Encouraging higher level thinking and learning in MTB MLE programs

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One of the goals of MTB MLE is that students will develop confidence in using both of their school languages for higher-level thinking and learning. In strong programs, most or all the levels of learning can be incorporated into all subjects in each grade. This is because MTB MLE students use their own language and, when they are ready, also the official school language, for learning and lessons build on what they have learned to introduce new concepts and new information.

The “Levels of Learning” identified in the pyramid above were first described by Bloom and colleagues in 1956. The pyramid shape shows the levels from lowest (remember) to highest (create) to emphasize that each higher level builds on those that come before it. For example, students in primary school could not apply a new math concept if they did not understand it and they could not understand a new concept if they did not remember it.

The chart beginning on the next page presents more information about the levels of learning that education planners and teachers can use to incorporate all the levels into the curriculum and instructional plans in primary grades.

• The first column in each section identifies the level that is in focus.
• The second column describes the learning objectives for that level.
• The third column shows examples of action verbs that can be used for planning outcomes and indicators as well as classroom activities for different subjects.
• The box just below each level lists some of the kinds of questions that teachers might use to assess students’ level of learning in different subjects.

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Levels of learning with learning objectives, action verbs and assessment questions for each level²

<table>
<thead>
<tr>
<th>Level 1: REMEMBER</th>
<th>Learning objectives. At this level, students should be able to recall facts, names, numbers, places, terms and rules</th>
<th>Examples of action verbs used for student assignments at this level: describe identify label list name select match state</th>
</tr>
</thead>
</table>

Examples of questions to assess students’ ability to remember what was taught:

- How many children are in this story?
- What are their names?
- Where did they go?
- What kind of animal did they see?
- What did the animal look like?
- Which of the children took care of the animal?
- How did the story end?

<table>
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<tr>
<th>Level 2: UNDERSTAND</th>
<th>Learning objectives: At this level, students should be able to summarize, translate, make connections, draw conclusions, and recognize relationships.</th>
<th>Examples of action verbs used for student assignments at this level: explain estimate defend translate summarize predict convert</th>
</tr>
</thead>
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Examples of questions to assess students’ understanding:

- What title would you give the story you just read? Why did you choose that title?
- What would you do if you were the child in this story?
- Look at the 5 countries on the map. List them in order from largest to smallest.
- The perimeter of the square is 12 inches. What is the length of each side of the square?
- Read the paragraph and then summarize the main idea.
- Read the sentence in your L1 and then write the sentence as you would say it in L2.

| **Level 3:** APPLY | **Learning objectives:** At this level, students should be able to use what they have learned in a variety of different situations. | **Examples of action verbs used for student assignments at this level:** change organize compute prepare demonstrate relate develop transfer solve modify operate use |

**Examples of questions to assess students’ ability to apply what they have learned:**

- How much would you pay for 2 kilos of sugar if the price is 70 cents for 1 kilo?
- What is another way to write this math problem: $5 + 5 + 5 + 5 = 20$
- Draw a picture that shows the face of a man who is “furious”.
- Draw a map of our community and include at least three important buildings with their correct locations.
- Describe what you would do to measure the area of this room.
- Use what you learned in Social Studies today to write an outline for your report.

| **Level 4:** ANALYZE | **Learning objectives:** At this level students should be able to identify similarities and differences in facts, opinions, assumptions, and conclusions | **Examples of action verbs used for assignments at this level:** classify organize compare contrast diagram illustrate distinguish subdivide categorize |

**Examples of questions to assess students’ ability to analyze:**

- Look at the two pictures. What parts are the same and what parts are different?
- Look at the diagram below and then look at the two descriptions. Which one describes the diagram accurately?
- Which tool in the picture is the most useful for building a fence?
- Why did the children in this story start fighting?
- What parts of the story from yesterday are the same as the story for today? What parts are different?
- Which of the items in the list below are parts of a plant?
- Separate the animal pictures into groups, using your own categories for sorting.
Level 5: EVALUATE

Learning objectives: At this level students should be able to form judgments and make decisions about the value or usability of methods, ideas, actions and products and they should be able to state the basis for their evaluation.

Examples of action verbs used for assignments:
- assess
- critique
- judge
- debate
- defend
- justify
- support
- rate
- appraise

Examples of questions to assess students’ ability to evaluate what they see, hear, read, write, think or do:

- Read a story about 4 children who were trying to solve a problem. Identify the person in this story that you think had the best idea for solving the problem and say why you think it was the best one.
- If someone asked you to help them steal money from an old man, what would you do? Explain your answer.
- Which food do you think is better for you—a guava or some candy? Explain.
- Some people think that children should do whatever adults tell them to do and not ask questions. Do you agree or disagree? Give reasons for your answer.
- Is it better to cut down and burn forests so we can plant soybeans or should we try to preserve the forests? Say what you think and explain why you think that.
- What is the most important thing that parents can teach their children? Explain why you think that.
- Look at the list of classroom responsibilities and put them in order from most important to least important.
- Read the essay that you wrote yesterday and evaluate yourself with respect to clarity, correct statements of facts and a valid summary based on the facts you presented.

Level 6: CREATE

Learning objectives: At this level students should be able to use their own knowledge, experience and ideas to create something new or unique.

Examples of action verbs used for assignments:
- compose
- create
- design
- predict
- invent
- formulate
- generate
- build
- construct
- discover
- imagine
- form

Examples of questions to assess students’ ability to evaluate:

- Read a short story about some children having an adventure. Then write a new ending for the story.
- Write a poem about what you would do if you could fly on the back of an eagle.
- Draw a picture that describes your feelings when you see a beautiful flower.
- Draw a picture of a house that you would like to live in some day.
- Use what you have learned about length, weight and capacity to design something useful for your house.
- Listen to the first part of a story about a familiar topic and predict how it will end.
- Compose a song about your family.
Higher level thinking activities for teacher trainees

Teachers are not able to help their students become higher level thinkers and learners until they understand and make daily use of higher level thinking and learning in their own lives. If teacher trainees have not been exposed to these ideas in their own education, they need time to learn about and practice using relevant activities in their pre-service teacher training. The questions below were developed to introduce MTB MLE teachers in 2-3 week intensive teacher training workshops to the rationale, purpose and benefits of higher level learning activities. You can expand these ideas for use in teacher training institutions as well.

Here is a suggestion to make this activity especially helpful for pre-service MTB MLE teachers: Make a big “higher level learning pyramid” like the diagram on page one and put it on the wall. If teacher trainees come from different L1 communities, encourage each language group to translate the words for each level into their L1 and write them in the correct place in the diagram. Make sure the trainees have a good understanding of how the levels build from lower to higher. Then, each time they learn about and/or practice a new teaching activity, challenge partners or teams to identify the levels of learning that were used in that activity.

Feel free to adapt the 20 questions below and the activities after that so they are appropriate to the teacher trainees in your program.

**Analyze these questions. Which level of learning are they?**

1. What year did Barack Obama become president of the USA?
2. (*Teacher tells a story about two boys who tried to build a cart. The cart broke the first time they tried to ride in it.*) Why do you think the cart broke?
3. If you and your 3 friends have 2 bananas, how will you divide the bananas so everyone gets an equal share?
4. How are water buffaloes and cows alike and how are they different?
5. What is the name of the capital city of this country?
6. (*Students read a story about two boys who wanted to get into a good school. The father of one boy took his son to the school and gave the principal money to let his son enroll in the school. The father of the other boy refused to pay the principal to let his son enroll. The boy whose father gave money to the principal got into the school. The other boy did not get into the school.*) What happened to the boys? Why did that happen? Which father do you think loved his son more? Why do you think that?
7. Look at the animals in this picture. Which of the animals is commonly found in your community. Which one is most important in your community and why?
8. (*Teacher tells a story about a mother who was going to the market to buy food for her family. When she got to the market she realized that she had lost her money!* What do you think will happen next? What would you do if you were that woman?
9. Do you think that children should have to purchase their own school supplies?
10. A grade 6 girl needed a pencil and exercise book for school but she also wanted a new scarf. She had enough money to buy the school supplies or the scarf but not both. Which one should she buy first, and why?
11. *(Today’s health lesson is about the “Food Groups”).* What foods help us build strong bones?

12. *(Teacher tells a story about a girl who found $5 just outside her neighbor’s house. She put the money in her pocket and used it to buy sweets at the store.*) What do you think about what that girl did? Was it okay for her to keep the money? What would you do if you were that girl? Would you try to find out who lost the money or would you keep it?

13. What are the colors of the flag of our country?

14. What do you think we can do to stop global warming?

15. Can you make up a song about your family?

16. What would happen if everyone in your city had a motorbike?

17. *(Students listen to a story about some children who went to the forest to find food but they got lost in the forest. They were very frightened. But their mother and father looked and looked for them. Finally they found the children and took them home. Everyone was very happy.*) Divide the story into parts: beginning, middle and end. Explain why you divided it that way.

18. What are some things that we can do to keep ourselves healthy?

19. What is the tallest building in our community?

20. *(Students read a story about a girl who died of malaria.*) What could people in your community do to support a family whose child died? What could **you** do?

**Analyze these activities. What level of learning are they? What could you do to move them to a higher level?**

1. Students list the four food groups.
2. Students plan a meal that has all four of the food groups.
3. Teams identify problems caused by contaminated food.
4. Students draw two pictures: One that shows something that makes them happy and one that shows something that makes them feel sad.
5. Students use role plays to demonstrate things they can do to show love for people who have HIV AIDS.
6. Students identify all the ways that people use water.
7. Teams identify ways that water is wasted in their homes and the community. Then they make a list of things people can do to save water.
8. Each student draws a picture of a wild animal. They write the name of their animal and the location in the world where the animal is found.
9. A local person brings traditional working tools to class and demonstrates how they are used. Students learn the names of the instruments. Each student draws a picture of one of the tools and writes a paragraph about how it is used.
10. Students have a race to see who can finish 10 math problems first.
11. Teams of 3 create a pamphlet that describes an interesting place in their region.

12. Teams of 3 create 2 math “story” problems using math concepts they have just learned. They change their problems with another team and solve the problems.

13. Teams of 6 create and act out a play about an issue that is important in the community. Class votes for the play that represents the issue most accurately.

14. Students look at three examples of paintings/carvings/costumes by famous artists. They write a short essay about the one they like best and explain why they like it better than the other two paintings.

15. Students write a short essay about the system of government in their country.

16. Teams look at pictures of familiar animals. They put them into groups using their own categories. Then each team explains their criteria for sorting to the other teams.

Resources

Assessment questions [http://www.ets.org/Media/Tests/ParaPro_Assessment/0755.pdf](http://www.ets.org/Media/Tests/ParaPro_Assessment/0755.pdf)

Bloom’s questions [http://www.learnerslink.com/bloom%27s_questions.htm](http://www.learnerslink.com/bloom%27s_questions.htm)


Primary Math (Grades 4 and 5) - Free Questions and Problems With Answers [http://www.analyzemath.com/primary_math.html](http://www.analyzemath.com/primary_math.html)

Techniques for Writing Multiple-Choice Items that Demand Critical Thinking [http://tep.uoregon.edu/resources/assessment/multiplechoicequestions/sometechniques.html](http://tep.uoregon.edu/resources/assessment/multiplechoicequestions/sometechniques.html)