**Table S1. Item prompts and scoring options for the MELE-A Classroom Observation Tool**

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| Scale and Item | Scoring options | Scoring labels |
| Health/ Safety (4 items) | |  |
| 1.     Drinking Water | 1-2-3-4 | 1 = No water available; 2 = Unprotected dug well/spring, rainwater, surface water; 3 = Cart with small tank/drum, tanker truck, protected spring; 4 = Sanitary water source (piped water, public tap, protected dug well or bottled water) |
| 2.     Handwashing | 1-2-3-4 | 1 = No handwashing station; 2 = Shared basin or bucket; 3 = Hand poured water system with used water separate from water to clean hands but no soap; 4 = Running water or hand poured system and liquid/bar soap are available |
| 3.     Toilet Facilities | 1-2-3-4 | 1 = Bush or field; 2 = Pit latrines, uncovered bricks, or buckets; 3 = VIP toilets or covered bricks; 4 = Flush or pour-flush toilets |
| 4.     Safety Conditions | 1-2-3-4 | 1 = 5+ dangerous conditions exist on school grounds or in classroom; 2 = 3-4 dangerous conditions; 3 = 1-2 dangerous conditions; 4 = No dangerous conditions |
| Materials/Space (12 items) | |  |
| 5.     Materials: Writing Utensils (e.g., pencils, chalk) | 0-1 | 0 = Not available; 1=Avalailable |
| 6.     Materials: Art (e.g., paints, crayons) | 0-1 | 0 = Not available; 1=Avalailable |
| 7.     Materials: Fantasy Play (e.g., dolls, dress-up clothes) | 0-1 | 0 = Not available; 1=Avalailable |
| 8.     Materials: Blocks (e.g., wooden, cardboard blocks) | 0-1 | 0 = Not available; 1=Avalailable |
| 9.    Materials: Educational Toys (e.g., puzzles) | 0-1 | 0 = Not available; 1=Avalailable |
| 10.  Materials: Storybooks | 0-1 | 0 = Not available; 1=Avalailable |
| 11.  Curriculum | 0-1 | 0 = Not used/teacher reported not using a curriculum; 1 = Used//teacher reported using a curriculum |
| 12.  Theme | 0-1 | 0 = Not used/no theme was observed; 1 = Used/teacher use of theme was observed |
| 13.  Child Portfolios | 0-1 | 0 = Not available; 1=Avalailable |
| 14. Classroom space is enough for all attending children to do all indoor activities | 0-1 | 0 = No; 1=Yes |
| 15. Children access materials that are organized into learning corners | 0-1 | 0 = No; 1=Yes |
| 16. School yard has adequate space/equipment for play | 0-1 | 0 = Not available; 1=Avalailable |
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| Classroom interactions (10 items) | | |
| 17.  Playful Learning: Math | 1-2-3 | 1 = Concepts taught through rote learning or choral response to close-ended questions; 2 = Concepts taught through some math games or use of concrete objects; 3 = Concepts taught through games and during activities; objects are used to help children learn math concepts through play |
| 18.  Playful Learning: Literacy | 1-2-3 | 1 = Concepts taught through rote learning or choral response to close-ended questions; 2 = Teacher sometimes allows children to answer questions and work with materials on their own; 3 = Teacher gives all children the opportunity to explore letters and words during “playful learning” activities |
| 19.  Playful Learning: Fine Motor | 1-2-3 | 1 = Fine motor skills are taught by only teacher-directed activities focused on product and not process; 2 = Fine motor skills are also taught by using one of the following strategies: allowing children some choice in how to use materials or carry out an activity or teacher engages child in discussion, uses open-ended questions; 3 = Fine motor skills are also taught by two or more of the following strategies: allowing children some choice in how to use materials or carry out an activity; teacher engages child in discussion, uses open-ended questions |
| 20.  Playful Learning: Free Play | 1-2-3 | 1 = Choices are limited and children must play with materials in a prescribed way; 2 = Children have some choice in where and what they play with; teacher does not interact to add to children’s play or extend learning; 3 = Children are allowed to choose their own activity and engage in free play with materials; Teacher interacts with children during play |
| 21.  Playful Learning: Music/Movement | 1-2-3 | 1 = All children are required to participate and complete activity in the same way; 2 = Music/movement activity is somewhat less restrictive and allows children to have some individual expression occasionally; 3 = Music/movement activity allows children to express themselves individually |
| 22.  Teacher Engagement | 1-2-3-4 | 1 = Teacher seems irritated towards children, does not want to be there, and appears to be “going through the motions”; may leave the room often or have negative physical or verbal interactions; 2 = Teacher appears distracted or uninterested in children, often ignores their requests or shows flat affect when interacting; 3 = Teacher appears to enjoy some tasks or children and responds in a neutral or sometimes positive way when interacting; 4 = Teacher genuinely appears to enjoy teaching, shows physical and verbal affection |
| 23.  Teacher Negativity (reversed) | 1-2-3-4 | 1 = Frequently (5 or more times) uses negative physical or verbal interactions with children; 2 = Sometimes (3-4 times); 3 = Rarely (1-2 times); 4 = Never |
| 24.  Child Engagement | 1-2-3-4 | 1 = Few children are engaged for most of the observation (e.g., paying attention, looking at teacher, focused on lesson or work); 2 = Some children are engaged for most of the observation; 3 = Most children are engaged for most of the observation; 4 = All children are engaged for most of the observation |
| 25.  Individualized Instruction | 1-2-3-4 | 1 = Teacher uses a ‘one-size fits all’ approach where all children do the same work and receive the same instruction and support, ignores child who struggles, makes no adaptations for children with special needs; 2 = Teacher occasionally shows some awareness of individual needs of children by checking for understanding of concepts, responding to requests for help, and providing minimal support; 3 = Teacher usually notices when some children are having difficulty and gives good help to those children (with or without specific requests for help); 4 = Teacher seems to know which children have difficulty with an activity and gives extra attention to those children with enough help to support their participation and success while also providing more challenging activities or questions to children who are ready |

**Table S2. Validity evidence based on associations with child developmental outcomes, controlling for child and family characteristics**

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|  | Development and learning | Socioemotional (PR) | Socioemotional (TR) |
| Health/Safety (four items) | 0.03 | -0.10\* | -0.05 |
| Materials/Space |  |  |  |
| Twelve items | 0.11\*\* | 0.07 | 0.04 |
| Nine items | 0.13\*\* | 0.06 | 0.03 |
| Seven items | 0.14\*\* | 0.06 | 0.04 |
| Five items | 0.15\*\* | 0.06 | 0.05 |
| Classroom interactions |  |  |  |
| Nine items | 0.05 | -0.06 | -0.04 |
| Eight items | 0.06 | -0.05 | -0.04 |
| Five items | 0.08 | -0.03 | -0.03 |
| Four items | 0.10\* | -0.01 | -0.01 |

Note. Child development scores are expressed in standard deviations. Controls include child's age, child's gender, and maternal education. Standard errors are clustered at the classroom level. PR refers to parent-reported and TR to teacher-reported; + *p* < 0.10, \* *p* < 0.05, \*\* *p* < 0.01

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