ONE-YEAR FOLLOW-UP

DEAN'S RESPONSE

MATH-SCIENCE

This note shall constitute the dean's response to the Math-Science department's one-year follow-up report. The one-year update provides a useful summary of the immediate and long(er) term goals of the department, and motivating objectives. Those that contributed to the development of the Math-Science department's Action Plan should be commended for authoring a plan rooted in consequential and valuable ideas and ideals. My note will focus on a few important elements.

The one-year *Follow-Up Report* (submitted by Sandar Milligan and Aisling Brady) is comprehensive and suggestive of a program area committed to advancing quality assurance. There is a lot of detail in the report. The authors have done well to identify separate learning outcomes for each credential (housed within the Math-Science program area). Moreover, the Mission Statement and Department Values are clear and concise. The report signals an important step in the development of a comprehensive learning framework for Math- Science programming at NIC. Appreciating the plan is a dynamic one, as all action plans are, it is reassuring to see a stated commitment to specific values and ideals and recognition that those values will guide future decision-making.

While listed alongside six discrete Values, 'authentic learning' jumps out as being perhaps the most consequential and important. In this era of artificial intelligence and social media, and with the proliferation of information, a commitment to authenticity and honesty is particularly useful – and laudable. Frankly, ***authenticity in learning*** is a grundnorm and should be used to anchor (or underpin) the other values and aspirations communicated in the document. For example, authenticity is a critical component of Indigenization, intercultural communication and High Impact Practices (HIPs). Also, and importantly, assignments and assessments rooted in authenticity make for a better student experience. As reported by Gwenna Moss (University of Saskatchewan), "Authentic assessment, when done right, can provide students with invaluable real-world skills and experiences, preparing them for successful careers and ethical professional practices."[1]

Noting this, "[a]n authentic assignment is one that requires application of what students have learned to a new situation, and that demands judgment to determine what information and skills are relevant and how they should be used."[2] Again, rooting assessment practices in authenticity is a great way to ensure students learn what is expected of them and realise the wider application of the ideas, skills and competencies they are acquiring. Of critical importance is the department's stated commitment to developing and maintaining a 'student-centred environment' and the application of 'formative and summative assessments that provide students with agency, choice and autonomy." This is an important pronouncement and a goal worth pursuing. Using a variety of learning approaches and assessment methods is a great way to empower students and enhance

[1] Gwenna Moss (2024). Embracing Authentic Assessment in Higher Education. Web. https://teaching.usask.ca/articles/2024-10-18-embracing-authentic-assessment-in-higher-education.php
[2] Indiana University Bloomington. Centre for Innovative Teaching and Leaning. "Authentic Assessment." https://citl.indiana.edu/teaching-resources/assessing-student-learning/authentic-assessment/index.html

engagement. In furtherance of this goal, a year-end research poster presentation (or something similar) in the Student Commons could be the culminating project many proponents of HIPs advocate for. As identified by The Ohio State University, a critical element of HIPs is a "public demonstration of competence." With respect to student presentations, the author contends "beyond the feedback and evaluation they receive from their audience, the act of preparing their work for others prompts students to synthesize and articulate their learning with attention and accuracy and quality." [3] The HIPs programme supports quality learning and will undoubtedly help support the achievement of many of the department's goals. Further, as identified, it will be important to regularly solicit feedback (from students), provide opportunity for structured peer-review (among faculty) and link professional development planning to the Action Plan.

Five key aspects of the Math-Science Action Plan have been elaborated upon below. I encourage the Math-Science department to continue with what they are doing and where and when possible incorporate my recommendations.

1. Quality Assurance:
   The hallmark of quality education is the clear communication of relevant ideas/methods and concepts to students who in-turn effectively illustrate their ability to actualise accumulated learning (etc.) in discernable and measurable ways. Noting this, the importance of assessment and assessment practices cannot be underestimated. Knowing that the department has been investigating assessment strategies and ways to incorporate student feedback into decision-making, is reassuring given the states Values and Mission Statement. I hope the department will continue to develop the necessary processes and practices.

2. High Impact Practices (HIPs):
   Research demonstrates a correlation between HIPs and student success. As Kuh contends, "high-impact practices help students engage in 'deep approaches' to learning which are important because 'students who use these approaches tend to earn higher grades and retain, integrate, and transfer information at higher rates.'[4] The core principles of HIPs are listed below.

   - First year seminars and experiences
   - Common Intellectual Experiences
   - Learning Communities
   - Writing- and Inquiry- Intensive Courses
   - Collaborative Assignments and Projects
   - Undergraduate Research
   - Diversity/Study Away/Global Learning
   - Service Learning, Community-Based Learning

[3] The Ohio State University. Teaching & Learning Resource Centre. Web. https://teaching.resources.osu.edu/teaching-topics/high-impact-practices-enhancing
[4] The University of Waterloo. Centre for Teaching Excellence. Web. https://uwaterloo.ca/centre-for-teaching-excellence/support/integrative-learning/high-impact-practices-hips-or-engaged-learning-practices

- Internships and Field Experiences
- Capstone Courses and Projects
- ePortfolios

The dean's office is keen to support the further development of HIPs and encourages faculty to explore how the principles listed above can be actualised over the next few years.

3. Indigenization:
   As I noted above, the department's clear commitment to authenticity is of great advantage when it comes to the development of an Indigenization plan. Steps have already been taken to incorporate Indigenous ideas (and Indigenous epistemology) into several Biology courses – namely BIO 113 and BIO 330. The cultural safety module offered to incoming Island Pre-Health Science students is noteworthy in that it supports inclusivity and cultural competence. I support the department's continued efforts to further de-colonize and Indigenize Math-Science curriculum and develop spaces for safe, reflective learning.
   As Indigenization is clearly a priority of the department, I support PD undertakings related to this endeavour. For example, the Statistical Society of Canada, First Nations University, The University of British Columbia and the Canadian Mathematical Society offer training opportunities and conferences in areas of great interest to faculty seeking direction and support.

4. Artificial Intelligence:
   The group professional development activity scheduled for December 2025 should help faculty better understand the consequences of AI (in the classroom and in the post-secondary sector, generally) and move toward developing a coordinated response. I encourage faculty to continue sharing their concerns, hopes, fears, assessment strategies and pedagogical approaches. The spectre of AI is at the same time worrisome and exciting.

5. Professional Development:
   The department's continued commitment to coordinated professional development should continue. (See note above).

Please review the following actions, recommendations and endorsements. In support of department planning, I will work with the chair to develop a timeline (or amend existing timelines).

- I am happy to endorse the department Values and Mission Statement as presented and would like the department to consider how authenticity can be operationalized and measured (over time). The use of a year-end survey could help evaluate the cumulative effect of authentic assessment strategies and provide a trove of useful data.

- The dean's office is committed to working with the department chair to discern the utility of a rolling roster. Either way, given the College's move toward enrolment management, a review of current practices is necessary. The dean's office will schedule meetings to advance this element of the plan.

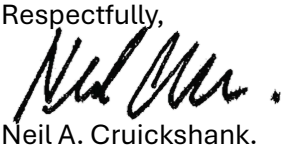
- I am a proponent of High Impact Practices (HIPs) and would like to see the department maintain this objective as a priority. (It will be interesting to see what the audit of existing curriculum and assessment yields with respect to current practices align with HIPs.

- The dean's office is keen to support the furtherance of experiential learning opportunities – both formal and informal. The dean's office will facilitate an initial meeting with WIL and/or CARTI to determine 'best practice' for achieving this goal.

On a personal note, I thank the department for their demonstrated concern for student learning and developing a plan that seeks to enhance the student experience.

In summary, the Math-Science department is advancing a well-intentioned and thoughtful plan. Their adherence to the principles of SEM, commitment to authenticity and desire to review curriculum alongside Program Learning Outcomes is laudable. The office of the dean will support the plan and encourage department faculty to continue implementing HIPs whilst Indigenizing curriculum (and assessment) and imbuing Math-Science programming with authentic learning opportunities.

Respectfully,



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