Understanding and Promoting Safer Sex Behavior: The Power of Story, Technology & Other Observations

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In the beginning........

• Zoology BS with a passion for research but no focus, discovers nursing at Rush University *

• Formative nursing clinical experiences:
  1980  Coaching a 14 year old through a second labor and delivery
  1981  Pregnancy and STI prevention teaching on an adolescent “med-surg” unit

* Funded by Rush-Pres St. Luke’s Hospital, 1980-81
Lessons from a First Year of Practice

- How to be a team player – everyone has something to contribute
- Trust your gut
- Joy of being a nurse
- Need for more science to inform practice!
Dissertation Years*  What drives behavior?

Concrete & Valued Outcomes

Memory Structures, Judgment & Decision Making

Self Efficacy (Having a Plan)

Pregnancy Risk Taking & Avoiding Behavior

* Supported by U. of Wisconsin-Madison SON HRSA nurse traineeship (MS); and U. of Wisconsin-Madison SON Florence Blake Fund, Sigma Theta Tau, and Division of Nursing F31-NR05907 (PhD)
Implications & Impact

- Construct accessibility can be measured with a traditional survey item format
- College men and women both concerned about unplanned pregnancy.
- Increasing the salience of pregnancy concerns is not enough
- Role for memory associations and increased construct accessibility in risky sexual behavior....words and their frequency matter!
Post-Dissertation Years*

- Culture, Ethnicity & Health
- Gender
- Immigrant Health & Immigration Related Stressors
- Condom Use
- Sexual Behavior
- Drugs & Alcohol
- HIV risk behavior
- Measurement
- Complex Data Analyses

* U. of Michigan T32; NICHD R026250 & NIDA #DA07675 (K. Ford, PI); TriService Nursing Research N00-024; NINR NR008504 (K. Aroian, PI)
Some Implications & Impact

• Importance of cognitive structures for a prevention plan and skill set to be linked in memory to sexual risk concerns.
• Power of social norms: Norms moderate gender influences on condom use.
• Condom breakage and friction decrease condom use intentions.
• Ethnicity, gender, and social context all matter.
Moving on to Safer Sex Intervention*

*Funded by Boston College
State of Intervention Science: What works?

   - Focus on a particular gender and cultural group
   - Developmental concerns and cultural values drive intervention development

2. Self-efficacy based (Bandura, 2006)
   - Build skills and confidence for a specific skill
   - Provide observational or experiential learning

3. Embraced by stakeholders
Moving to Early Intervention

Transdisciplinary Intervention Development Work*

*UCF College of Nursing and Institute for Simulation & Training
*University of Miami School of Nursing & Health Studies
*NINR (R15NR012189-01; R01NR014851)
Using Technology to Enhance Intervention Power

What can we do with computer technology that is better than what we are able to do now?
Skill building
Skill Building & Digital Puppetry of Avatars:

- Immersive, “hands on” simulation that can “put you in the moment”
- Better quality control – can standardize key aspects of the skill building
- Controlled role play in which level of difficulty can be varied according to individual
- Opportunities for feedback and skill refinement (during and after the simulation)
Live Simulation with Digitally Puppeted Avatars

No mouse or keyboard input required for player to “work” the game.

Avatar verbal and non-verbal behavior controlled via skype at remote location (Wirth, et al. 2011)
Key Ingredients for Success:

• Specific skill target
• Theoretical framework to drive design and evaluation
• Collaborative, transdisciplinary process
• Iterative development
Skill: Peer Resistance

- Resisting pressure or suggestions from friends to do things that put you in a risky situation without jeopardizing friendships or social standing

- AKA: the art of saying no, or avoiding answering the question
Theoretical Framework:

- Communication Competence (Spitzberg & Hecht, 1984)
  - *Keepin’ it REAL* (Hecht & Miller-Day, 2007)
- SCT: Self-efficacy (Bandura, 2006)
- Theory of Fun (Koster, 2004)
- Cognitive Development (Piaget, 1967)
Collaborative Process

**Specialists**
(Feminist, Game Designers, Programmers, Inter-Actors)

**Content Matter Experts**
(11-14 y/o and 17 y/o girls, parents, minister, Planned Parenthood, Afterschool Program staff, public school administrators)

**Lead Scientists**
(nursing, communications, computer science, emerging media)
Iterative Development

.....with Cultural Grounding (Hecht & Krieger, 2006)
What was produced....

- Classroom sessions
- Skill building computer game ("DRAMA-RAMA")
Mighty Girls Intervention

- 6 classroom sessions
- 3 game stories (each with multiple branches to support multiple play over time).
- 2 game play sessions post 6 classroom session series
- “booster” of 2 additional game play sessions 3 months later.
How did we do it?
Formative work (Norris, Aroian, Warren, & Wirth, 2012)

Story and character development using improv techniques

Low tech testing with early adolescent, Latinas

High tech testing (early version) with adult stakeholders

Pre-testing full high tech version

Creating final prototype for feasibility RCT trial
Game Development continues . . .

- Summer camp low tech testing of new stories
- Build of new game for randomized group efficacy trial
Classroom Sessions

- Parent focus groups and observations from child care
- Review by middle school & OCPS sex education experts
- Roxana Delcampo Thalasinos parent perspective revision
- Feasibility trial of 5 session program
Classroom Sessions Development continues

- Dr. Michelle Miller-Day consultation
- Summer camp pre-test of revised sessions
- Workbook creation, enhancing interactivity, & efficacy trial training observations
- Efficacy trial of 6 session program
What have we learned so far?

- Possible to disrupt progression to heavy petting (HP). HP in 11-14 y/o girls increases their risk for initiating intercourse before grade 10 (ages 15-16); Norris, Hughes, Hecht, Peragallo, & Nickerson, 2013).

• Possible to use our game data to increase game AI. Main barrier to full AI is current state of the science for voice recognition software.

• Girls are talking about study activities with family and friends (“social proliferation effect”)
  • Elaborating, creating new stories?
  • Infecting others with behavior change?
What to do while we wait for artificial intelligence to improve?
The Plan

• TRAINING: “Inter-actor camp” for Girl Scout leaders, School Nurses, Teachers, Guidance Counselors.

• INCREASING GAME ARTIFICIAL INTELLIGENCE (AI): Reduce delivery burden for non-professional inter-actors

• EXPANDING TARGET AUDIENCE: Stories for other ethnic groups; programing to deliver right game version to right player in multi-ethnic communities)
New Insights from Intervention Science on the Power of Story

Narrative Engagement Theory (Miller-Day & Hecht, 2013)

The power of engaging participants thru narrative to build a personalized story containing the intervention message is a power that drives behavior change.
Exploring the power of story…

• How does the level of engagement in creating your story (i.e., playing DRAMA-RAMA) mediate intervention outcomes?

• How does sharing a story about the intervention improve outcomes?
  • Does it matter who you share it with?
  • Does it matter what you share?
Insights from Neuroscience:

Fun….

• Dopamine release:
  • Wanting to be involved in learning activity (Hamid, et al, 2016)
  • Retention (Gasberi, et al, 1993)

• Incompatible with stress:
  • Higher levels of cognition, connections get made, more “aha” moments (O'Reilly, 2006).
Implications

• Making things fun is important!
• Let’s give our patients something to talk about!
• Good news about old teaching strategies
  • “Return demonstration” of a skill we teach our patients or families is effective because it creates an opportunity for story
  • Experiential learning strategies (in real or virtual worlds) matter
Closing Observations

• Personal stories are only powerful *IF* they contain an intervention message about what to do.

• Embrace disagreement and challenge:
  • Everyone has something to contribute
  • Good science takes a team of scientists *and* non-scientists

• Fun is a powerful tool in a nurse scientist, or nurse clinician toolkit…. It’s *not* just for children!

• Don’t forget the context surrounding nursing care
References:


