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The Great American Cookie Experiment: Engaging Staff Nurses in Research[1,2,3]

Marlene Walden PhD, RN, NNP-BC, CCNS*, Constance E. Cephus PhD, RN, NNP-BC, CPNP-AC/PC, Mary D. Gordon PhD, RN, CNS-BC, Joseph Hagan ScD

Texas Children's Hospital, Houston, TX

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Purpose: The purpose of this study was to engage staff nurses in research in an informative and fun way by determining nurses' preference for sugar-free chocolate chip cookies versus regular chocolate chip cookies.
Design and Methods: A descriptive, crossover, double-blinded study was performed using a convenience sample of 300 staff nurses.
Results: Nurses preferred the texture, flavor, and overall preference of the regular chocolate chip cookie as compared with the sugar-free chocolate chip cookie ($p < 0.001$).
Implications: The Great American Cookie Experiment remains a creative teaching strategy to enhance knowledge and engage nurses in the research process.

OVER THE PAST decade, research has become increasingly recognized as an important part of clinical practice and a key component to quality patient care. Hospitals seeking Magnet Recognition, administered by the American Nurses Credentialing Center, must demonstrate that direct care nurses are familiar with and engaged in research and evidence-based processes (American Nurses Credentialing Center, 2013). Most nurses acquire basic didactic knowledge about research in their nursing programs, but few nurses have actual experience in developing and conducting a research study in the clinical setting (Wright, 2005). Lack of experience and fear of "research" can interfere with staff nurses' participation in clinical research (Brown, Johnson, & Appling, 2011; Sawatzky-Dickson & Clarke, 2008; Hudson-Barr, Weeks, & Watters, 2002; Thiel, 1987).

Several publications have outlined effective, innovative strategies for decreasing anxiety and increasing interest in research among nursing students and practicing nurses. Thiel (1987) described a cookie experiment that was used as an experiential learning strategy to involve undergraduate nursing students in research in a way that was engaging and that desensitized them to the negative perceptions about research. Since this original research, several other publications have reported success in using the Great American Cookie Experiment (GACE) in the hospital setting to demystify research concepts and to teach and engage staff nurses in the research process (Brown et al., 2011; Hagle & Millenbruch, 2011; Hudson-Barr et al., 2002; Morrison-Beedy & Cote-Arsenault, 2000; Sawatzky-Dickson & Clarke, 2008).

A south Texas urban pediatric and obstetric hospital explored strategies for how to engage staff nurses in clinical research. Under the guidance of the hospital's nursing research council, a research scholars program was developed to teach the research process and allow nurses to design and conduct research projects under the guidance of doctorally prepared research faculty. The GACE was used throughout the curriculum to teach basic research concepts and engage the research scholars in research in a way that was both informative and fun. During the 12-month research scholars program, 14 registered nurses and advanced practice registered nurses (APRNs) learned how to conduct a

* Corresponding author: Marlene Walden, PhD, RN, NNP-BC, CCNS.
E-mail address: waldenm@archildrens.org.

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Table 1 Research concepts and teaching points related to the Great American Cookie Experiment (GACE).

Research concepts	Teaching points
Blinded	Blinding is the process of preventing those involved in a study (researchers, participants, data collectors) from having information that could bias study results by knowing which treatment group a participant is in (e.g. which cookie is sugar-free or regular chocolate chip).
Convenience sample	A convenience sample involves selection of the most readily available persons to participate in the study as opposed to randomly selecting the sample of participants.
Crossover design	Crossover studies employ an experimental design in which each participant participates in two or more treatment conditions, preferably in random order.
Informed consent	Informed consent is based on an ethical principle requirement that researchers obtain participants' voluntary consent to participate in the study without coercion, after informing them of the possible risks and benefits of their participation.
Institutional review board	An institutional review board's (IRB) purpose is to protect the rights of people and animals who are participants of research. The IRB makes sure participants are selected equitably, have adequate information about the research, and that risks to participants are minimized. The IRB also ensures that the privacy of participants is protected and that additional safeguards protect vulnerable populations.
Literature review	A literature review is a critical summary of research on a topic of interest, highlighting what is currently known about the research problem and identifying gaps in the evidence.
Power analysis	A power analysis determines the sample size needed to conduct a meaningful study. If the sample size is too small, the researcher will probably not be able to obtain sufficient evidence to support the research hypothesis, even if the hypothesis is correct.
Random order	In a crossover study, random order is the assignment of the treatment condition in a random manner. This is important to minimize the potential for systematic bias from "order" effects, since it is possible that the order in which the "treatments" (i.e. cookie type) are introduced may affect study results.
Research question	The central query of the research study. Most research questions can be expressed using a general question template: *"In (population), what is the relationship between the (independent variable [IV] and (dependent variable [DV])?"* The IV is thought to influence or be related to the dependent or outcome variable. In this study, the IV is the cookie type. DVs are the outcome variables being measured. In this study, the DVs are overall preference, texture (moistness), and flavor ratings.
Significance level	Significance level is the cutoff for deciding whether or not an observed relationship is due to chance or if, instead, there really is a relationship between the IV and DV. A 5% significance level indicates that relationships with less than a 5% probability of being observed strictly due to chance will be deemed statistically significant.
Wilcoxon Signed Ranks Test	Nonparametric statistical method that can be used to compare two paired groups, based on the relative ranking of differences in the paired values between the groups.

comprehensive literature search, write a research proposal, obtain institutional review board approval to conduct the study, implement the study, collect and analyze data, interpret the results, and disseminate the study findings. Following completion of the GACE, Nursing Grand Rounds was held to present the study findings and to use the GACE to educate the nursing staff who served as research participants in the study. The GACE was an effective strategy to both engage nurses in actual research and to educate the general nursing staff about the research process. This article presents the results of the GACE conducted at Texas Children's Hospital. To enhance learning, important research concepts are italicized in the text as they apply to the GACE, with corresponding teaching points presented in Table 1.

Conceptual Framework

A blended version of Benner's model of novice-to-expert and Wright's conceptual framework for teaching research in nursing was used as the conceptual framework for this study (Benner, 1984; Wright, 2005). Figure 1 depicts the blended conceptual model used in this study. According to Benner, as nurses gain experience, they become more proficient and confident in their professional role and nursing practice. For example, a new graduate nurse or novice researcher is dependent on colleagues and mentors for consultation and supervision in the research process whereas a more experienced nurse researcher may feel confident in assuming a more independent role in research and evidence-based practice. As a novice, the new graduate nurse or novice researcher may identify potential areas of research related to clinical practice while a more experienced nurse researcher may be expected to write and implement a clinical research study or seek grant funding. Wright (2005) proposes four pillars for teaching research in nursing: theoretical knowledge of research; scientific writing; psychological support; and, experiential learning. Much like Benner, Wright's model proposes a developmental continuum in which nurses' progress from being knowledgeable "consumers" of research to "doers" of research. In the first pillar, theoretical knowledge, nurses are taught the theoretical basis and steps of the research process. In the second pillar, scientific writing, the nurse is guided through the process of writing the