



UNE L&T Symposium 2024 – Presentation Synopsis

1. Title of Presentation: Story Map-based Assessment - Students Develop Valuable Spatial Thinking and Problem-Solving Skills.

2. Presenter(s) Name(s) and Affiliation(s):

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3. Main Takeaways:

Takeaway 1: *Creation of Story Maps is used as effective assessment practices that bring about improvement in student learning in developing critical thinking and problem solving as well as their spatial skills - that empowered them to be fit for spatial industry employment.*

Takeaway 2: *The concept was the first of its kind in spatial units at UNE, that replaced traditional essay-based assessment with more interactive map-based assessments. Students responded with their amazing story presentations, and also showed much interest in taking such assignments in other units and work place.*

4. Application in Educational Contexts:

GIS instruction is always about real issues in real contexts (natural and built environment). As such, I believe that a key to fostering 'spatial thinking' is through the use of GIS technology and applied contexts in teaching and learning. This is done by evaluating students' ability to apply spatial thinking skills in assessment tasks that require spatial reasoning, and measuring improvements in spatial thinking abilities. Student feedback and reflection help to understand their experiences with GIS technology and provide valuable insights into student engagement, perceptions of relevance, and areas for improvement.

Teaching Methods: helped students to identify topics of their interest, and also introduced them to the ESRI Story Map App Builder, provided detailed Assignment Plan with instructions on assignment requirements, expected learning outcomes, approach, marking guide and rubrics. Incorporated several online resources and examples to assist students to complete and share their Story Maps.

Assessment: clear instructions on required content evidence in support of develop story such as: Inclusion of the textual and digital evidence that contribute meaningfully to the construction of the purpose, as well as inclusion of interactive maps, pop-ups and effective use of the digital platform to provide a media-rich presentation.

Student Engagement: conducted a series of Zoom tutorials to evaluate students' progress and helped when required. Introduced challenging tasks such as creation of interactive maps & pop-ups.

Curriculum Development: with successfully implementation of map-based assessment to measure spatial thinking, plan to extend it to other unit as assessment on designing a **dashboard or WebApp**.

5. Valuable Sources and References:

Source 1: Cope, M.P., Mikhailova, E.A., Post, C.J., Schlautman, M.A. and Carbajales-Dale, P. (2018), Developing and Evaluating an ESRI Story Map as an Educational Tool. Natural Sciences Education, 47: 1-9 180008. <https://doi.org/10.4195/nse2018.04.0008>.

6. Weakness and Area for Future Research: Assessment of the outcome of spatial thinking is complicated and influenced by many variables (understanding software, learning environments, comprehending spatial phenomena, student backgrounds, and individual learning styles, etc.).

Future Research: Continued research in fostering 'spatial thinking' through the use of GIS technology and applied contexts in teaching and learning. Assessing the effectiveness of integration of GIS technology and approaches into education using a combination of qualitative and quantitative measures to evaluate both student learning outcomes and the overall impact on teaching practices.