

# EYP/® minutes

To: Attendees  
Project Name: Bull Run Hall Addition  
Project No.: 1019004.01  
Date of meeting: May 21, 2019  
Time of meeting: 1:00-2:00  
Location of meeting: Sci Tech, IABR, Conf Rm 1004  
Meeting Number: 1.7

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Meeting Purpose: Human Performance/Physiology/Motion Capture

- Attendees: George Mason University:
- Shane Caswell, SMART Lab/ATEP/CEHD
  - Debra Stroiney, Kinesology
  - Ben Allen, IST
  - Sang Nam, CVPA/Game Design
  - James Casey, CVPA/Game Design
  - Crystal Clemons, ITS
  - Nelson Cortes, SMART lab/CEHD
  - Laura Manno, Provost/Planning
  - Colby Grant, Sci Tech Admin
  - Laura Manno, Provost/Planning
  - Debbie Brady, Facilities
  - Virginia Steele, Facilities
  - Joy Staulcup, Facilities

EYP:

- Melissa Burns, Academic Planner
- Brian Tucker, Lab Planner
- Rebecca Ross, Planner/Architect
- Suzanne Klein, Project Director

Minutes: **General Comments:**  
The group met on George Mason University's SciTech campus to discuss functional space needs for Bull Run Hall Addition and Academic VIII Buildings. This meeting focused on needs specifically related to Human Performance, Physiology and Motion Capture.

1. **Introductions:** Laura Mano provided an introduction of the design team EYP which was followed by introductions of all participants.
2. **Project Overview:** Laura explained that the Sci Tech campus will be a standalone campus and GMU is committing resources to make that happen. The first step is Bull Run Hall Addition followed by a 200,000gsf building, Academic VIII, listed as the number one priority to request capital funds. She asked the group to identify functional space needs to refine the program for the Bull Run Hall Addition and identify new needs for the expansion into Academic VIII.

Brian and Melissa lead a programming exercise to list and describe each functional space type

related to Human Performance, Physiology and Motion Capture.

Bioengineering was not at this programming session but should be represented in future discussions.

### 3. Athletic Training and SMART Lab:

- Shane explained that the athletic training and exercise fitness graduate program for master's and PhD will soon be joined with Kinesiology.
- Currently the SMART Lab is housed in space adjacent to SciTech Campus.
  - Study Injury Prevention, Risk Reduction, and Human Performance
  - Understanding the factors that cause injury
  - For all individuals across the life span that suffer injury through physical activity
  - Multi-disciplinary perspectives
  - Diverse faculty interests in:
    - Osteo Arthritis
    - Dancers and Performance Artists
    - Strength and Conditioning
    - Children Head Injuries
- Currently 25-30 Masters level students and 14 PhD level students
- Various set-ups for education or individual projects that need to stay for a period of time.
- Large space with high ceilings for throwing equipment
- Force Plates
  - Acoustic Separation
  - Sensitive to movement and vibration
- Outside visitors to the lab, community focused.
  - Ground floor or easy elevator access
  - Visitors often have ambulatory or movement issues
- Motion Capture: Nelson Cortes is the end user for motion capture.
  - Need specific marker placements for biomechanical data.
  - Modeling software and set up will be different from game design.
  - One large space; sectioned off for different labs.
  - Current space is 3,000-4,000 sf across the street.
  - Cameras and force plates are centered in the space.
  - 16 force plates can be accommodated, but only have 5 currently.
  - Dark Space with minimum natural light. Use Blackout Shades.
- Teaching:
  - Biomechanics labs teach students how to use motion capture cameras, set up subjects, capture data and how to use the equipment.
  - Potential for one set up for a longer period of time. One-month Max.
  - 10 Labs per semester for one section.
  - Labs take time to setup. TA sets up lab at least one hour before students arrive.
  - 1 credit hour lab (x2 classes).
- Examples:
  - High Point University: Instructional Space
  - Basketball, Turf spaces, Baseball, etc.

- Towson and University of Maryland have programs with close to 1000 majors.

#### 4. **Kinesiology:**

- Debra explained that their curriculum for Undergraduate teaching is introducing one credit hour labs like the sciences (Lecture then Lab).
- Biomechanics course will require a lab activity.
- Human Performance / Exercise Physiology Lab
  - Strength and Conditioning Equipment; weigh lifting platform and rack of weights
  - Metabolic Carts
  - Bod Pod (fixed) with privacy curtain
  - Endurance Training; Treadmills and Stationary Bikes
  - Access to nearby wet lab for muscle tissue and blood analysis, etc.
  - Lab size: 15 students
- Instructional Space Needs
  - Big open space
  - Teaching someone how to teach group fitness
  - Small equipment: Physio balls, dumbbells, etc.
  - Adjacent space to the Human Performance Lab
  - Flooring appropriate for jumping / Antimicrobial flooring (rubber flooring)
  - Consider noise from jumping, dropping weights etc. Second floor not ideal.
  - Functional, mobile tables
- Storage for equipment
- Do not need Hydrostatic tanks, Cold or Hot tubs.

#### 5. **General Needs for CEHD:**

- Access to water and ice is important. Currently go to Randall for this.
- Access to laundry facilities and a dishwasher.
- CEHD is in rented space across the street. Students do not have transportation from campus to these resources. Priority is to move CEHD student resources on campus.
  - ITS believes that the off-site location is unreliable from a wireless standpoint.

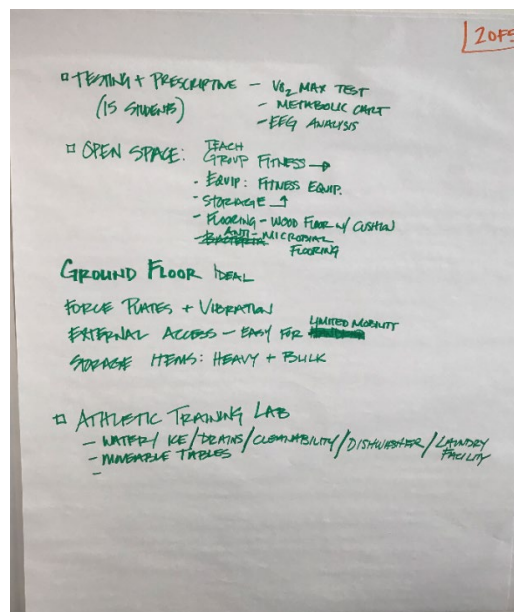
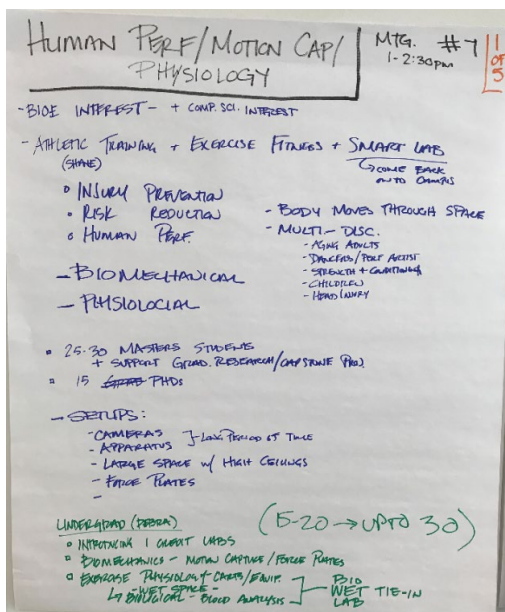
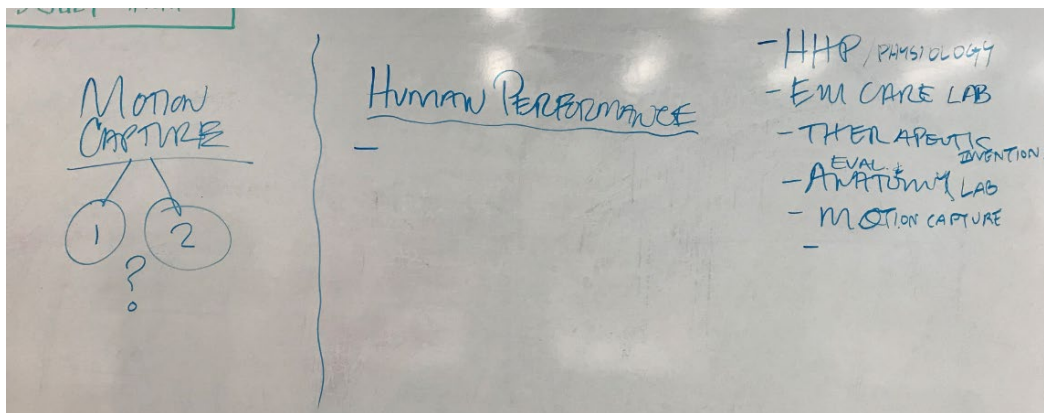
#### 6. **Game Design:** Sang and James explained their use of Motion Capture.

- Motion Capture Lab
  - on the Fairfax campus: Black Box space, large open floor with cameras installed.
  - Students use the motion capture to develop content for a game.
  - One or two students in the motion capture at one time.
  - Cameras in a fixed position.
  - Rail System on walls
  - Large space is nice, but it can happen in a smaller space (20' x 20').
- The college currently has 350 students and is expected to have 400 students soon.
  - All student expected to take a Motion Capture course.
  - 25-30 Students per class
  - In the class they learn how to use the equipment and how to digitize the data.
- Instructional Computer Lab
  - Part of the Motion Capture class is completed in an instructional computer lab to learn how to manipulate/digitize the data.

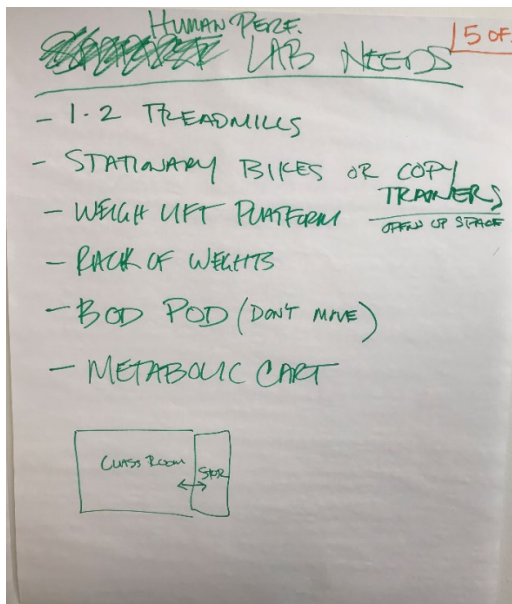
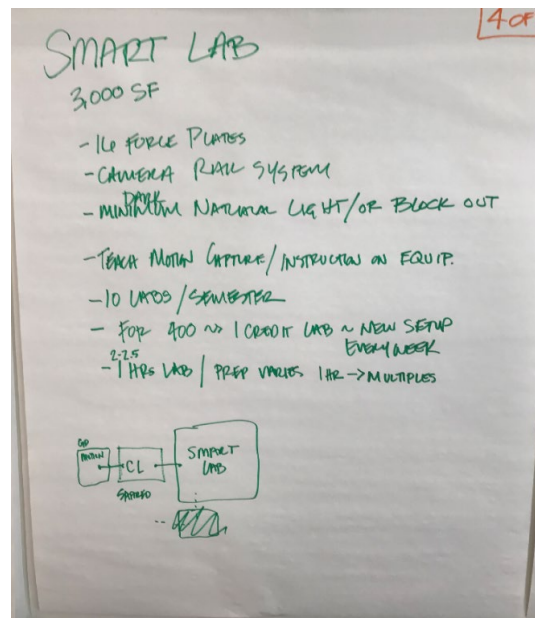
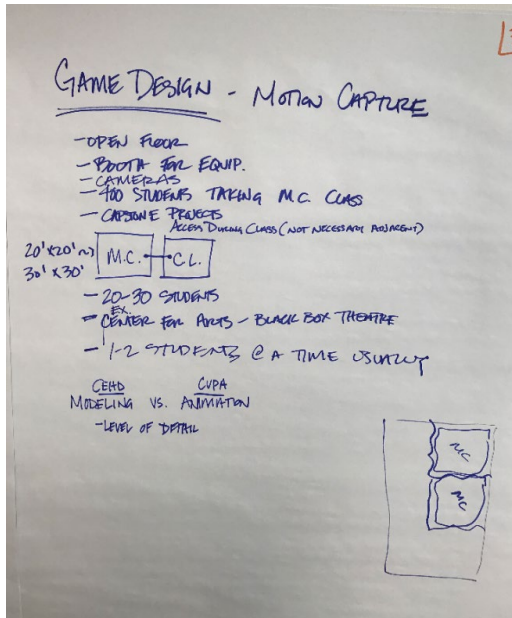
- Concurrent access to the computer lab and the motion capture lab. (Flexibility to go back and forth between the two.)

7. **Motion Capture Summary:** CEHD and Game Design use motion capture differently.

- Cameras are a commonality, but the uses are very different.
  - There could be a manager for shared tech support.
- Co-location with resources for instructional spaces to process data.
- Game animations vs. biomechanics
  - Use different software
  - Level of precision is different
  - Sound not an issue with Game Design.
  - Sound can be distracting with data collection for CEHD.



# EYP/ minutes



**End of Meeting**

The above constitutes my understanding of the items discussed and the decisions reached. If there are any additions or corrections, please, contact the undersigned.

Signed: Suzanne Klein

Cc: Attendees

Date: May 25, 2019