTERPRETATION
5	Strongly Disagree
4	Disagree
3	Neutral
2	Agree
1	Strongly Agree

Statement	**5**	**4**	**3**	**2**	**1**
Project-based learning					
Creative thinking exercises					
Concept mapping					
Debate					
Brainstorming					