

Introduction

The MacEwan BScN program supports development of skills and attributes in the domain of clinical practice, including information literacy (IL) interventions in Year 2. Addressing a noticeable trend in 2018 of fewer students making connections between IL and evidence-based practice (EBP), librarians and instructors collaborated on an IL redesign, integrating IL and EBP in a blended learning (BL) context. The redesigned IL intervention, which pulls from best practices in online EBP instruction in nursing (Kelly et al., 2016), was implemented in 2019 with revised learning outcomes.

Literature on IL instruction and EBP learning points to similarities, synergies, and value of a more fulsome integration in teaching (Adams, 2012; Amit-Aharon et al., 2020). While Adams (2012) emphasizes the importance of teaching IL concepts through a disciplinary lens, Amit-Aharon et al. (2020) note the significant positive correlation between IL self-efficacy, EBP attitudes and knowledge, and future EBP implementation in practice.

Purpose

This Scholarship of Teaching and Learning (SoTL) research investigates the impact of the redesigned BL IL intervention on YR 2 nursing students' perceived EBP confidence, attitudes, and ability, using an adapted Student EBP Questionnaire (S-EBPQ) (Upton et al., 2016).

REFERENCES

- Adams, N. E. (2014). A comparison of evidence-based practice and the ACRL information literacy standards: Implications for information literacy practice. *C & R L*, 75(2), 232-248.
- Amit-Aharon, A., Melnikov, S., & Warshawski, S. (2020). The effect of evidence-based practice perception, information literacy self-efficacy, and academic motivation on nursing students' future implementation of evidence-based practice. *J Prof Nurs*, 36(6), 497-502.
- Kelly, B., Rawson, C., Freestone, C., & Russell, F. (2016). Evidence-based learning: Interactive, online EBP modules for first year nursing. *A case study. Health Inform*, 25(2), 4.
- Upton, P., Scurlock-Evans, L., & Upton, D. (2016). Development of the student evidence-based practice questionnaire (S-EBPQ). *Nurse Educ Today*, 37, 38-44.

Methods

Study Design

- Quasi-experimental pre-post intervention test design
- Pre-post tool: Validated S-EBPQ tool (Upton et al., 2016) with librarian-developed IL self-efficacy questions added
- Convenience sampling was used to recruit participants from 3 sections of NURS 270 for Jan. 2020 study

Statistical Analysis

- R (version 4.0.2) was used for the analysis of the data
- Descriptive statistics incl. mean and standard deviation were computed on all indiv. items and subdomains.
- Wilcoxon Signed Rank non-parametric test or paired t-test used to compare indiv. items and subdomains pre and post.

Test choice depended on assumptions being satisfied.

- Significance across tests on all items and subdomains were determined using two Bonferroni corrected alphas of .0024 ($\alpha=0.05/21$) and .0056 ($\alpha=0.05/9$) respectively.

Missing Values

- Only students who completed both pre and post assessments were included in the data analysis.
- Students who failed to provide complete answers were only excluded in the subparts with missing values.
- Where students selected two check boxes on a given scale, the average of the two was computed.

Results

Tables 1-4 compare mean scores before and after BL IL intervention (n=48). a n = 47, b n = 46 * significant evidence

Table 1: Course specific IL self-efficacy items

Item	Pre-Assessment		Post-Assessment		Diff in Mean (Post - Pre)	P-Value
	M (SD)	M (SD)	M (SD)	M (SD)		
1. Converting a clinical scenario into a PICO question	3.906 (1.279)	5.104 (1.036)	1.198	0.0000028*		
2. Awareness of key databases and sources of evidence	4.719 (1.267)	5.802 (0.927)	1.083	0.0000099*		
3. Knowledge of how to effectively retrieve evidence	4.656 (1.456)	5.656 (0.918)	1.000	0.0000038*		
4. Ability to differentiate between different types of evidence	4.354 (1.349)	5.490 (0.931)	1.136	0.0000007*		
5. Ability to determine how valid (close to truth) material is	4.500 (1.301)	5.313 (0.998)	0.813	0.0000472*		
6. Ability to determine how useful (clinically appl.) material is	4.740 (1.255)	5.438 (1.090)	0.698	0.0006904*		

Table 2: Attitudes

Item	Pre-Assessment		Post-Assessment		Diff in Mean (Post - Pre)	P-Value
	M (SD)	M (SD)	M (SD)	M (SD)		
7. I resent having my clinical practice questioned	5.625 (1.123)	5.979 (1.546)*	-0.354	0.0097790		
8. Evidence based practice is a waste of time	6.063 (1.227)	5.957 (1.546)*	-0.106	0.6126000		
9. I stick to tried & trusted methods rather than changing to anything new	5.128 (1.209)*	5.696 (1.190)*	-0.568	0.0004293*		
Attitude Subdomain	16.851 (2.662)	17.696 (3.203)	-0.845	0.0101200		

Notes: Wilcoxon Signed Rank test was conducted on all items except subdomains "Retrieving and reviewing evidence" and "Sharing and applying EBP" for which paired t-test was used. P-values of individual items were compared to $\alpha = 0.0024$; p-values of subdomains were compared to $\alpha = 0.0056$.

Discussion

The results of this SoTL study demonstrate a clear positive impact of the new BL IL lesson on nursing students' self-reported confidence, knowledge and ability on key aspects of EBP: Ask, Acquire, Appraise and Apply (Adams, 2014). Significantly, self-rated ability improved across all aspects of the following subdomains:

- Retrieving and reviewing evidence (*Acquire/Appraise*)
- Sharing and applying EBP (*Apply*)

Student confidence on the following course specific EBP / IL learning outcomes also improved significantly:

- Converting scenario into PICO (*Ask*)
- Differentiate between types of evidence (*Appraise*)

Such EBP self-efficacy ratings have positive implications for future EBP practice (Amit-Aharon et al., 2020).

The lack of change in EBP attitudes likely reflects the strong perceptions of EBP value YR 2 students have embraced through previous courses. This is consistent with the literature: that students generally hold positive attitudes towards EBP (Amit-Aharon et al., 2020).

Conclusions

It is evident that the BL IL intervention has merit, and that continuation would benefit students in the development of EBP knowledge, self-efficacy and ability. Despite improved confidence, however, successful application of EBP knowledge to assignments remains a challenge for some students.

Next steps might include examining the retention of EBP knowledge gained from the BL instruction. In addition, researchers could focus on a qualitative approach to obtain data that would provide deeper insight into the student's experience and perspectives on EBP.

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Table 3: Retrieving and reviewing evidence

Item	Pre-Assessment		Post-Assessment		Diff in Mean (Post - Pre)	P-Value
	M (SD)	M (SD)	M (SD)	M (SD)		
10. Research skills	4.313 (1.188)	5.063 (0.829)	0.751	0.0000102*		
11. Converting your information needs into a research question	3.917 (1.235)	4.958 (1.004)	1.041	0.0000067*		
12. Awareness of major information types and sources	4.563 (1.170)	5.479 (0.891)*	0.917	0.0000021*		
13. Knowledge of how to retrieve evidence	4.635 (1.352)	5.448 (0.963)	0.813	0.0000142*		
14. Ability to critically analyze evidence against set standards	4.125 (1.104)	5.250 (1.016)	1.125	0.0000001*		
15. Ability to determine how valid (close to the truth) the material is	4.323 (1.205)	5.323 (0.981)	1.000	0.0000007*		
16. Ability to determine how useful (clinically applicable) the material is	4.396 (0.939)	5.365 (1.110)	0.969	0.0000030*		
Retrieving and Reviewing Evidence Subdomain	30.271 (6.814)	37.064 (5.954)	6.793	0.0000000*		

Table 4: Sharing and applying evidence

Item	Pre-Assessment		Post-Assessment		Diff in Mean (Post - Pre)	P-Value
	M (SD)	M (SD)	M (SD)	M (SD)		
17. Ability to identify gaps in your professional knowledge	4.865 (0.972)	5.448 (1.017)	0.583	0.0002778*		
18. Ability to apply information to individual cases	4.646 (0.911)	5.406 (0.938)	0.760	0.0000216*		
19. Sharing of ideas and information with colleagues	4.875 (1.142)	5.646 (0.984)	0.771	0.0000268*		
20. Dissemination of new ideas about care to colleagues	4.625 (0.914)	5.406 (1.024)	0.781	0.0000148*		
21. Ability to review your own practice	5.160 (0.956)*	5.563 (0.987)	0.403	0.0021460*		
Sharing and Applying EBP Subdomain	24.106 (3.744)	27.469 (4.357)	3.363	0.0000002*		