IDENTITIES

Enlightening
Interdisciplinarity
in STEM
for Teaching

NanoScience-NanoTechnology (NST) module

ID analyst _Reflection

Co-funded by the
Erasmus+ Programme
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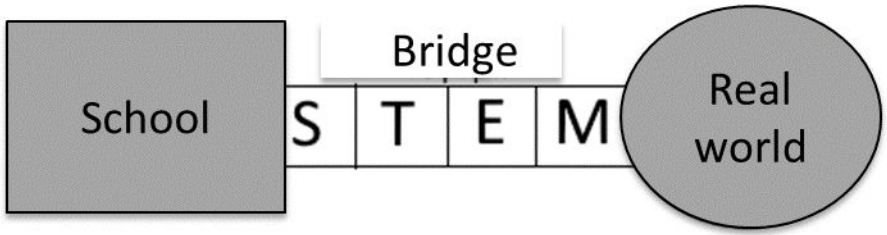
STEM INTEGRATION MODELS

A) STEM as an acronym

STEM

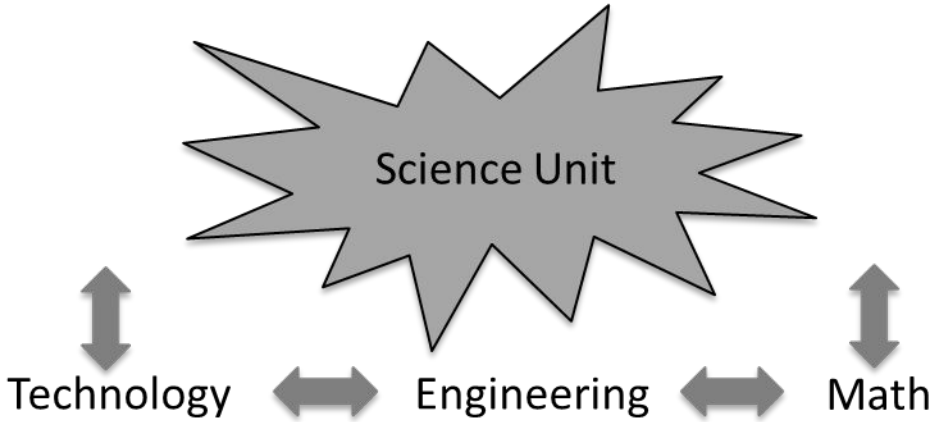
Models showed a traditional model of teaching science and/or mathematics in separate classrooms with little emphasis on the roles of technology and engineering pedagogies.

B) Real-World Problem Solving as Context



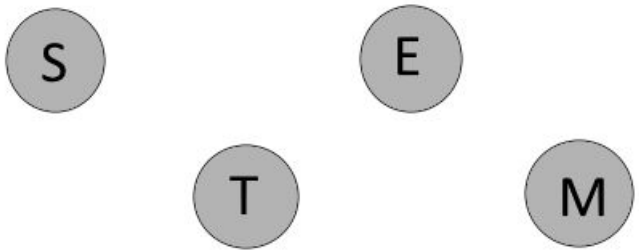
Models showed STEM education as focusing on the relationship between school and the real-world, providing contexts to make STEM concepts relevant to students' lives.

C) Science as context



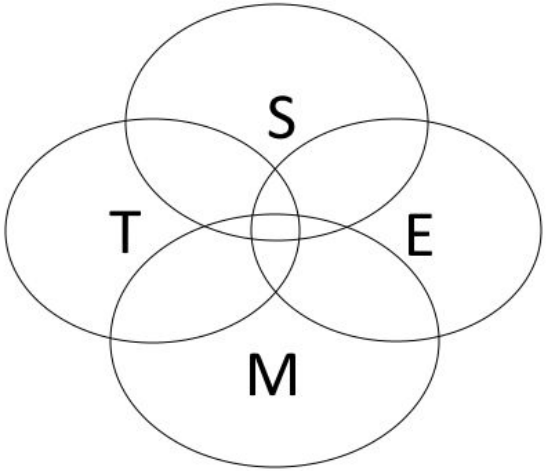
Models represented STEM education as teaching scientific concepts while calling upon technology, engineering, and mathematics as needed.

D) Science, Technology, Engineering and Mathematics as Separate Disciplines



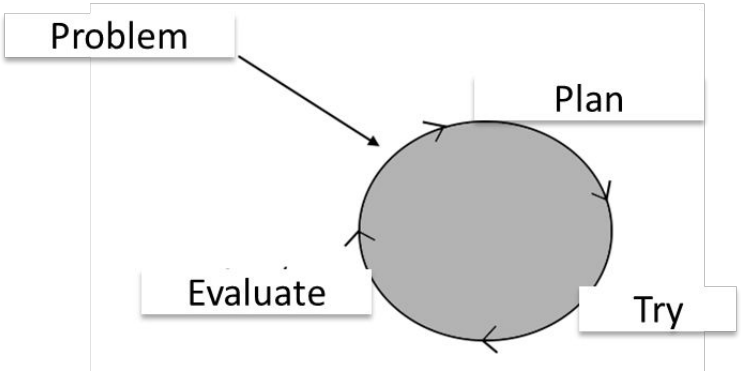
Models depicted siloed disciplines that included other disciplines as supporting roles, but these did not integrate across the disciplines in meaningful or substantial ways.

E) Integrated Disciplines



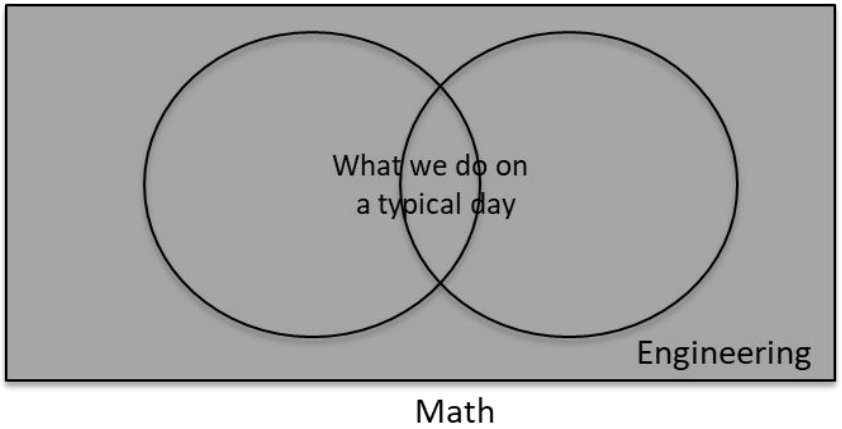
Models had components that represented the confluence of science, technology, engineering, and mathematics teaching.

F) Engineering Design Process as context



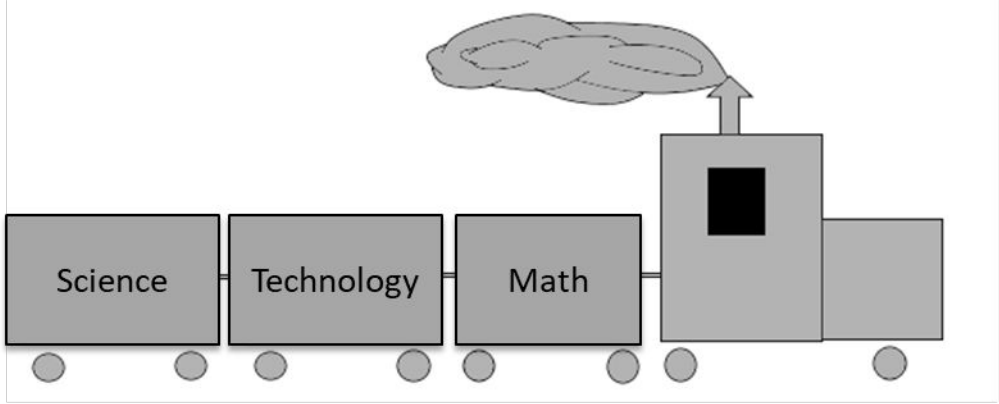
Models focused on the iterative process of engineering design as the process by which students learn science and mathematics concepts using technology.

G) Science and Engineering Design process as context



Models placed an equal emphasis on teaching scientific concepts and the engineering design process using technology and mathematical concepts when appropriate.

H) Engineering as context



Engineering Train

Models represented an emphasis on engineering calling upon science, technology, and mathematics as needed.

Visit the document titled: Reflection

References

Dare, E. A., Ring-Whalen, E. A., & Roehrig, G. H. (2019). Creating a continuum of STEM models: Exploring how K-12 science teachers conceptualize STEM education. *International Journal of Science Education,* 41(12), 1701-1720.

Ring, E. A., Dare, E. A., Crotty, E. A., & Roehrig, G. H. (2017). The evolution of teacher conceptions of STEM education throughout an intensive professional development experience. *Journal of Science Teacher Education, 28*(5), 444-467.

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