# Knowledge surveys in nursing education: Nursing students' perceptions of their knowledge and clinical skill abilities

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## Background

- The focus of teaching and learning in nursing education has shifted toward **knowledge, skills and attitudes**.[1]
- Students are expected to take **more responsibility** for their learning.[2]
- There is a **dearth of evidence** related to students' perceptions of their knowledge and clinical skill abilities.
- There is a **lack of educational tools** which increase student knowledge and clinical skill abilities.
- **Knowledge surveys** are an educational tool used to organize content, facilitate student understanding and ensure that faculty cover content with adequate complexity and level of difficulty.[3]

## Research Questions

- *Question #1* Does the use of a pre-post knowledge survey increase student knowledge and clinical skill abilities when compared to standard teaching techniques?
- *Question #2* What is the relationship between pre-licensure nursing students' perceptions of their own knowledge and clinical skill abilities on the post-knowledge survey and written examination and clinical simulation performance evaluation scores?

## Situated Cognition Learning Framework [4]

| Principles of Framework | Framework Components | Framework Components in Study |
|---|---|---|
| **Thinking and learning as measures of knowledge make sense only within particular situations.**<br><br>**People act and construct meaning within communities of practice.**<br><br>**Knowledge depends upon the use of a variety of artifacts and tools.**<br><br>**Situations make sense within a historical context.** | People [Community] | Interaction of patient, family and other healthcare providers during simulation |
| | Ingredients/Tools [Artifacts] | Pre-post KS: serve as form of self-assessment, a cognitive recall guide, and a learning tool |
| | Activity [Participation] | Use of a realistic clinical context using simulation. |

## Material and Methods

### *Purpose*

- To evaluate the effectiveness of knowledge surveys as an educational tool for increasing students' knowledge and clinical skill abilities.
- To discover and examine pre-licensure nursing students' perceptions of their own knowledge and clinical skill abilities.

### *An Experimental, Randomized, Pre-test, Post-test Design*

Control group (N = 17)     Experimental group (N=15)
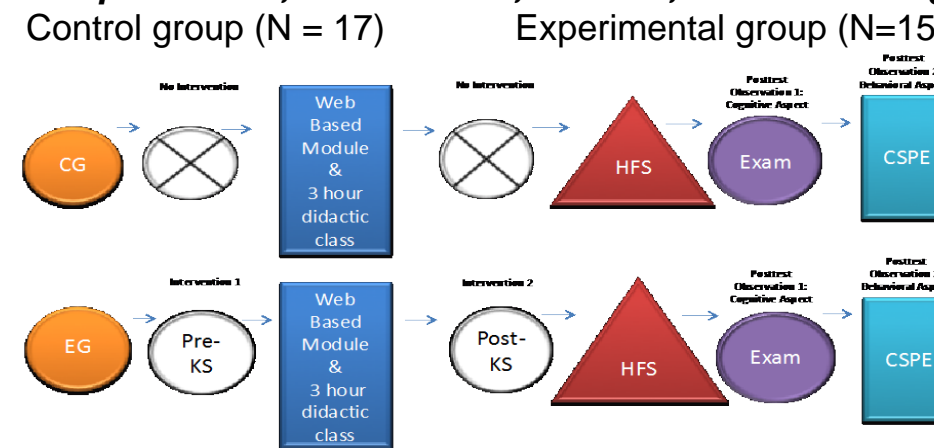


Abbreviation Key: CG = Control Group; EG = Experimental Group; Pre-KS = Pre-Knowledge Survey; HFS = High Fidelity Simulation; Post- KS = Post-Knowledge Survey; Exam = On-line Exam items and Written Exam one items (completed by students); CSPE = Clinical Simulation Performance Evaluation (completed by M. Goering through viewing of videotapes of clinical simulation).

### *Instruments*

- Demographic Survey
- Pre- and Post- Knowledge Surveys (Pre- and Post- KS)
- Evaluation Items (EI)
- Clinical Simulation Performance Evaluation (CSPE)

### *Operational Definitions*

- **Pre- and Post- KS:** Survey items where participants provided responses regarding perceptions of knowledge and clinical skill.
- **EI:** Online examination questions including multiple choice, true/false and matching items.
- **CSPE:** Evaluation form created for faculty to score accuracy of student clinical behaviors/skills.
- **Dunning-Kruger Effect:** When individuals rate themselves to be the most knowledgeable; however, they tend to perform the worst in relation to other performers who complete the same evaluation. Individuals who are highly knowledgeable tend to rate themselves to be less knowledgeable in relation to others who complete the same evaluation.[5]

## Results

### *Question #1*

- **Overall Results**
  - No significant increase in *knowledge*
  - No significant increase in *clinical skill abilities*
  - *Perceptions did not reflect actual ability* to correctly respond to examination questions.
  - *Perceptions did not reflect actual ability* to safely demonstrate clinical skills.
- **Specific Results**
  - 93% demonstrated *perception of improvement*
  - 80% overestimated *knowledge*
  - 58% overestimated *ability to perform clinical skills*
  - 42% underestimated *ability to perform clinical skills*

### *Question #2*

- It is difficult to illustrate that student's *perceptions of their knowledge* are strongly or directly related to their actual knowledge.
  - Non-relationship 36%; positive relationship 36%; negative relationship 28%
- Student *perceptions of their clinical skill abilities* are more strongly and positively related to their actual performance of clinical skills.
  - Non-relationship 8%; positive relationship 92%

## Conclusion and Future Directions

### *Research*

- Provide time for completion of KS during class.
- Consider offering extra credit for participation in KS.
- Collect information from KS administered over several semesters.
- Differentiate the skill level of participants.

### *Practice*

- Explain to students the goal of KS and how the use of such surveys can improve metacognition.
- Provide feedback in a timely manner to improve metacognitive awareness.
- Be mindful of possibility of the *Dunning-Kruger Effect.*[5]