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A Model for Medical Librarians, Educators & Faculty Collaboration: Bringing Information Literacy into the Classroom

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INTRODUCTION

- At the Lee Kong Chian School of Medicine (LKCMedicine), Year 4 (M4) medical students undergo a six-week scholarly project and apply critical skills which include:
 - searching for peer-reviewed and scholarly articles using databases
 - showcasing basic scientific writing skills
 - managing citations accurately
- In 2016, the Medical Librarians (MedL) launched their first student consultation session services to chiefly assist M4 medical students with their literature search skills when using databases.
- Over three years, the MedL observed similar IL gaps from M4 students. Two critical IL gaps surfaced which include: (1) use the PICO framework to scope search terms and (2) conduct a good literature search using databases to retrieve relevant articles.
- To address these IL gaps, the MedL collaborated with faculty and Team-Based Learning (TBL) educators from LKCMedicine and agreed medical students needed to be trained with fundamental IL skills before they reach M4.
- In 2017, a customised five-year IL framework was developed for LKCMedicine students to use as a guide to develop IL interventions for students.. Refer to Fig 1.
- This study explores the effect of 'one-time' IL interventions conducted on a selected intervention group by investigating if there is a difference on their pre and post IL skills and knowledge.



Fig.1: Customised Five-Year Information Literacy Framework Reflecting Information Literacy Skill Acquisitions for LKCMedicine Students

SUBJECTS & METHOD

- Developed a customised five-year IL framework for LKCMedicine students. Refer to Fig 1. This customised IL framework:
 - Adopted a year-by-year laddered approach (Years 1 to 5)
 - Pitched IL skill acquisition of *literature search, writing and citation management* from foundation (Years 1 to 2) to intermediate (Year 3) to an advanced level (Years 4 & 5).
 - Incorporated IL standards from the Association of College & Research Libraries for Higher Education (ACRL, 2015) & IL skill acquisitions aligned to IL requirements addressed in LKCMedicine's undergraduate curriculum.
- Used the customised IL framework as a guide to develop IL interventions for M1 students (intervention group). Refer to Fig 1.
 - Optional one-hour IL workshop: **IL Intervention #1**
 - Optional E-learning module, "Crafting Good Search Strategies" with a short quiz: **IL intervention #2**
- Administered 20 MCQ Standardised Assessment of Information Literacy Skills (SAILS) test for M1 students (Intervention group) and M2 students (Control Group).
 - M1 students (Pre and Post SAILS test)
 - M2 students (SAILS test containing the same questions administered to M1 students at the post test)

RESULTS

Effect of 'One-Time' IL Interventions on SAILS test results

(1) Analysis of SAILS test results between M1 & M2 students without any exposure to IL interventions from this study

- 121 (100%) of M1 students (Intervention Group) were freshmen and took a SAILS pre-test. During that same period of time, M2 students (Control Group) took a SAILS test at the start of their academic year. Both groups were not exposed to any IL interventions from this project during this stage of testing. The team wanted to investigate if there was any effect on both groups without being exposed to any IL interventions from this project.
 - A one-way ANOVA test revealed the main effect for both groups were statistically not significant ($F(1,193) = 1.84, p=0.18$) and this was a small effect. Refer to Fig 2.

(2) Analysis of SAILS test results between M1 students after being exposed to IL interventions & M2 students without any IL interventions from this study

- After M1 students took the SAILS pre-test, M1 students who felt they wanted more help with their IL skills voluntarily participated at 'one-time' IL interventions: IL workshop & E-learning Module prior to taking the SAILS post-test.
 - 82% of M1 students attended the optional IL workshop.
 - 39% of M1 students attempted the E-learning module.
- The SAILS post-test contained the same questions administered to M2 students who did not get any exposure to the IL interventions from this project. The team wanted to investigate if there was any effect between M1 students with exposure to IL interventions and M2 students without any exposure to IL interventions prior to the SAILS test.
 - Fig 2 showed M1 students did slightly better than M2 students by achieving an average percentage score of 57% at the SAILS post-test.
 - A one-way ANOVA test revealed the main effect for both groups were statistically not significant ($F(1,193) = 0.06, p=0.81$) and there was no effect.

(2) Analysis of SAILS Pre and Post test results obtained from M1 students

- The team finally investigated if there was any effect of IL interventions on M1 students from the pre to the post-test.
 - Fig 1 showed there was a slight overall improvement from pre-to-post-test by 3%. A paired samples t test revealed there was no significant difference in the scores for pre-test ($M=54, SD=12.3$) and post-test ($M=57, SD=10.24$) conditions; $t(118)=-1.9, p = 0.06$.

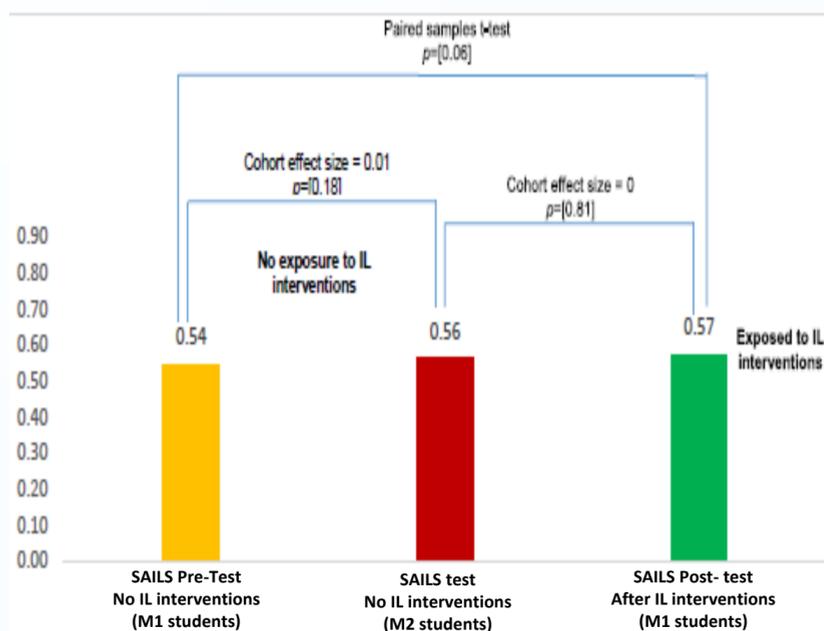


Fig 2: Bar-graph showing effect of IL interventions on SAILS test results for M1 students & comparison made to M2 students

CONCLUSION

While this study is exploratory in nature, cautioning generalizability the results show that 'one-time' IL interventions does not have effect on M1 student's SAILS test scores. However, if considered the p-value (0.06) was a slight miss by 1% based on $p=0.05$. Therefore, more tests should be conducted to observe for statistical difference between both conditions. This study suggests embedding IL into a selected module of the M1 curriculum may play a significant role to measure and improve student's IL skills and knowledge as this drives mandatory participation from students and maximum data to study for more conclusive results.

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