
A Mixed-Methods Approach to Teaching Critical Appraisal of Research to Neurology Residents Through Social Cognitive Theory

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Disclosures

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Background



Evidence based and Informed Practice

Neurology Milestones
recognize its importance
in graduate medical
education (GME)



Traditional Journal Clubs have Disadvantages

Passive audience,
variable preparation and
discussion driven by few
participants

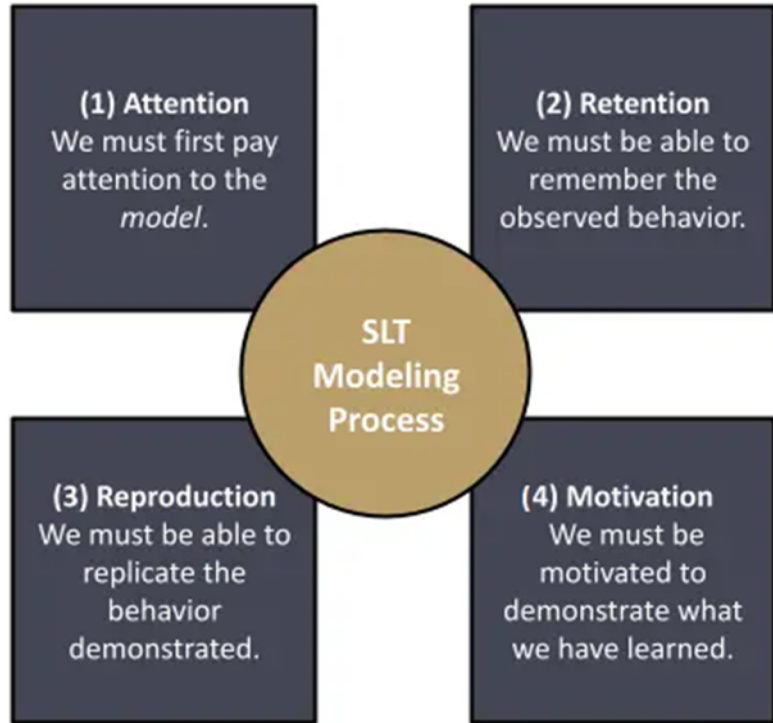


Flipped Journal Club demonstrates Promise

Bounds et al.
demonstrated that
discussion-based format
favored by residents &
faculty

Bounds R, Boone S. The Flipped Journal Club. *West J Emerg Med.* 2018;19(1):23-27. doi:10.5811/westjem.2017.11.34465

Social Cognitive Learning Theory



Albert Bandura

Methods

Quasi-experimental, sequential
explanatory mixed methods design

Quantitative:

Multiple choice question (MCQs) pre-, post-, and delayed post-tests

Qualitative:

Ethnographic observations

Qualitative:

Semi-structured interviews and thematic analysis

Integration Procedures:

Quantitative & qualitative data mixed

Methods

Flipped Journal Club

Creation of Discussion Guide

Jigsaw approach

Resident & faculty
facilitators guided discussion

Traditional Journal Club

Creation of Presentation

Faculty facilitator offers
expertise

Discussion & questions at
the end

Journal Club Sequence

Flipped

Traditional

Flipped

Traditional

Qualitative Methods



Ethnographic Observation

1. Field guide created, reviewed & revised
2. Observer (JC) completed field guide during each journal club
3. Debriefing occurred after each session and guide addended

Semi-structured Interviews



1. Interview guide created, reviewed, and revised
2. Training of interviewers (KS, AM)
3. Semi-structured interviews conducted
4. Transcripts transcribed and coded
5. Thematic analysis

Quantitative Results

Number of Tests Completed

Journal Club Session	Pre-Test	Post-Test
#1 (Flipped)	16	8
#2 (Traditional)	11	5
#3 (Flipped)	5	4
#4 (Traditional)	6	2

Due to low response rates, delayed post-tests were not included in the analysis ($n \leq 3$)

Table. Modeled Estimates of the Change from Pre to Post by Journal Club Type

Outcome	Flipped Mean (SD)	Traditional Mean (SD)	P Value
Total Score Difference	22.753 (5.613)*	4.725 (6.744)	0.0278
Methodology Subscore Difference	7.052 (8.202)	1.214 (10.061)	0.6296
Clinical Application Subscore Difference	49.719 (5.288)*	1.322 (6.374)	<.0001

*: indicates significant change from pre to post

Note: Score differences are percentage points

Qualitative: Ethnography Results

- Similar demonstrations of attention across both formats
- More consistent demonstrations of retention, reproduction and motivation in the flipped format



Qualitative: Coding & Thematic Analysis



Adequate preparation is important, but finding time for this is challenging

“I think the main challenge just throughout residency in general is finding the time to actually read the papers. [...] I'm not sure how we would address that really because I do feel like you really need to read the paper to discuss it.”

Clinical relevance and topic of the articles are primary motivators



“Maybe that's the reason why I didn't feel the big difference between the traditional versus peer led journal club because my focus wasn't [research methodology]. I was more hoping for— [...] How does that apply to my patients that I'm seeing.”

Qualitative: Coding & Thematic Analysis



Passive listening occurred in both formats, with scripted interactions characteristic of flipped format

“Like I said, we just were going around and then reading the important parts and prompt. Other than that I guess [...] I was mostly listening to the problems. Then when the other residents would say something, again, the peer leader would chime in.”

Learning arises from faculty modeling of practicing evidence-based medicine



“There was [...] discussion with the faculty member and with some of my other colleagues who had a different take on how this study pertained to general practice [...] I think it was helpful for me to see their perspective.”

Conclusions



Paradox of preparation

Preparation viewed as important, but time is limited

Clinical relevance is a strong internal motivator

Residents value the clinical relevance of learned material
“Need to know”

Principles of Andragogy Predominant

SCLT may not have been ideal conceptual framework



Value of organic conversations

While discussion-based “flipped” format improved engagement, scripted interactions and “forced” dialogue may not be ideal

Value of faculty modeling & importance of faculty development

Faculty development to enhance their ability to serve as effective role models

Future Directions



Expanding to Other Programs

Multi-institutional studies may improve generalizability and response rates

Exploring Novel

Journal Club Formats

Piloting an “interactive, no-prep” journal club format based on Dzara et al.

Dzara K, Frey-Vogel AS. Medical Education Journal Club for the Millennial Resident: An Interactive, No-Prep Approach. *Acad Pediatr*. 2019;19(6):603–607. doi:10.1016/j.acap.2019.05.004

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Thanks!

Do you have any questions?

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