



## Evidence Appraisal Mobile Education Game

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# INTRODUCTION

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- Education applications can be a useful tool for nurse educators in academia and practice to promote and engage learners (Pilcher, 2016)
- Applications have been associated with improvements in knowledge, confidence, and reduced learner anxiety among nursing students (O'Connor & Andrews, 2018)
- EBP knowledge and skills can be taught using games (Mick, 2016; Milner & Cosme, 2017; Wonder & Otte, 2015)



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# BACKGROUND

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- As part of the critical appraisal process nurses and other healthcare professional need to practice the skill of identifying level of evidence (LOE) using a hierarchy
- Critical appraisal tools require the user to rate the LOE using a hierarchy
- Determine strength of the evidence need LOE plus quality rating



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# PURPOSE

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- To create an application that educators can use to reinforce EBP knowledge and skill of identifying the LOE



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# METHODS: DEVELOPING APPLICATION

- Developed LOE hierarchy



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- 1 Systematic review with or without meta-analysis of randomized control trials.
- 2 Single randomized control trial.
- 3 Systematic review with or without metaanalysis of mixed experimental study designs (RCT or
- 4 Systematic Review of mixed experimental and non-experimental
- 5 Observational studies (cohort, case-control, cross-sectional).
- 6 Qualitative single studies or meta-synthesis.
- 7 Peer reviewed professional and organizational standards with clinical studies to support recommendations.
- 8 Expert opinion or literature review or peer reviewed professional and organizational standards without clinical studies to support recommendations, or Quality Improvement study or Evidence-based practice project.
- 9 Manufacturers recommendations.

# **METHODS: DEVELOPING APPLICATION**

- Developed Scenarios



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Practice

Basic

Proficient

Advanced

Expert

# METHODS: DEVELOPING APPLICATION

## SCENARIO with incorrect answer

Updated evidence-based clinical practice guidelines for the diagnosis and management of melanoma from the American Academy of Dermatology.

The correct answer is:

7

These are the keywords to focus on!

**Evidence-based clinical practice guidelines & American Academy of Dermatology.**



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# METHODS: DEVELOPING APPLICATION

- Collaborating with computer science
- What computer science needs from nursing
- Meetings



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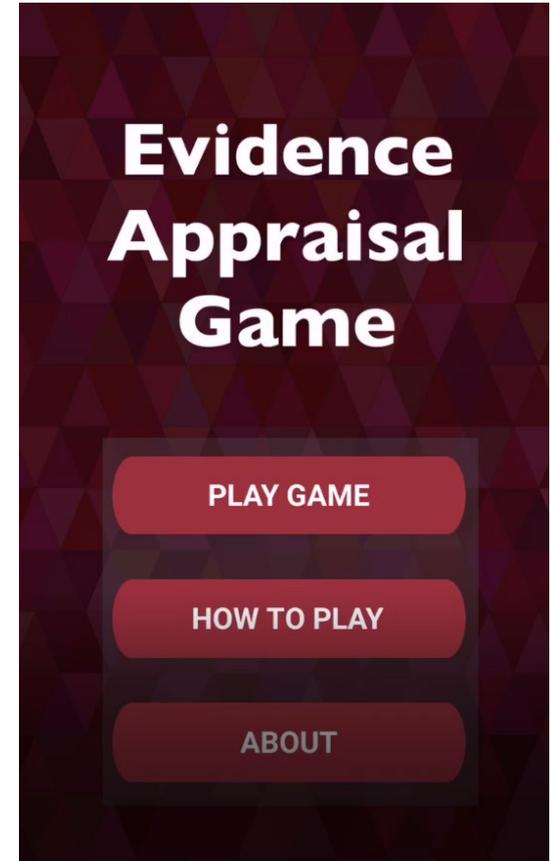
# NOT YOUR DESKTOP APPLICATION

- Low code weight
- Short session
- Persistent data
- Fit different screen sizes



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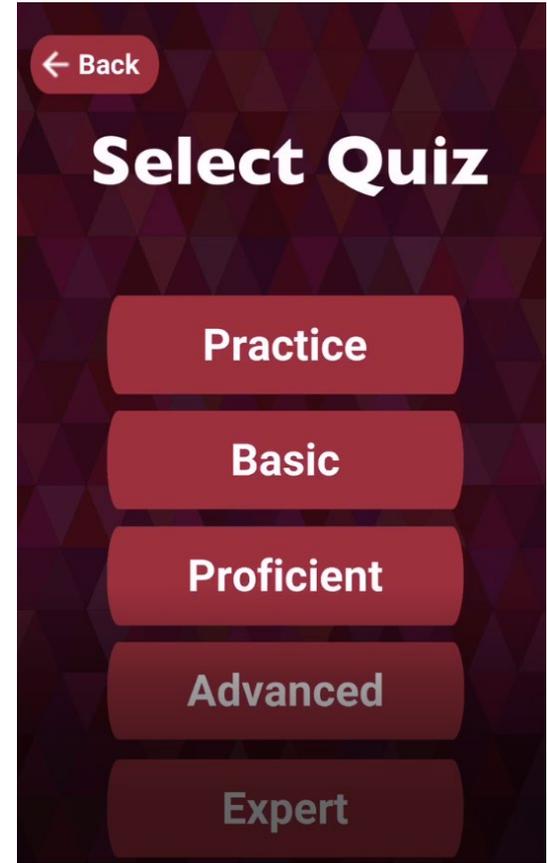
# PLAYER CHOICE

- Practice before play
- Choose level
- Randomization



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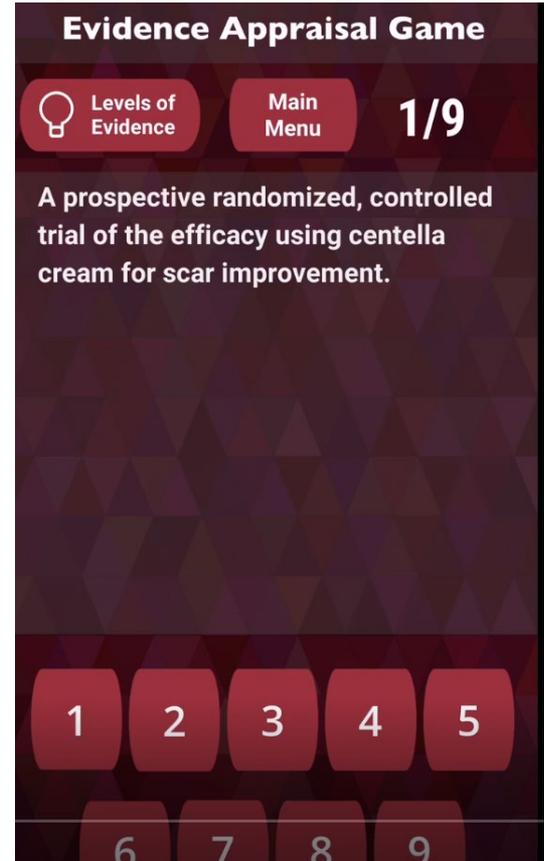
# CONSISTENCY & CLARITY

- Buttons easy to read, tap
- Player goes back or forward
- How far through the game am I?
- Consistency of type size



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# BASE DEFINITION

- What are the levels of evidence?
- Always available to player



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## Evidence Appraisal Game

← Back

Main  
Menu

1/9

- 1 Systematic review with or without meta-analysis of randomized control trials.
- 2 Single randomized control trial.
- 3 Systematic review with or without metaanalysis of mixed experimental study designs (RCT or quasi-experimental).
- 4 Systematic Review of mixed experimental and non-experimental study designs.
- 5 Observational studies (cohort, case-control, cross-sectional).
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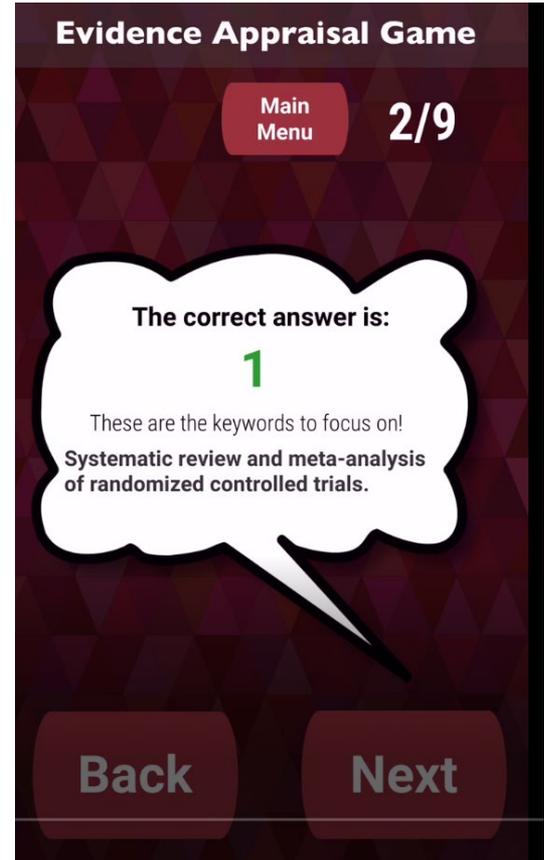
# PLAYER FEEDBACK

- How far through game am I
- What are keys to correct answer
- Do I want to go back?



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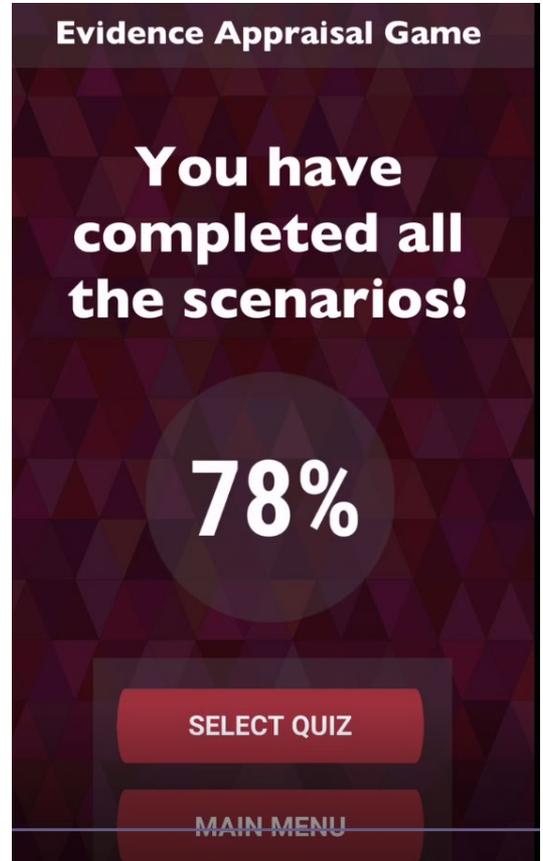
# ENDGAME CHOICES

- How did I do?
- Do I want to play again?
- Random number generator
- Pricing surprise
- On to Android platform



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# RESULTS: EVIDENCE APPRAISAL GAME

Question	DNP students	PA students
	n=26	n=40
	Mean(SD)	Mean(SD)
The application was a fun way to practice building my evidence appraisal skills.	4.41(.58)	4.00(.91)
My understanding of how to differentiate between research and other types of evidence increased after playing the game.	4.14(.62)	3.95(.82)
My understanding of how to determine the type of study design increased after playing the game.	3.99(.65)	3.88(.88)
My understanding of how to select the level of evidence based on evidence type increased after playing the game.	4.25(.57)	3.80(.85)
The application was beneficial to my learning.	4.48(.49)	3.98(.77)

# IMPLICATIONS FOR PRACTICE

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- Rapid critical appraisal skills are needed to find valid and reliable evidence that can be used in patient care
- The Evidence Appraisal Game
  - Fun way for students to build/strengthen EBP skills
  - Helpful tool for health profession's students/clinicians to practice the skill of identifying the research design and the LOE



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# REFERENCES

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