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Profiling of Graduating Elementary Students: Detecting Possible Learning Loss

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Profiling of Graduating Elementary Students: Detecting Possible Learning Loss

Learning Loss

- *“any loss of knowledge or skills and/or deceleration of or interruption to academic progress, most commonly due to extended gaps or discontinuities in a student’s education”* (UNESCO, UNICEF, and World Bank, 2021)
- Evidences of substantial learning losses highlighting the numerical and reading literacies of students are increasing in literature
 - Mexico (Hevia, et.al, 2022)
 - UK (Juniper Education, 2021)
 - The Netherlands (Engzell, et.al., 2021; Schuurman, et.al, 2021)
 - Switzerland (Tomasik, Helbling and Moser, 2020)

Learning Loss in the Philippines

- Basic Education Learning Continuity Plan in the Time of COVID-19 (BE-LCP; Department of Education, 2020) as an immediate response to the disruption of students' learning
- There has been no study on the amount of learning loss incurred by the Filipino learners during the pandemic

CEM Research Agenda

- A series of research to document students' learning at the Basic Education level during the pandemic and at the start of post-pandemic, and thus, help in preparing for learning recovery plan
- The performance of graduating elementary students in SY 2020-2021 and SY 2021-2022 in the CEM K to 12 Achievement Test in English, Mathematics, and Science for Grade 6
- Subgroup analysis considering students' geographical location (to determine the varying effect in terms of location)



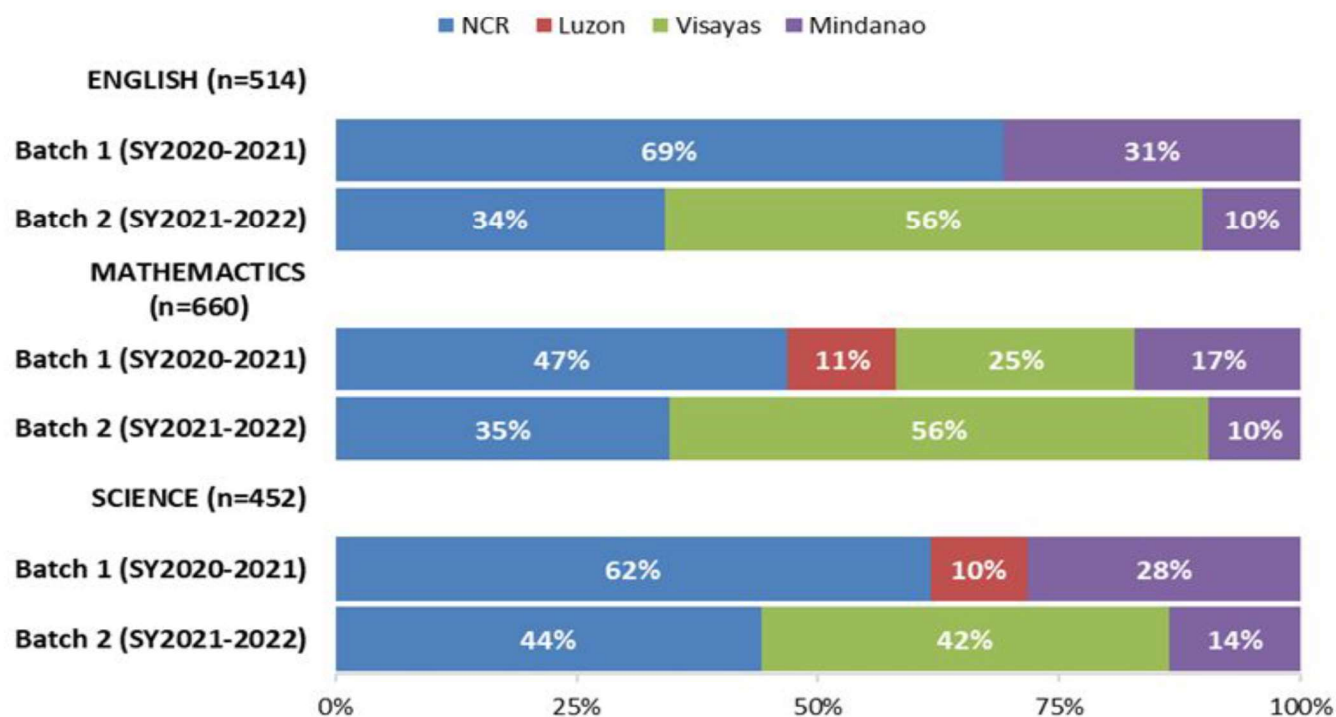
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Elementary Students' Profile





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CEM K to 12 Achievement Tests for Grade 6

English	Mathematics	Science
Content Area		
1. Grammar	1. Numbers and Number Sense	1. Living Things and Their Environment
2. Reading Comprehension	2. Geometry	2. Matter
	3. Patterns and Algebra	3. Force, Motion, and Energy
	4. Measurement	4. Earth and Space
	5. Statistics and Probability	
Cognitive Skill		
	1. Remembering	
	2. Understanding	
	3. Applying	
	4. Analyzing	

Estimation and Reporting of Student Performance

- Ability Estimates
 - One Parameter Logistic Model (OPLM)
 - OPLM combines the statistical virtues of the 1-Parameter Logistic Model (1PL) with greater flexibility of the 2-Parameter Logistic Model (2PL) by imputing integer values for the slope parameter rather than the statistical estimation of these parameters (Sijtsma, K., & Hemker, B. T., 2000)
 - -4.00 to 4.00 with higher values corresponding to higher performance or achievement level
- Scaled Score
 - mathematical transformation of the raw score, and subsequently the ability estimates
 - 100 to 500

Estimation and Reporting of Student Performance

- Population (Statistics)
 - All CEM test takers nationwide.
 - Generally from private schools and have participated in the K to 12 testing programs offered by CEM in the previous school year for a specific grade level
 - Mean Scaled Score of the Population
 - Posttest takers of SY2018-2019

Detecting Potential Learning Loss or Gain

- One-Sample T-test :
 - Test value: Population Mean
- Effect Size
 - The difference between the posttest scores for treatment groups (Batch 1 or Batch 2) and control group (Population) of students, divided by the standard deviation of the control group



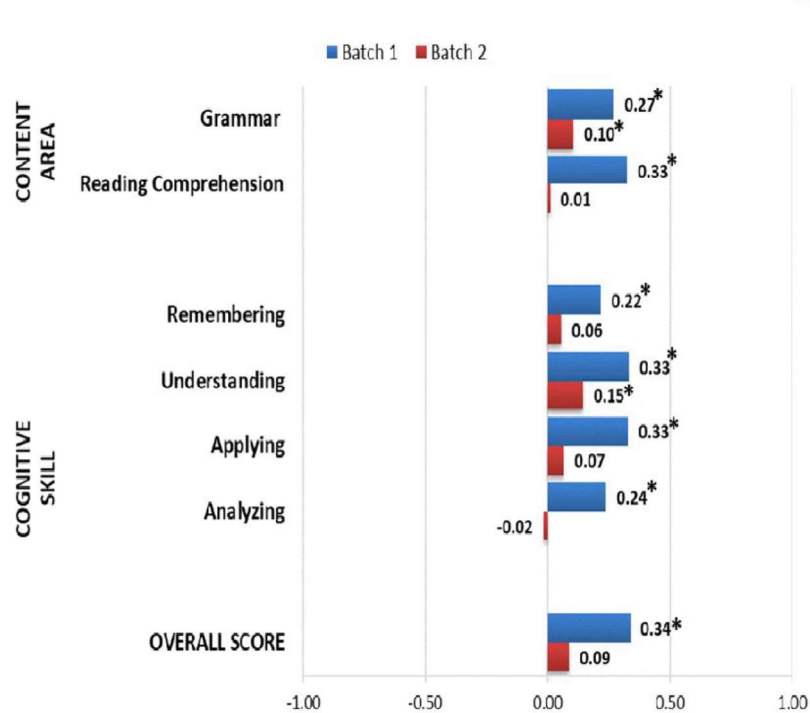
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Performance in English



*Significant at 0.05 alpha level

- The performances of the test takers during the pandemic were significantly higher than expectation
- The performances of test takers in the post-pandemic yielded no significant results



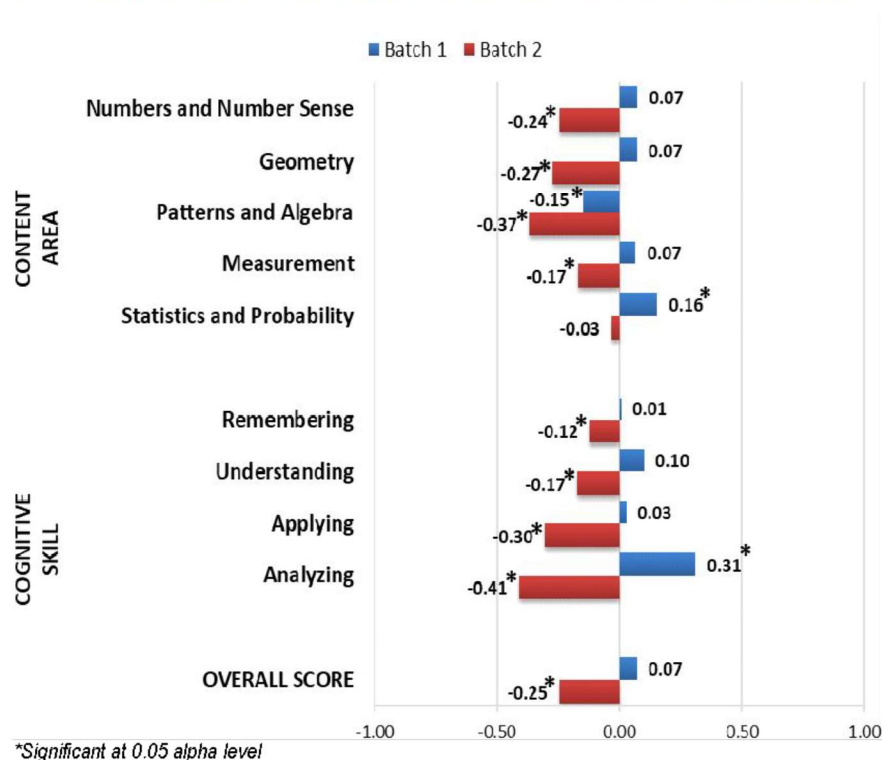
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Performance in Mathematics



- The performance of test takers during the pandemic appears to be not significantly different from the expectation
- Substantially lower performances of the post-pandemic test takers were recorded not only in the entire test but also in all the content areas and cognitive skills



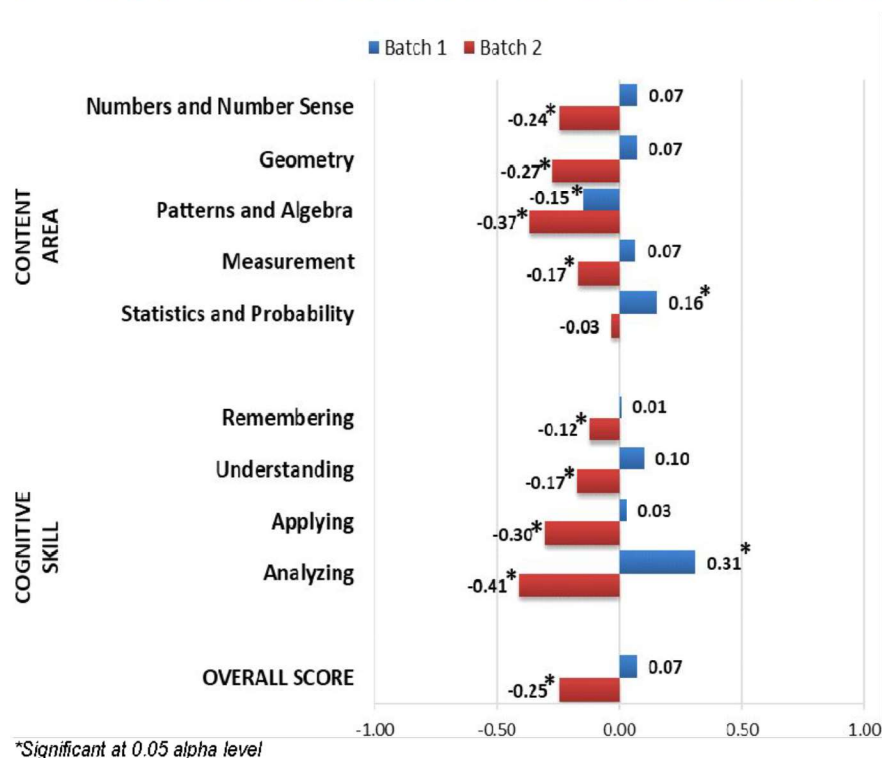
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Performance in Mathematics



- Consistent result of significantly lower performance than the expectation was observed for the content area *Patterns and Algebra*



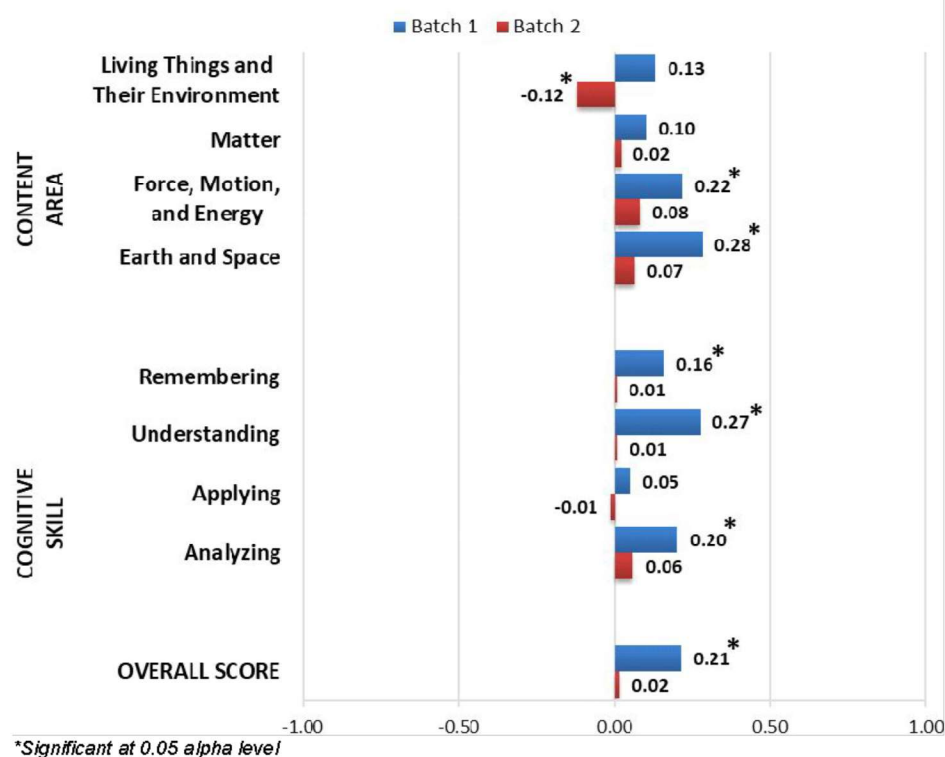
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Performance in Science



- Significantly higher performance than what is expected was observed for the during-the-pandemic test takers
- The post-pandemic test takers performed as expected if the global health crisis did not occur



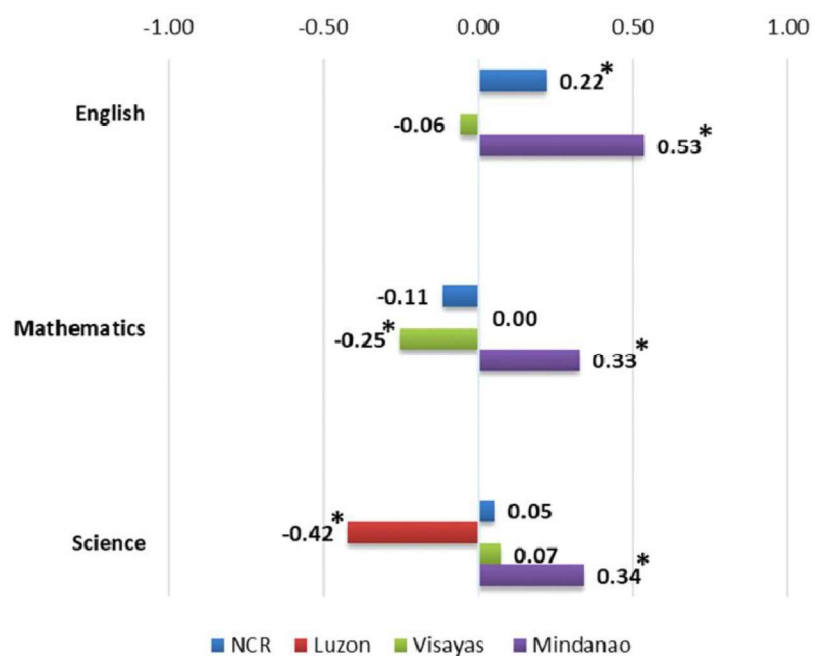
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Subgroup Analysis: Geographic Location



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- Substantially lower performance was observed in Mathematics for the Visayas group and in Science for the Luzon group
- Significantly higher performance was recorded in English for the NCR group



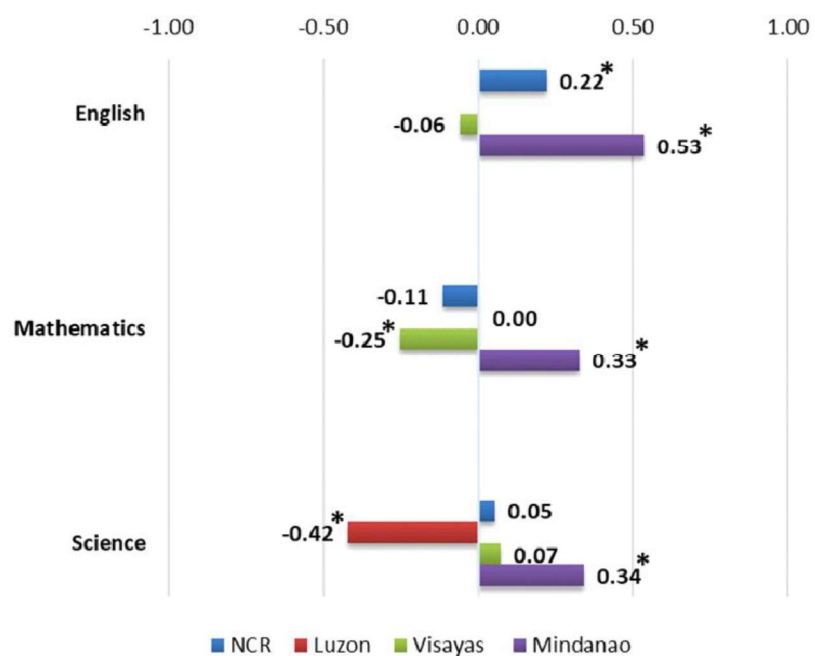
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Subgroup Analysis: Geographic Location



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- The Mindanao tended to perform significantly higher than expected in all the three subject areas

Learning Recovery Plan

- Focus on those area/s with substantially lower performance than what is expected, most especially in the subject area of Mathematics
- Strategies on how learning losses due to the pandemic can be mitigated and recovered:
 - Establishing programs for teaching at the right level,
 - Providing individualized self-learning programs,
 - Extending instruction time,
 - Establishing tutoring programs, and
 - Training teachers for recovery

Learning Recovery Plan

- Conduct research on how the delivery of instruction was carried out in those areas with nonsignificant results to substantially higher than expected performance
 - Look into the learning gains and learn from those factors, such as parental involvement, which contributed to the attainment

Recommendations

- Analysis of the characteristics of the included sample schools
- Application of more sophisticated statistical technique(s) to ensure representativeness of the findings and strengthening comparability across time points
- Analysis of the entire Basic Education continuum
- Inclusion of posttest data to be gathered this School Year 2022-2023 in analysis



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