



# PROMOTING STUDENT NURSE SUCCESS: TO APP OR NOT TO APP

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# RESEARCH QUESTIONS

- Is the mobile application useful in a nursing practice education setting?
- What is the appeal of/comfort-with the mobile application for nursing students in real life instructional settings?

# THE CHALLENGES

## THE HEALTH CARE SYSTEM

- Changing dramatically
- Client care shifting to the community
- Client acuity level is increasing



## THE LEARNERS

- Tuition costs increasing
- Reluctant to spend money on “recommended resources” or textbooks
- Prefer to use Google
- Unsure where to obtain reliable information
- Resources that are purchased are not portable and therefore not available when needed



## THE LEARNING ENVIRONMENT

- Resources not available or accessible
- Quality care often involves accessing current “Best Practice” information
- The learning environment changes frequently

# CANADIAN NURSES ASSOCIATION POSITION

“Portable digital technology is driving a revolution in health care...”

- Porter-O’Grady, Canadian Nurse (2016)

“Technology is what frees us to be able to fully practice our profession, as we idealize it, rather than simply being functionaries in a much more limited system.”

- Porter-O’Grady, Canadian Nurse (2016)

“Mobile devices are used to monitor how many steps you take, monitor your pulse, monitor other health indicators. The eventual integration of that, in a cost effective way, with the health system is really where things are going.”

- Nanos, Canadian Nurse (2016)

# OTHER LITERATURE

“The education of health care professionals in the context of a rapidly changing health care system is a prime example of how the mobility of learners within a variety of real life learning environments has posed increasing challenges and where mobile technologies have the power to support and enhance teaching and learning...Moreover, the shift of client care to the community requires that the education of health care professions take place increasingly in the more autonomous and diverse practice environment where resources are not readily accessible, where client acuity is increasing, and where more traditional methods of directly observing and working with students are not as feasible.”

*Ally, M., Bradley, C., Clough, G., Ford, M., Gregson, J., Kenny, R. F., & ... Wishart, J. (2009). Mobile learning. [electronic resource] : transforming the delivery of education and training. Edmonton : AU Press, c2009.*

[http://www.aupress.ca/books/120155/ebook/04\\_Mohamed\\_Ally\\_2009-Article4.pdf](http://www.aupress.ca/books/120155/ebook/04_Mohamed_Ally_2009-Article4.pdf)

# NURSING CENTRAL FROM UNBOUND MEDICINE

**Nursing Central™**

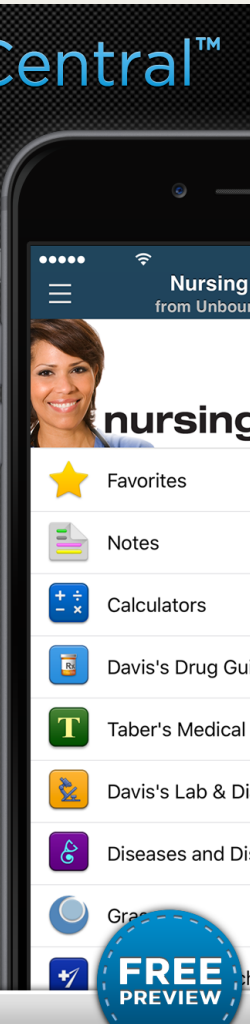
Search  
5,000 trade  
name and  
generic drugs

Review  
65,000  
medical  
definitions

Consult  
comprehensive  
disease and  
test information

**FREE  
PREVIEW**

unbound medicine®



The smartphone screen shows the app's main menu with a search bar at the top. Below the search bar is a profile picture of a woman and the text 'nursing'. The menu items include: Favorites (star icon), Notes (notepad icon), Calculators (calculator icon), Davis's Drug Guide (book icon), Taber's Medical Dictionary (T icon), Davis's Lab & Diagnostic Tests (microscope icon), Diseases and Disorders (person icon), and a 'FREE PREVIEW' badge at the bottom.



The tablet screen displays the 'Diseases and Disorders' section for 'Pulmonary Fibrosis'. The left sidebar lists sections: INTRODUCTION, CAUSES, GENETIC CONSIDERATIONS, GENDER, ETHNIC/RACIAL, AND LIFE SPAN CONSIDERATIONS, GLOBAL HEALTH CONSIDERATIONS, ASSESSMENT, PRIMARY NURSING DIAGNOSIS, PLANNING IMPLEMENTATION, DOCUMENTATION GUIDELINES, and DISCHARGE HOME HEALTHCARE. The main content area shows: DRG Category: 196, Mean LOS: 7.0 days, Description MEDICAL: Interstitial Lung Disease with Major CC, classification (lung), and Pronunciation. A diagram of the human respiratory system is shown with labels: Nasal cavity, Oral cavity, Epiglottis, Vocal fold, Right bronchus, Left bronchus, Nasopharynx, Oropharynx, Laryngopharynx, Esophagus, Trachea, Right lung, Left lung, and Pleura. The 'CAUSES' section is partially visible, mentioning 'Idiopathic pulmonary fibrosis (IPF) is of unknown etiology...'

The smartphone screen displays the 'CAUSES' section for 'Pulmonary Fibrosis'. It includes text: 'Idiopathic pulmonary fibrosis (IPF) is of unknown etiology and is characterized by a poor prognosis and no effective treatment. Pulmonary fibrosis can also occur from exposure to radiation or inhalation of silica. Conditions that can result in pulmonary fibrosis include pneumonia, atelectasis, alveolar cell cancer, pulmonary edema, and lung surgery or trauma. Nonpulmonary causes include neuromuscular disease such as Guillain-Barré syndrome, amyotrophic lateral sclerosis, myasthenia gravis, and muscular dystrophy. Approximately one-third of patients can trace their initial episodes of dyspnea to a viral respiratory illness. Deformities of the bones, such as ankylosing spondylitis and scoliosis, can result in pulmonary fibrosis.'

# NURSING CENTRAL FROM UNBOUND MEDICINE

User friendly source of literature searching and a study system to facilitate learning

Students can develop medication cards for their assigned patients

Additional technologies available – Nursing Central/Unbound Medicine is the resource we selected because it contained the textbooks that we currently use and expect students to purchase

Students can access audio and video clips that promote correct pronunciation of terminology as well as understanding of theory and nursing skills

A detailed source of disease, drugs, test and procedures for nurses

# RESOURCES WITHIN THE APP

## Davis's Drug Guide

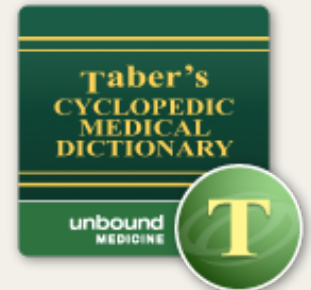
- *Herbal and Natural Products*
- *Canadian Index*
- *Patient Safety Information*



\$US46.95

## Taber's Medical Dictionary (22<sup>nd</sup> Ed.)

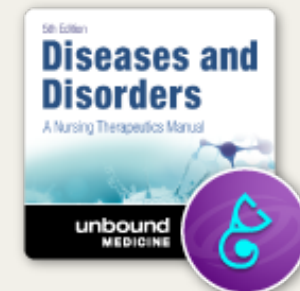
- *Video Clips*
- *Audio Pronunciation*
- *Patient Care Sections*



\$US120.00

## Diseases and Disorders

- *Concise description of the disease process and rationales for medications and tests*
- *Includes information for pre/post-op care and nursing care plans.*



\$US58.95

# RESOURCES WITHIN THE APP

## Davis's Laboratory and Diagnostic Tests

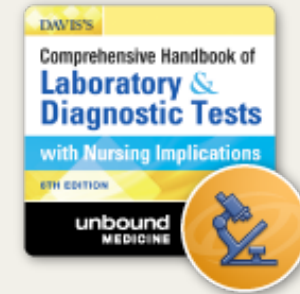
- *Identifies pre/intra/post test requirements, monitoring, and care*

## MEDLINE Search

- *Over 26 million journal articles from the PubMed database*
- *Grapherence® – visually explore the interrelationship and relevance of medical literature*

## MEDLINE Journals

- *Citations and abstracts*
- *Some full text articles*



\$US54.95

# LEARNING TOOLS

## Grasp™

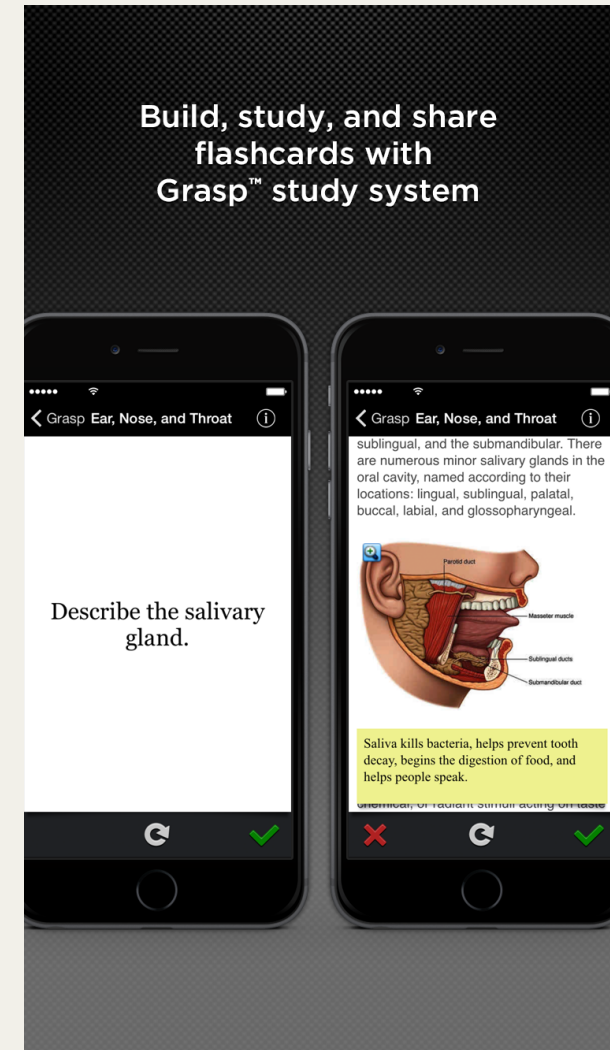
- *A study system that assists learners with mastering unfamiliar concepts or prepare for exams*

## Glimpse™

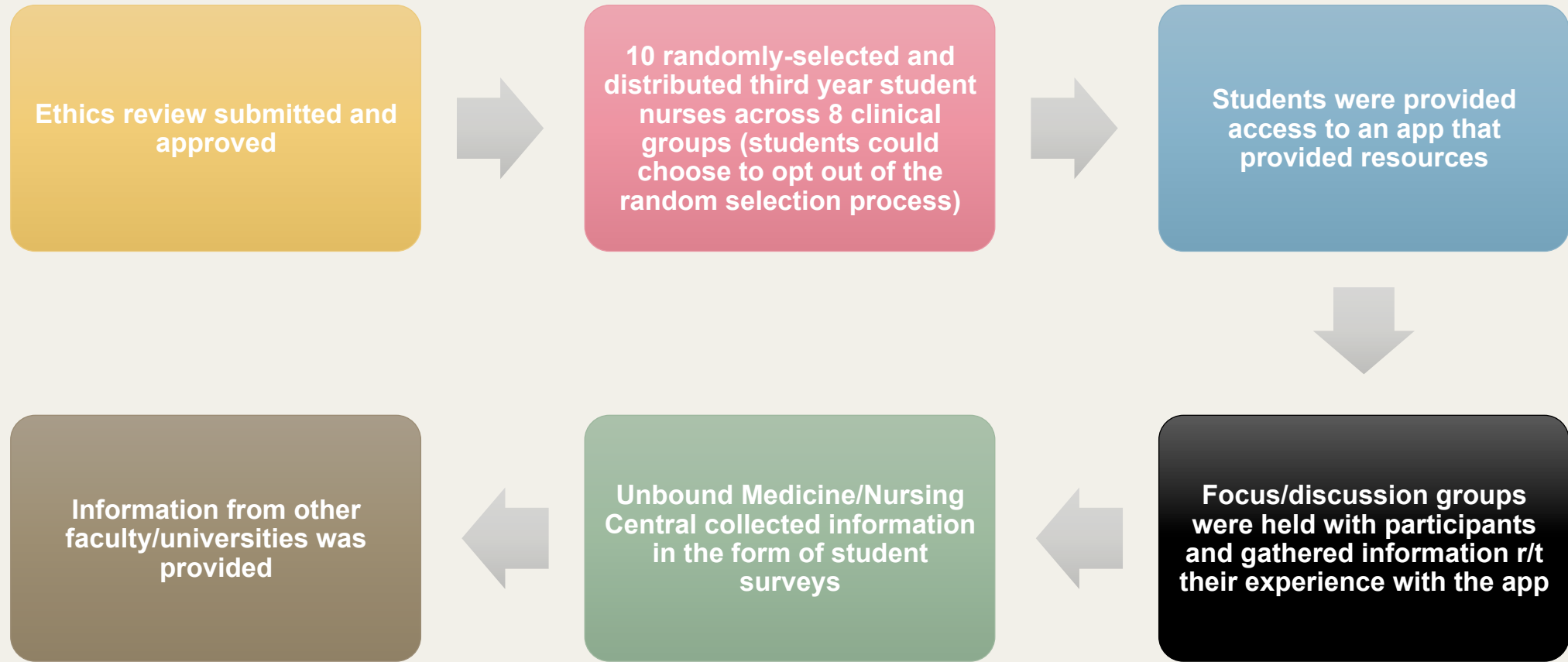
- *An in-text disease, drug, and definition lookup tool*

## Calculators

- *Clinical Calculators*
- *Conversion Calculators*
- *Dosage Calculators*
- *IV Calculators*

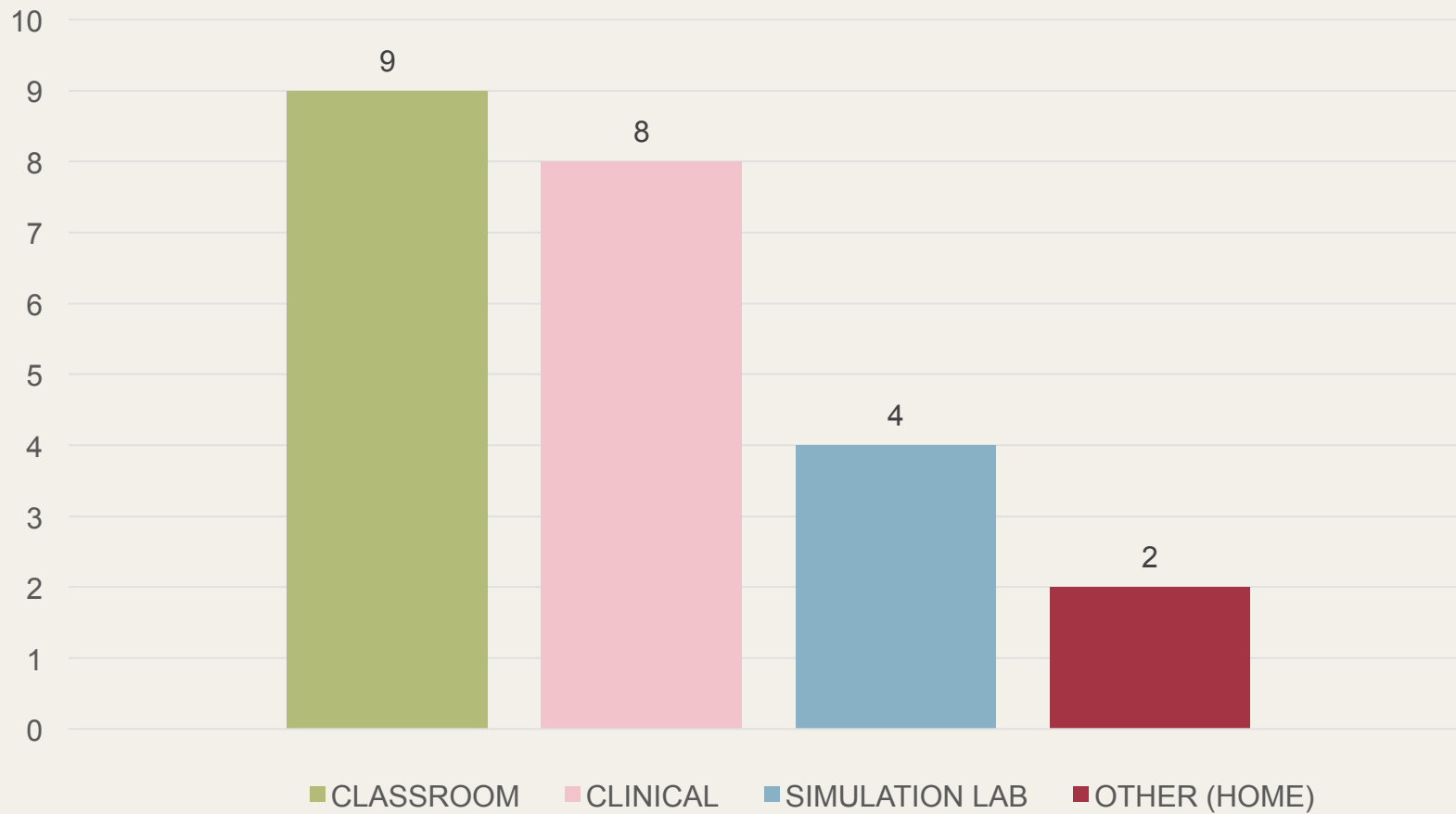


# PILOT PROJECT: PHASE 1



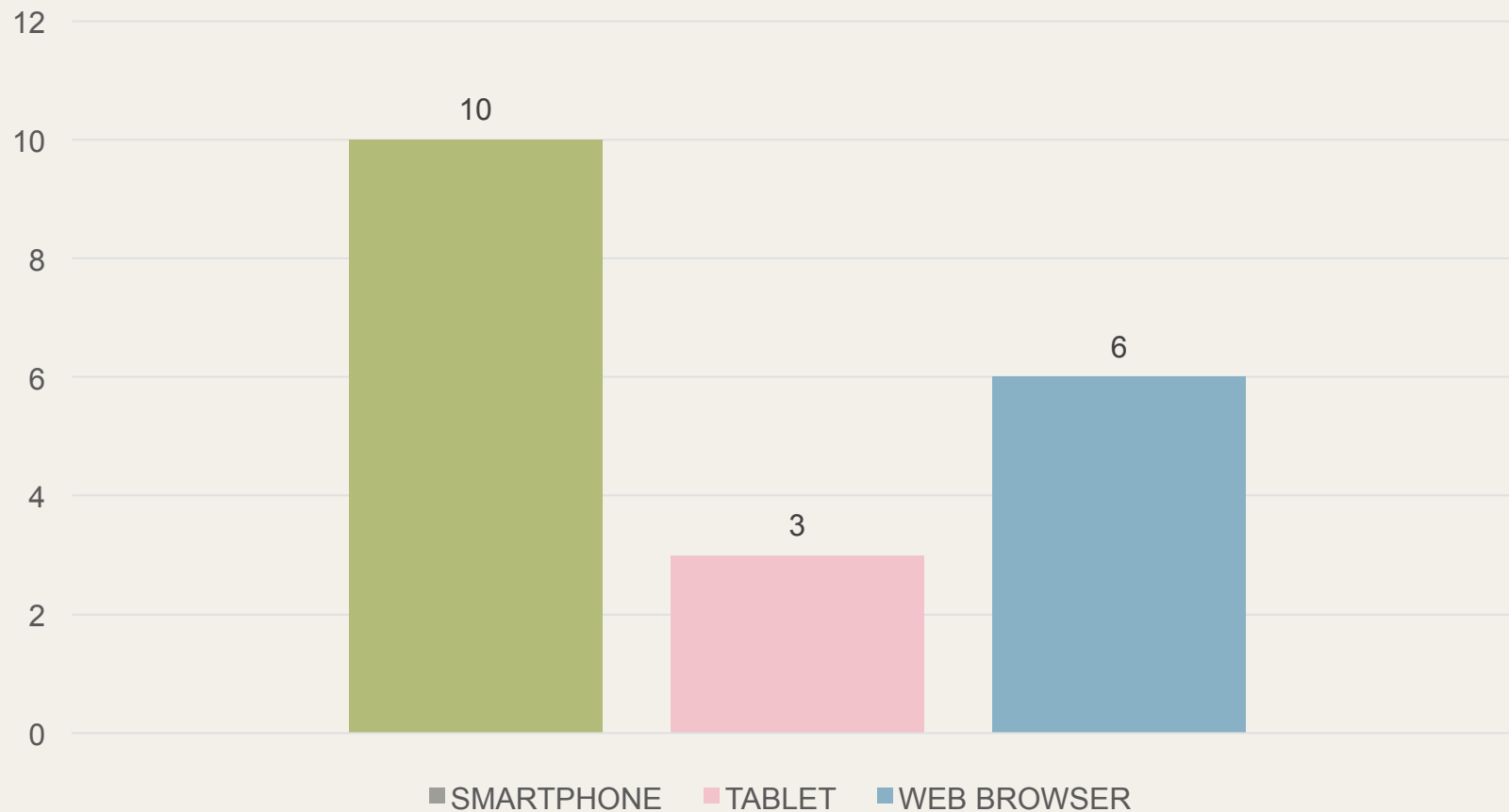
# SURVEY RESULTS

WHERE DID YOU USE NURSING CENTRAL?



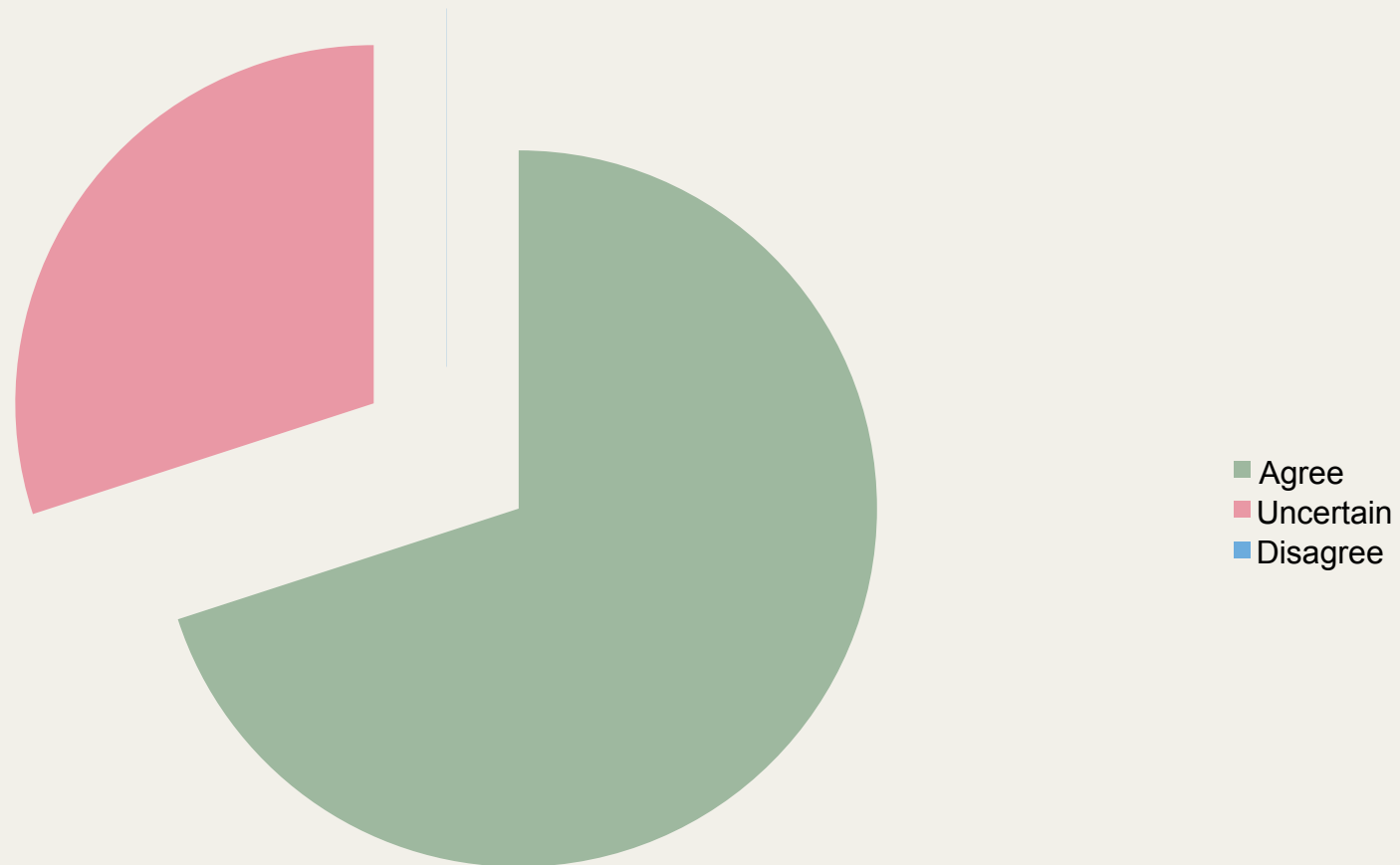
# SURVEY RESULTS

WHAT DEVICE DID YOU USE TO ACCESS NURSING CENTRAL?



# SURVEY RESULTS

I PREFER USING MOBILE RESOURCES OVER CLINICAL REFERENCE BOOKS.



# ADDITIONAL SURVEY RESULTS

- 100% of students asked found themselves consulting the Nursing Central app multiple times per week
- 100% of students asked said Nursing Central made them more efficient
- 100% of students asked said it is important that their clinical references are regularly updated

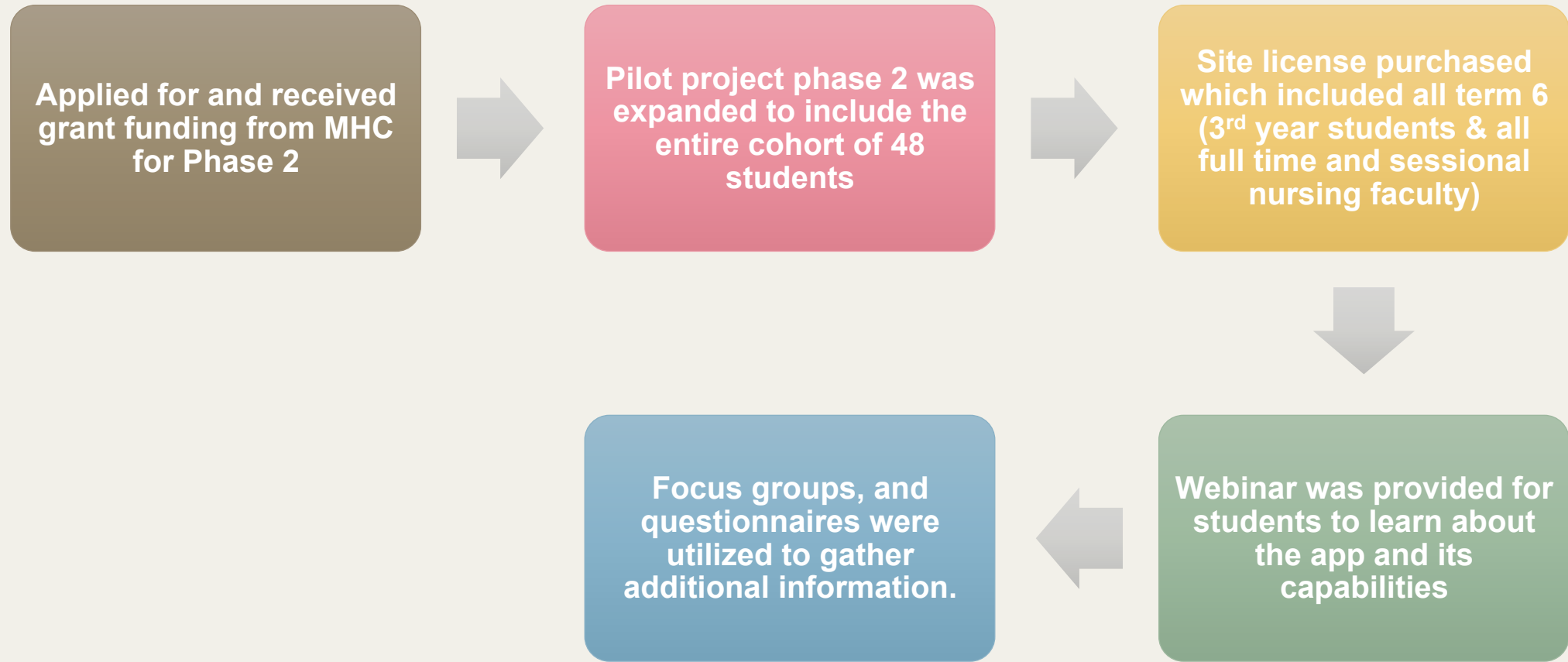
# STUDENT RESPONSE

- WITHIN TWO WEEKS STUDENTS:
  - *Enthusiastically embraced the technology*
  - *One comment: “This is life changing”*
  - *Felt that the app enabled them to “learn in the moment”, spend less time on research, and more time on critical thinking and information analysis*
  - *Exhibited initiative and self-directed learning*
  - *Became excited about learning, client research, and development of nursing care plans*
  - *Response was consistently positive throughout the semester from all the participants*
  - *Identified that the app did not use excessive memory (less than Instagram) or data, was user-friendly, and promoted learning, knowledge, and confidence*
  - *Only required WiFi for journal articles and some specialized information within portions of the app.*
  - *Had peers begin insisting on access (via legal/non-legal means)*

# FACULTY RESPONSE

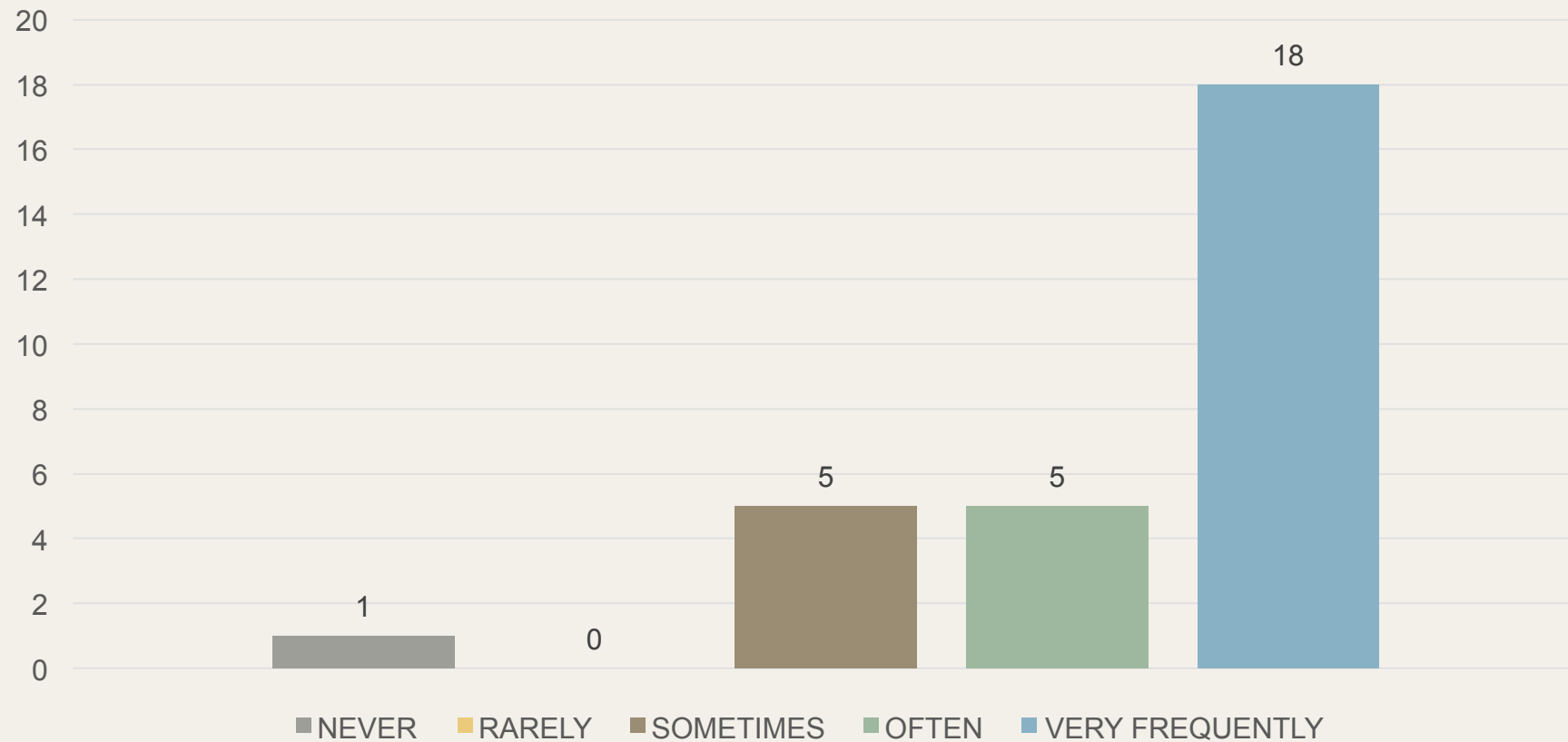
- Students were becoming self directed
- Exhibited critical thinking skills
- Became enthusiastic learners
- Clinical learning became a positive experience and was less stressful
- Clinical preparation improved
- Students had the resources to adapt to changing patient needs/ assignments
- Involvement of student in “research” has had an impact on their understanding of “research” and scholarship
- CHALLENGES: Faculty and unit “buy in”

# PHASE 2: THE NEXT STEP



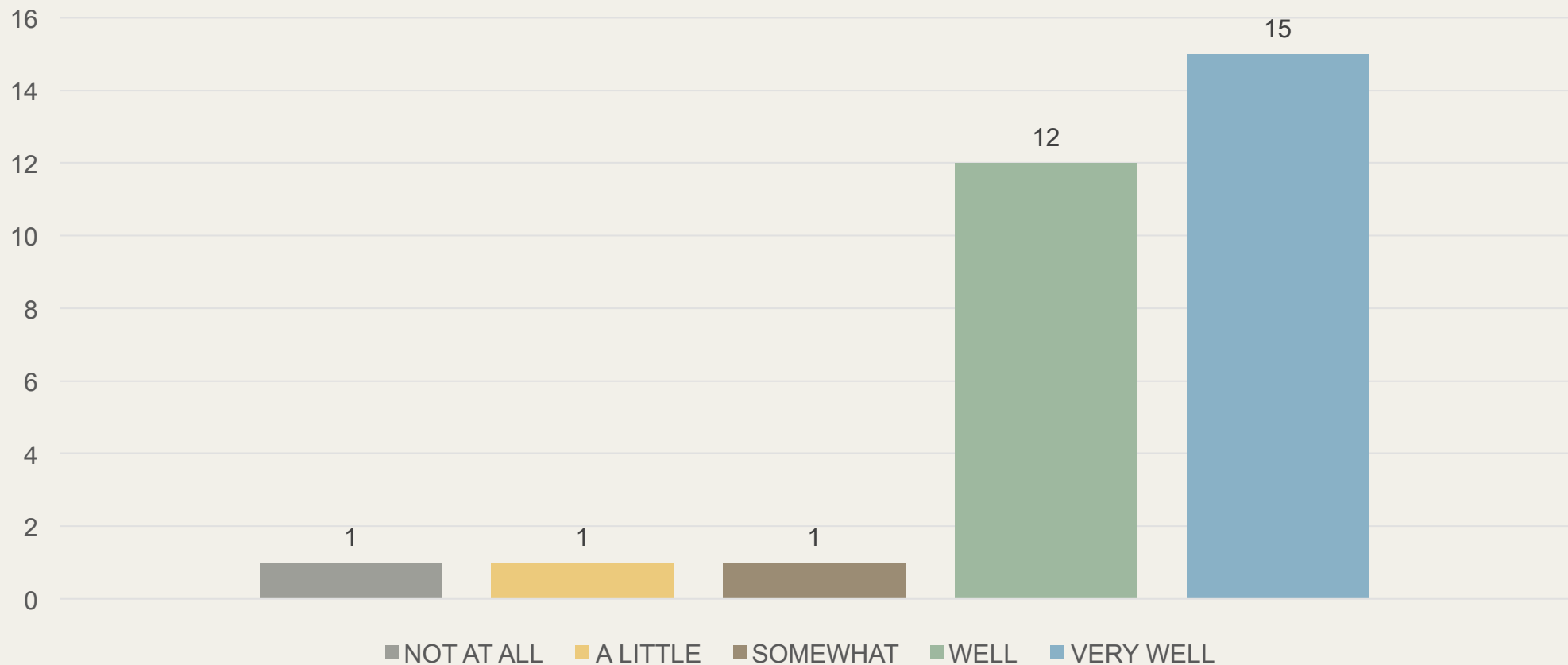
# SURVEY RESULTS

HOW OFTEN DID YOU UTILIZE THE APP IN THE CLINICAL SETTING?



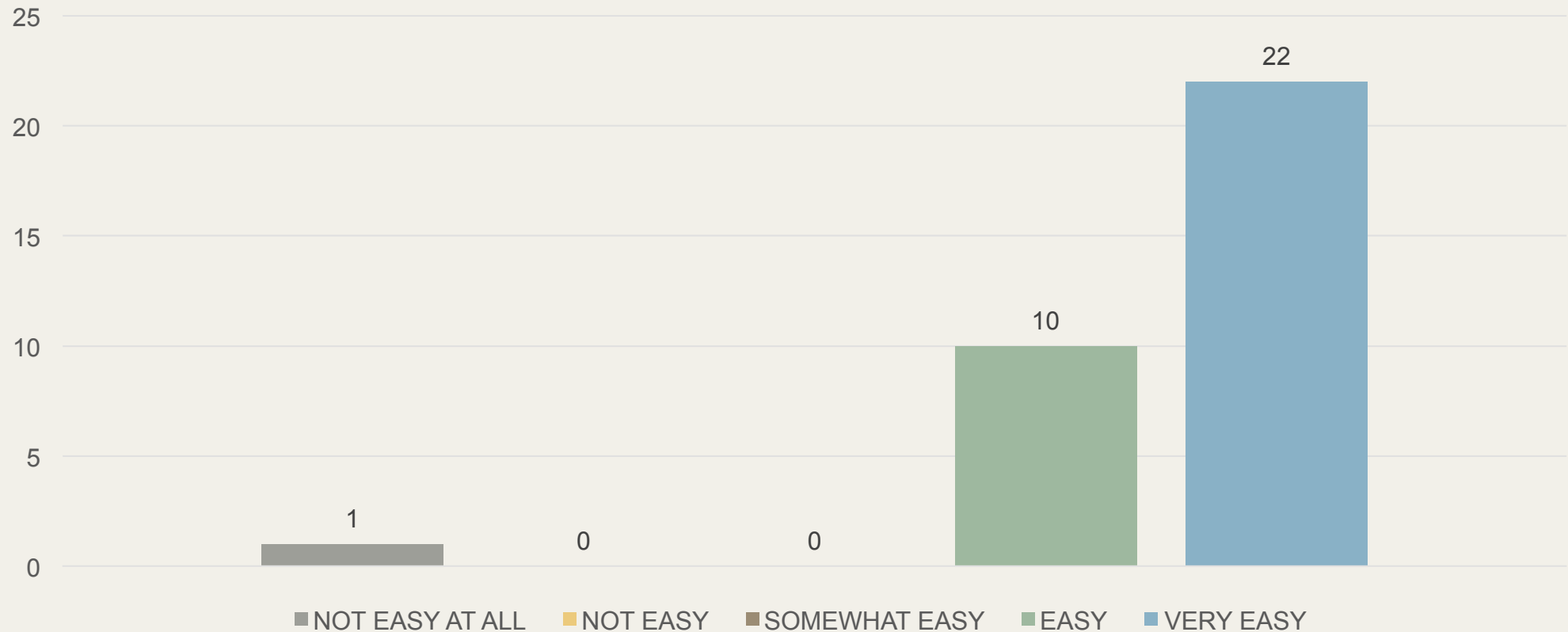
# SURVEY RESULTS

HOW WELL DID THE APP SUPPORT YOUR DEVELOPMENT OF CLINICAL PRACTICE?



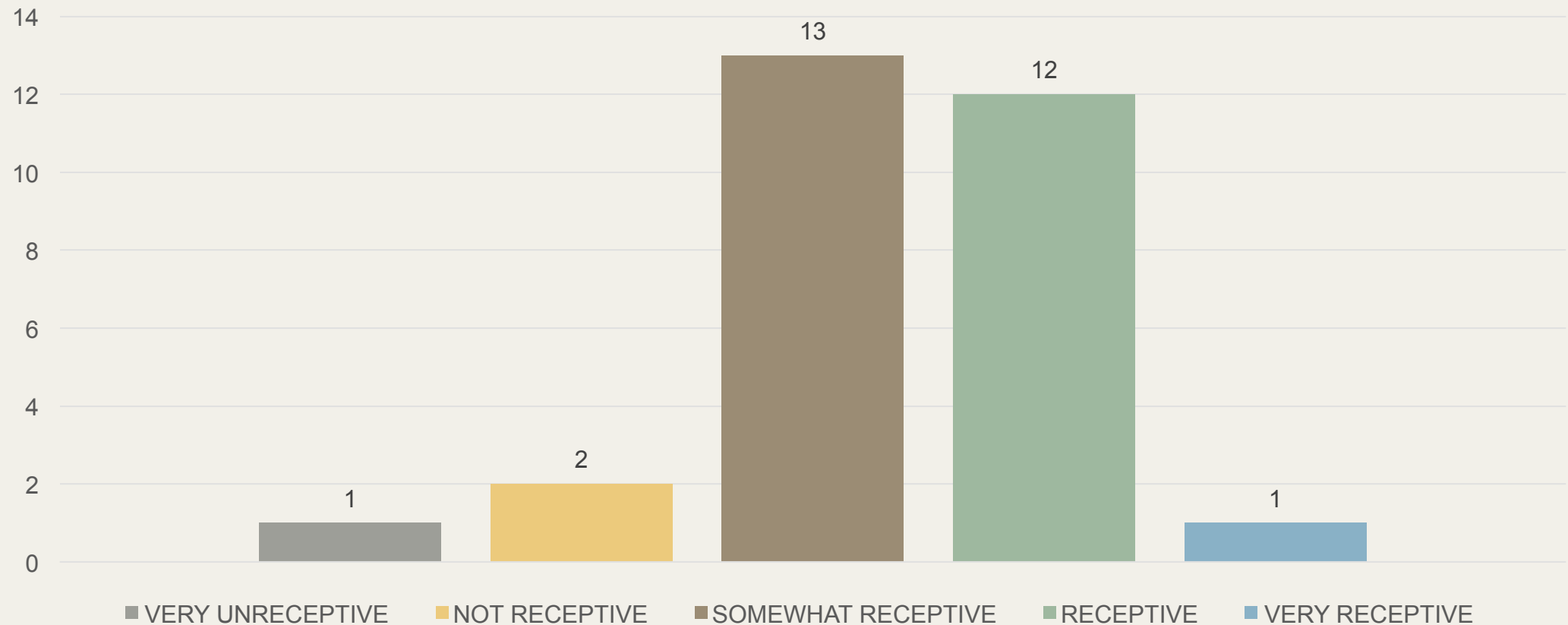
# SURVEY RESULTS

HOW EASY WAS THE APP TO USE?



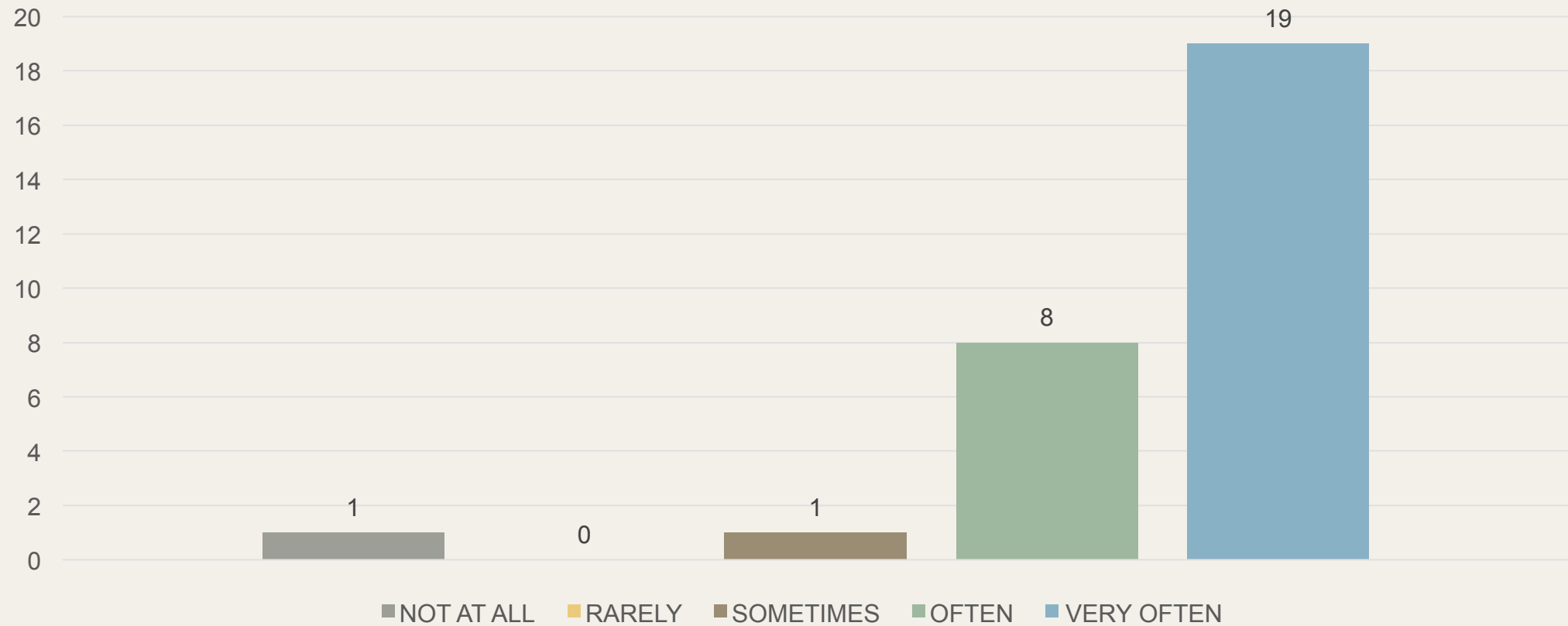
# SURVEY RESULTS

HOW RECEPTIVE WERE THE NURSING UNITS TO YOUR USE OF THE APP?



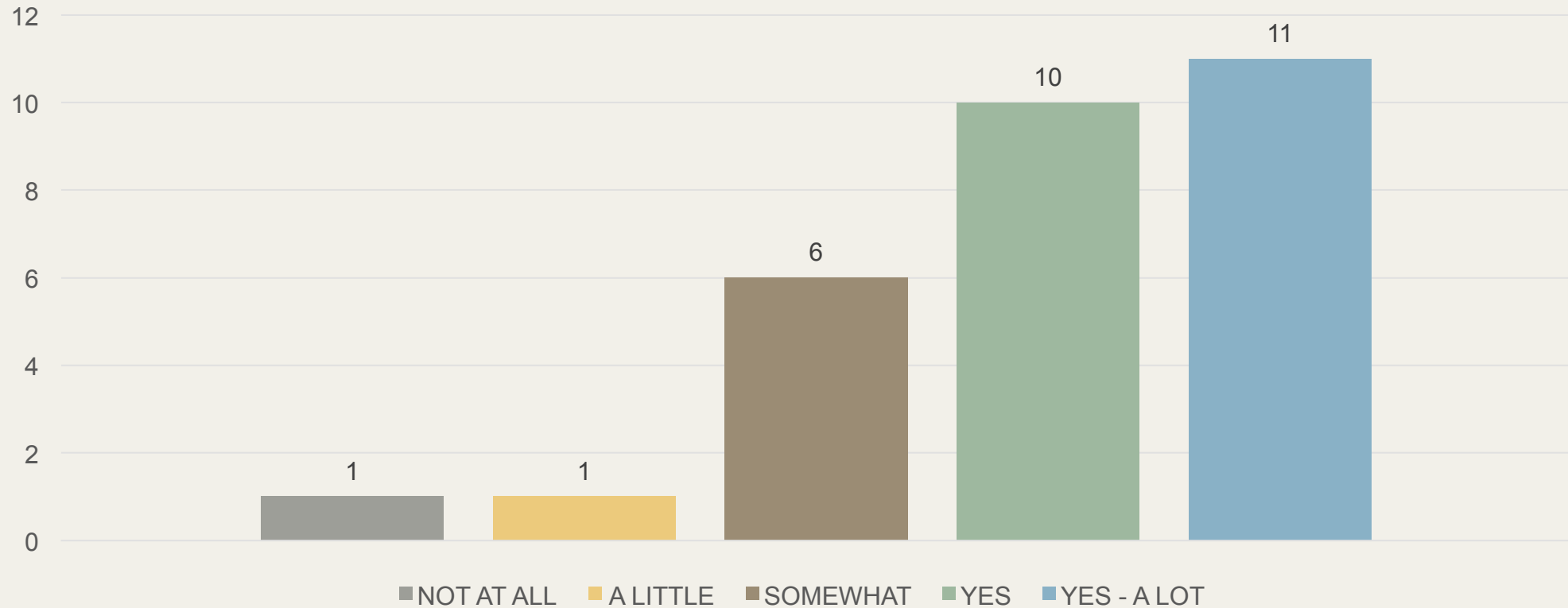
# SURVEY RESULTS

HOW MUCH DID YOU USE THE APP OUTSIDE OF THE CLINICAL SETTING?



# SURVEY RESULTS

DO YOU BELIEVE THE APP IMPROVED YOUR CRITICAL THINKING SKILLS?



# ADDITIONAL SURVEY RESULTS

- 97% of students said mobile learning supported their clinical learning experience
- 100% of students felt more confident because they had the app with them
- 97% of students described their experience with the app as helpful
- 93% of students said it was easy to access the app when they needed information

# STUDENT RECOMMENDATIONS FOR IMPROVING NURSING CENTRAL

It was inconvenient if it needed an update while in clinical

Allow us to use them on the floor

NONE! It is perfect!

Include more nursing interventions for specific diseases

Would have liked to have access to the app all year

Better description of combination drugs

I need a better phone

More care plan diagnosis, interventions, and rationales

Add more Drug-Drug interactions

Can be difficult to use because some floors ban cell phone use

# OTHER COMMENTS

Loved it! Made research easier. Thank you.

Love it!

Well organized app

Overall I think this App has increased my knowledge about meds as well it is handy and reliable.

Info is very comprehensive

This is awesome! I love my App! Everyone should have one! It is my bible!

Love it for doing research for clinical. All the information I need is in one easily accessible place and is easy to understand.

GREAT APP!

Awesome! Very helpful for clinical research

I love this App! Every nursing student should have access to this App!

Love it! Really appreciate being able to use it.

# THEMES

- Students were enthusiastic about the app.
- Students felt that the app facilitated learning and made information available when it was needed.
- Students that had difficulty with the app stated that this was due to their inadequate technology.
- Some students did not attend the webinar, therefore did not use the app to its full capabilities.
- Students identified that accessing the app in the clinical setting was problematic at times if the unit/instructor did not allow them to access information when they needed it.
- Students felt that the app promoted critical thinking as well as “learning in the moment”.
- Access to journal articles was also appreciated by students.
- Students felt that the app was a key factor in their increased confidence and overall success!

# FACULTY OBSERVATIONS

- Students became more conscientious about researching and understanding medications and medication interactions in the clinical setting.
- Researching diagnostic/lab tests and results promoted critical thinking and theory application in the area of pathophysiology.
- Students did use devices responsibly.
- Students access information outside the clinical setting in order to expand their theoretical knowledge and understanding of disease process.
- Students became more confident in their theoretical knowledge.
- Students were enthusiastic about their ability to incorporate this resource into their clinical practice.
- The App was utilized in the class room setting – students were asked to access current research articles related to the relevant theory and shared that information with peers.

# ONGOING CHALLENGES

- The practicalities of providing a yearly site license
- Faculty/unit/AHS\* acceptance
- Student/Faculty orientation
- Educating/informing students

# RECOMMENDATIONS

- Do not assume students are technologically proficient
- Provide orientation to the app:
  - *How to use it*
  - *Professional/ethical issues*
- Encourage the students to utilize the app in a variety of settings
  - *Classroom*
  - *Clinical*
  - *Clinical prep/study time*
- Select an app that meets student/program needs and provides resources that you may already use or recommend
- Educate faculty/nursing staff/managers/facilities – PR is important