WELCOME!

PLEASE GET AN ANSWER SHEET AND A PEN BEFORE WE START. THANK YOU.
WHY DID YOU CHOOSE TO ATTEND THIS EVENT?

POLL EVERYWHERE:

1. Go to PollEv.com
2. Enter SANDYNARCISO876

1. Text SANDYNARCISO876 to 37607
2. Text in your message

https://PollEv.com/free_text_polls/L3Zyo6Y3vqr1WpJPzNlfx/respond
LEARNING
CLINICAL SKILLS AND
REASONING DOES NOT NEED
TO BE A BORE:
GAMIFICATION
IN PA EDUCATION

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DIRECTOR OF DIDACTIC EDUCATION

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ADJUNCT INSTRUCTOR
DISCLOSURES

We have no known potential conflicts of interest or financial disclosure in relations to this program/presentation.
• Recognize the importance of incorporating kinesthetic learning through gamification into PA curriculum with the focus on clinical reasoning, skills, and procedures.
• Discuss how participation in kinesthetic/gamification learning can improve understanding, retention, communication, and overall confidence within PA students.
• Formulate unique learning methods or techniques that best suits everyone's learning style.
• **HAVE FUN!** We will be asking for audience participation!
AGENDA

1. Discuss the foundation of kinesthetic/gamification learning
2. How PA programs and students can integrate it into their own PA curriculum
3. Display how SHU incorporated this into their PA curriculum as a fun event
4. Review data from pre- & post- surveys collected from SHU students during the event
5. Live demonstration (with audience participation)
6. Conclusions/take aways
WHAT IS KINESTHETIC LEARNING?

POLL EVERYWHERE:

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Total Result

Powered by Poll Everywhere
Definition of kinesthetic learning: a learning style in which learning takes place by the student carrying out a physical activity, rather than listening to a lecture or merely watching a demonstration.

- Also known as "tactile," "hands-on," or "physical" learning.
- Examples:
  - Hands-on simulation
  - Role playing exercises

Definition of gamification: strategic attempt to enhance systems, services, organizations, and activities by creating similar experiences to those experienced when playing games in order to motivate and engage users.
PROS VS CONS OF KINESTHETIC LEARNING

• Benefits of kinesthetic learning
  • Increase information retention
  • Improve muscle memory
  • More engaged participation
  • Improves problem-solving skills
  • Refines risk assessment
  • Improves autonomy and self-confidence
  • Strengthens working relationships

• Cons of kinesthetic learning
  • Time consuming
  • Financial availability
  • Resources (material & staffing)
  • Student incentives/motivation
HOW CAN THIS BE INCORPORATED INTO PA CURRICULUM?

- Patient Assessment
- Anatomy
- Clinical Skills
- Diagnostic studies
- Medicine based classes
- Pharmacology
- And many more!
SHU OLYMPICS BASIC INFORMATION

- SHU IRB approval (IRB#230216A - Exempt Status)
- Conducted with the 2nd semester didactic year students
- Completion of Pre-survey
- Introduction
  - Create team names and team captain
  - Teams of 5 students with a total of 8 teams
  - There were 8 stations: 5 minutes each with 2-minute transition time
- Events
  - Scavenger hunts, building a tower with wooden blocks, MCQs, skills, & patient education (OSCE)
- Debrief
  - Reviewed each station and the answers
- Award ceremony
- Completion of Post-survey
SHU OLYMPICS ASSESSING:
PANCE MEDICAL CONTENT CATEGORIES

- Cardiovascular
- Pulmonology
- Dermatology
- Renal/Nephrology
- Endocrinology
- ENT
- GI/Nutrition
- GU
- Hematologic System
- Infectious Diseases
- MSK
- Neurology
- Psychiatry/Behavioral
- Reproductive
SHU OLYMPICS ASSESSING: PANCE TASK AREAS

- History Taking and Performing Physical Examination
- Using Diagnostic and Laboratory Studies
- Formulating Most Likely Diagnosis
- Managing Patients
  - Health Maintenance, Patient Education, & Preventative Measures
  - Clinical Intervention
  - Pharmaceutical Therapeutics
- Applying Basic Scientific Concepts
SHU PRE AND POST SURVEY

Pre Survey: Gamification in Medical Education

Recipients can scan the code on a phone or tablet to access the form.

Download

Post Survey: Gamification in Medical Education

Recipients can scan the code on a phone or tablet to access the form.

Download
SHU PRE AND POST SURVEY DATA RESULTS

- Statistically significance results post survey:
  - I prefer to work in groups rather than solo when learning new materials.
  - Competition drives performance in a curriculum based in the gamified curriculum model.
  - Defining engagement as the level of meaningful involvement in activity, how engaged are you by a curriculum based on traditional didactic lectures?
### SHU Survey Results

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>Pre_Post</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
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</thead>
<tbody>
<tr>
<td>I prefer to work in groups rather than solo when learning new materials.</td>
<td>Pre_survey</td>
<td>40</td>
<td>3.08</td>
<td>1.228</td>
<td>.194</td>
</tr>
<tr>
<td></td>
<td>Post_survey</td>
<td>36</td>
<td>3.64</td>
<td>1.018</td>
<td>.170</td>
</tr>
<tr>
<td>Defining motivation as your desire or willingness to participate in an activity, how motivated are you to learn by a curriculum based on traditional didactic lectures?</td>
<td>Pre_survey</td>
<td>40</td>
<td>4.03</td>
<td>1.000</td>
<td>.158</td>
</tr>
<tr>
<td></td>
<td>Post_survey</td>
<td>36</td>
<td>4.11</td>
<td>.919</td>
<td>.153</td>
</tr>
<tr>
<td>Defining engagement as the level of meaningful involvement in an activity, how engaged are you by a curriculum based on traditional didactic lectures?</td>
<td>Pre_survey</td>
<td>40</td>
<td>3.85</td>
<td>1.001</td>
<td>.158</td>
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<tr>
<td></td>
<td>Post_survey</td>
<td>36</td>
<td>4.31</td>
<td>.710</td>
<td>.118</td>
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<tr>
<td>Defining challenge as the capacity of an activity to test your abilities, how challenged are you by a curriculum based on traditional didactic lectures?</td>
<td>Pre_survey</td>
<td>40</td>
<td>4.25</td>
<td>.670</td>
<td>.106</td>
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<td>Post_survey</td>
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<td>4.22</td>
<td>.681</td>
<td>.113</td>
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<tr>
<td>Competition drives performance in a curriculum based on traditional didactic lectures.</td>
<td>Pre_survey</td>
<td>40</td>
<td>3.03</td>
<td>1.387</td>
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<tr>
<td></td>
<td>Post_survey</td>
<td>36</td>
<td>3.83</td>
<td>1.000</td>
<td>.167</td>
</tr>
<tr>
<td>I prefer interactive learning (ex. questions or games) rather than traditional methods (ex. reading text or watching videos or lectures)</td>
<td>Pre_survey</td>
<td>40</td>
<td>4.03</td>
<td>.891</td>
<td>.141</td>
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<tr>
<td></td>
<td>Post_survey</td>
<td>36</td>
<td>4.06</td>
<td>.893</td>
<td>.149</td>
</tr>
<tr>
<td>Currently my stress level is elevated (more than my usual baseline).</td>
<td>Pre_survey</td>
<td>40</td>
<td>4.10</td>
<td>1.057</td>
<td>.167</td>
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<tr>
<td></td>
<td>Post_survey</td>
<td>36</td>
<td>3.69</td>
<td>.951</td>
<td>.158</td>
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<tr>
<td>I am excited for today's activity.</td>
<td>Pre_survey</td>
<td>40</td>
<td>3.93</td>
<td>.917</td>
<td>.145</td>
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<td></td>
<td>Post_survey</td>
<td>36</td>
<td>4.22</td>
<td>.832</td>
<td>.139</td>
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</tbody>
</table>
### SHU SURVEY RESULTS

<table>
<thead>
<tr>
<th>Preference</th>
<th>Independent Samples Test</th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F  Sig.</td>
<td>t</td>
<td>df</td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>I prefer to work in groups rather than solo when learning new materials.</td>
<td>Equal variances assumed</td>
<td>1.038</td>
<td>.311</td>
<td>-2.185</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defining motivation as your desire or willingness to participate in an activity, how motivated are you to learn by a curriculum based on traditional didactic lectures?</td>
<td>Equal variances assumed</td>
<td>.346</td>
<td>.558</td>
<td>-3.89</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defining engagement as the level of meaningful involvement in an activity, how engaged are you by a curriculum based on traditional didactic lectures?</td>
<td>Equal variances assumed</td>
<td>.677</td>
<td>.413</td>
<td>-2.263</td>
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<tr>
<td></td>
<td>Equal variances not assumed</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Defining challenge as the capacity of an activity to test your abilities, how challenged are you by a curriculum based on traditional didactic lectures?</td>
<td>Equal variances assumed</td>
<td>.000</td>
<td>.991</td>
<td>.179</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competition drives performance in a curriculum based on traditional didactic lectures.</td>
<td>Equal variances assumed</td>
<td>6.020</td>
<td>.016</td>
<td>-2.888</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I prefer interactive learning (e.g. questions or games) rather than traditional methods (e.g. reading text or watching videos or lectures)</td>
<td>Equal variances assumed</td>
<td>.090</td>
<td>.763</td>
<td>-1.49</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently my stress level is elevated (more than my usual baseline).</td>
<td>Equal variances assumed</td>
<td>.063</td>
<td>.803</td>
<td>1.751</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am excited for today’s activity.</td>
<td>Equal variances assumed</td>
<td>.153</td>
<td>.696</td>
<td>-1.474</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. This type of gamification should be continued and in the future with more activities

- Strongly agree (24%)
- Agree (60%)
- Neutral (11%)
- Disagree (0%)
- Strongly disagree (5%)

14. The gamified curriculum covered was fair and covered a wide range of area topics

- Strongly agree (33%)
- Agree (62%)
- Neutral (5%)
- Disagree (0%)
- Strongly disagree (0%)

16. This form of gamification was less stressful compared to the traditional didactic learning (ex. exams, multiple-choice questions, or essays)

- Strongly agree (24%)
- Agree (57%)
- Neutral (11%)
- Disagree (3%)
- Strongly disagree (5%)

17. This particular gamification event was well structured, organized, and administered.

- Strongly agree (43%)
- Agree (51%)
- Neutral (3%)
- Disagree (0%)
- Strongly disagree (3%)

19. I am excited for future activities like today

- Strongly agree (38%)
- Agree (49%)
- Neutral (8%)
- Disagree (0%)
- Strongly disagree (5%)
SHU PRE AND POST SURVEY DATA RESULTS

- Currently my stress level is elevated (more than my usual baseline)
  - Not statistically significant but an improvement
What is the first words that come to mind when describing your feelings about integrating games into PA education?

<table>
<thead>
<tr>
<th>Pre-Survey</th>
<th>Post-Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 respondents (25%) answered Fun for this question.</td>
<td>13 respondents (38%) answered fun for this question.</td>
</tr>
<tr>
<td>stressful bc</td>
<td>bonding experience</td>
</tr>
<tr>
<td>Silly goofy</td>
<td>Awesome</td>
</tr>
<tr>
<td>good way</td>
<td>Fun way</td>
</tr>
<tr>
<td>Good change</td>
<td>nice way</td>
</tr>
<tr>
<td>New way</td>
<td>Engaging</td>
</tr>
<tr>
<td>good and funny</td>
<td>fun and helpful</td>
</tr>
<tr>
<td>vapid and unhelpful</td>
<td>Fun and interactive</td>
</tr>
<tr>
<td>Good if educational</td>
<td>Fine</td>
</tr>
<tr>
<td>interested</td>
<td>Fun and uplifting</td>
</tr>
<tr>
<td>fun way</td>
<td>Interesting</td>
</tr>
<tr>
<td>Likely vapid</td>
<td></td>
</tr>
<tr>
<td>fun and teamwork</td>
<td></td>
</tr>
<tr>
<td>PA school</td>
<td></td>
</tr>
<tr>
<td>fan I have other things</td>
<td></td>
</tr>
</tbody>
</table>
SHU PRE AND POST SURVEY DATA RESULTS

• Common themes based on the comments:

  enjoyable  uplifting
  bonding  fun  engaging
  exciting  much-needed  change
  eventful  interesting
  stress-relieving
  nice  interactive
  helpful
Currently there is no data regarding gamification curriculum and PANCE results.

Questions from SHU Olympics were based on areas of opportunity of prior cohort (PACKRAT)
  - Future goals is to compare with PACKRAT scores once taken.

This type of gamification has been conducted in EM residency program, "Gamification of graduate medical education in an emergency medicine residency program" by Shayne Gue et al.
  - Implemented East EMWars, a yearlong, longitudinal game.
  - Participants were given nonparametric testing for quantitative data with paired pre- and post-intervention responses.
  - Results: An increase in motivation and engagement but needs further research to determine if there is a correlation in examination scores.
DEMONSTRATION
AAPA GAMIFICATION PRE SURVEY
NOW IT IS YOUR TURN TO TRY IT OUT.

WE NEED 2 TEAMS OF 5

PREFERABLY CLINICAL & DIDACTIC YEAR PA STUDENTS IN EACH GROUP
DEMONSTRATION INSTRUCTIONS

• **2 Teams of 5** with didactic and clinical year students
• There will be **5 rounds, each round varies in time**
• Each team will be competing the round **at the same time** in a variety of different content areas
• Teams captain will write down their answers on the answer sheet
• **Audience members** can also **participate by cheering** on the teams OR **answer the questions themselves** which available by QR code
• The team that earns the most point **WINS!**
ROUND 1
ROUND 2
ROUND 3
ROUND 4
ROUND 5
Thank you for participating!

Please give us 2 minutes to tabulate scores

In the interim, please complete the Post Survey
WINNING TEAM IS:
Applying gamification-based education into the PA curriculum is a fun way for students to continue learning outside of the tradition didactic education style.

Students can utilize their knowledge and skills in a team-based environment driven by competition and accuracy.

Gamification based learning can be implemented throughout the PA curriculum.

PA curriculum can be FUN and ENJOYABLE!
ACKNOWLEDGEMENT

Thank you to Dr. Eric Nemec for his continued support and data analysis of this project!

Thank you to the SHU MSPAS Class of 2024 students for their participation and continued dedication to being life-long learners!
REFERENCES


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