

[Write here your article title]

Abstract

[write here abstract at the minimum of 250 words]

Keywords: [write here your keywords at the minimum of 5 keywords]



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INTRODUCTION

[write here your introductory description]

Research Objectives:

[write here a short paragraph of your introductory statement to your research problems]

1. XXXXXXXXXXXXXXXXXXXXXXXX
2. XXXXXXXXXXXXXXXXXXXXXXXX
3. Etc.

LITERATURE REVIEW

[write here your research methods]

In addressing the nuances of measurement uncertainty—a transferable knowledge crucial in both academic and daily contexts—the study delineates four distinct levels of uncertainty within physics measurements. It ranges from simple ranges in small sample trials to more complex assessments involving algebraic representations and graphical analyses (SSERC, 2019). The research further delves into the implications of simulating uncertainty in computational scenarios involving cascading formulas, a pertinent approach when closed-form calculations are unavailable (djb microtech ltd, 2020).

The assessment rubrics developed for this study are influenced by McGill University's pre-Covid principles on experiential learning assessment. These rubrics integrate content-process synthesis, a big-picture perspective, and reflections on parameter uncertainties (McGill, 2020). Through examples like centripetal acceleration labs and their online simulation counterparts, the study examines the transformation of tactile experiences in traditional labs to explicit knowledge in remote delivery. These transformations are benchmarked against simulations provided by resources like thephysicsaviary.com and open-source materials, given the resource constraints of a two-year community college during the lockdown (van Schaik, 2020).

This research method's validity is grounded in its multidimensional approach to assessing tacit knowledge and measurement uncertainty, offering a holistic perspective that fosters the learning transference of complex concepts from the domain of physics to broader life applications (Szpunar et al., 2014; Roepke et al., 2016).

RESEARCH METHOD

[write here your sub-heading if any]

[Write here your description]

An assessment rubric with reference to the pre-Covid experiential learning assessment principle developed by McGill University (McGill, 2020) was used. The deliverables are content-process mixture, big picture perspective, and reflection on the parameter uncertainties. For instance, the centripetal acceleration lab process in a face-to-face classroom would contain the tacit knowledge in the control of the parameters. A student would need to simultaneously control the spinning of a rubber stopper in terms of the horizontal radius and vertically hanging weight. For online delivery, a simulation of the control of the parameters could be easier because each parameter was programmed to be independent. In other words, the rules in a simulation would transform the tactile experience in face-to-face class to become explicit knowledge in remote delivery class.

[write another sub-heading, if any]

One of the most important issues in experiential learning is an understanding of measurement uncertainty, which is a transferrable knowledge. In daily life there are uncertainty examples. For instance, the risk of losing the money in the buying of a lottery ticket is very high because the winning of the lottery is a very small chance. When there is certainty, the risk is zero. Therefore, the notion that uncertainty is related to risk is well accepted in daily life. In physics measurement, uncertainty has a precise definition not related to risk. There are four different levels in measurement uncertainty. First, the uncertainty is the range of values from minimum to maximum for a small number of trials. There is the formula for the calculation of standard deviation given enough data points. The second level

Table 1 [write here your title of your table, if Any]

Deliverable	Competent	Needs improvement
Content theory (15%)	Provided clear writing	Contained two or more mistakes.
Process activity (35%)	Completed lab simulation with correct data analysis	Contained two or more mistakes.
Big picture real world perspective (25%)	Gave two examples of centripetal motion in student's daily life	Contained two or more mistakes.
Reflection transferrable knowledge (25%)	Described small changes in the parameter uncertainties	Contained two or more mistakes.

FINDING AND DISCUSSION

[write here your sub-heading, if Any]

In the realm of remote physics instruction, the deployment of strategies to teach measurement uncertainty has seen a mixed level of success, as indicated by the competency demonstrated by a quarter of the student body. This outcome aligns with the pedagogical insights of Bransford et al. (2000), who advocate for the thoughtful design of educational content delivery to foster understanding in complex domains. However, the concerning dropout rates and the evident need for additional support for a significant segment of students point to an opportunity for pedagogical refinement.

CONCLUSION

The conclusion contains the main points of the article. Conclusions should not repeat what has been written in the Results and Discussion section, but discuss important results, applications and developments of the research carried out. This section should also be able to show whether the research objectives can be achieved.

LIMITATION & FURTHER RESEARCH (IF ANY)

The limitation of the study included the use of a relatively small database of 40 students, the absence of a double blinded project in which the assessment investigators should be different from the course instructors, the effect of Covid stress on the studied students, and the assumption of zero plagiarism in remote asynchronous delivery. A deep understanding of simulation in uncertainty assessment using lab data would provide a solid foundation to an understanding of the nature of simulation in prospection in daily life and could offer a protection against depression induced by the Covid-19 lockdown. Furthermore, the simulation of uncertainty could be an approach to resolve the conflict between the prospection prediction from statistical learning and the encoding of the present into episodic memory, based on the interpretation of the brain scan data of the hippocampus (Sherman, et al.; 2020).

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REFERENCES

Bransford, John D., Ed.; Brown, Ann L., Ed.; Cocking, Rodney R., Ed. (2000). How People Learn: Brain, Mind, Experience, and School: Expanded Edition (2000). Chapter: 3 Learning and Transfer. ISBN-0-309-07036-8

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