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| **Brain Maturation****Symposium and Discussion Notes*****Terry Jernigan****An integrative Science of the Developing Human Mind and Brain**Behavioral phenotypes are forms of individuality**Risk phenotypes  -**Affective disorders**Psychosis**Substance use**Academic failure* *Why do behavioral phenotypes diverge during development?**-Genetic**Model for emerging behavioral phenotypes in developing child**-Hypothetical domain relevant neural genotype**-Environmental effects of neural apparatus relevant to skill or domain**How do we test and improve such a model?**PING Project**Creating a Pediatric Imaging Genomics Data Resource**Cortical surface area Expansion/Contraction  Annualized**Multimodal imaging of self regulating developing brain**(PNAS, 2012)**Conceptual Model for Translating results to Interventions**Variations in early genetic patterning in brain  may introduce very subtle biases in infant’s sensorimotor processing**Observing Developing Mind**-New relationships with families**From fragmentation to integration in developmental science.**-how to contextualize ?****Erik Newman******Datasets******Aims****- Identify contextual and individual differences****Data harmonization****- find subset of measure when possible**-allows for direct comparison across studies or sub studies****Biological factors****Genetic Ancestry* *-mediates association between ancestry and cortical surface area****Child Mental Health*****L***earning Disabilities**ADHD**Anxiety Disorders**Depression*[*www.dsm5.org*](http://www.dsm5.org)*cross-cutting symptoms:** *Temperament/Personality*
* *Engagement and Motivation*

*ALEKS –**Thresholding –averse/sympathetic preferences**Use data in choice tasks to determine preference based on level**Martial arts (Lakes & Hoyt, 2004)****Big Data Challenges****Finding measures that span your age of interest (longitudinal study)**Finding developmentally appropriate measures**How to collect data that is both useful and brief**Contextual factors* ***Richard Tibbles****Data and the web**Scaling data collections**Scaling time and participants**·      Resource intensive**·      Limits number of participants**·      Limits number of time points**Scaling over time and participants**Gathering behavioral data online**Online surveys**·      straight forward**·      easy**·      stroop effect**·      flanker task**·      posner task**Psycho coffee**·      robust preload**·      experimental measures**·      platform for online behavioral tasks**Educational Technology**·      data collection**o   fine grained time course (master over time)**·      iterative design**o   participatory design with teachers**o   move into classroom when ready**o   leverage individual differences evident in highly dimensional data**o   create iterative designs for personalized learning**Highly multidimensional data on learners****Session Questions and Discusions:******Use of EEG and Neural data in schools?******Educational variables- how do we change the culture?******What can be done to implement educational research in school systems?******What changes will be necessary for educators and scientists?****Problem is with expectation for quick results…. Need support in staffing****What change in avenues to education are needed to integrate relevant big data into pedagogical practice?****- research that is relevant , use models, focus on learning in the university**- start younger with children and “nest” them for MBE principles****What kind of assessments will provide evidence of success****-What is critical?...metrics?....difficult to specify….**-Having educational background before “in-service” begins.  The knowledge will help drive   practices that yield evidence.**-Perception assessments upon educators.* |