Protocol title: Modeling Information Diffusion in Academic Settings

The PI and professors as noted above request a Human Research Protection review of the subject protocol described below for approval as Letter of Determination.

Protocol overview and purpose: Academic engagement has been identified as a keystone to general academic success. Yet no quantitative systemic evaluation exists for the effect that individual physical facilities have on academic engagement. We propose to analyze academic engagement as an information network problem and describe a data collection method to systematically record the group network micro-dynamics of face-to-face information exchange within a student population.

Hypothesis: Particular combinations of physical accommodation variables provide catalysts permitting frequent face-to-face interactions to occur.

Protocol: We propose to observe no more than ten (10) areas of informal public interaction on the Drexel University campus with low-resolution time-lapse imaging as a pilot project as part of a larger comprehensive study. No physical procedures, manipulation or intervention will occur during recording, and no interaction will occur with individuals. The data will be collected to preserve the individual privacy of individuals. Digital recording settings will limit the individual face resolution to no larger than a 10x10 pixel image (Figure 1). To ensure recordings occur in public areas, locations will be limited to those areas with no less than (10) ten individuals are present within a (5) five-minute period. Recording durations will range from 10- 90 minutes and will be scheduled periodically throughout the 2014 fall and 2015 winter academic terms. Raw time-lapse imaging data will not be published or shared/distributed to parties outside the research team.

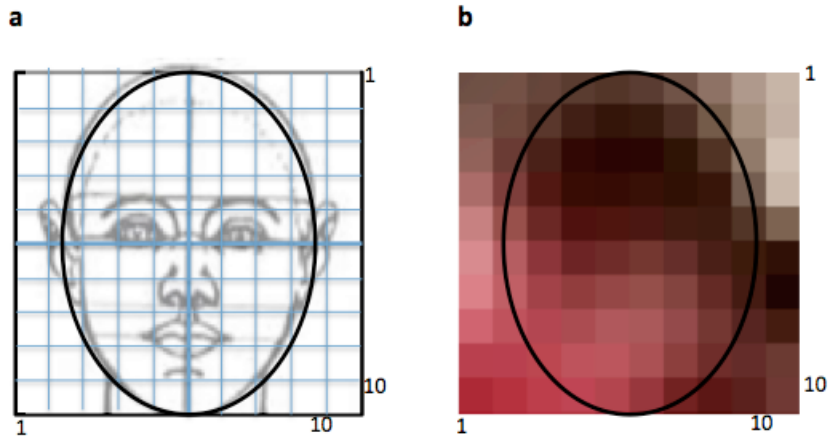

Figure 1 | Individual identification protection. a, 10x10 resolution face model. **b**, 10x10 pixel resolution face image

Data Analysis: Raw imaging from individual areas will be analyzed computationally in aggregate to identify 1.) The number, duration, and frequency of face-to-face interactions, 2. The physical, environmental, and ergonomic characteristics corresponding with high volume information exchange. Data from each area will be statistically compared using multiple regression analyses and non-linear agent-based computational models. The null hypothesis is that no statistical significance can be derived

from the data linking physical environmental characteristics with probabilities of face-to-face information exchange.

1. Investigation site or source of data: Drexel University Libraries, Drexel University Public Exterior spaces.

2. Data collection tools: Refer to Protocol above.