Big Data Roundtable Competition

Arlington Public Schools

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Agenda

* **Welcome & Introductions**
  * Linda Erdos
  * Dr. Pat Murphy, Superintendent, APS
* **Opportunity – Employment & Education**
  * Aneesh Chopra
* **Competition – Process & Lessons Learned**
  * Raj Adusumilli
* **Award Presentation**
  * CK12 - Andy Seth
* **Winner - Comments**
* **What Next?**
  * Dr. Murphy

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APS Strategic Plan 2011-17

APS - Focus

* **Challenge All Students**
  - Advanced Courses
  - CTE & Other Programs
* **Personalized Learning**
  - Improved Instruction
  - Matching Students to Programs
  - Results/Data: Advanced Diplomas
* **Career-Focused Instruction**
* **"Early Identification"**

Opportunities

* **Possibilities & Opportunities**
  - Aneesh Chopra

    APS Parent

    Co-Founder & Executive Vice President

    Hunch Analytics

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Competition Details

* **23 Total Participants**
  * Individuals & Independent Groups
  * Enterprises
  * Universities (Harvard, GMU)
  * One International Applicant

* **One Round of Screening**
  * Teams with access or potential access to actual APS data

* **Signed Agreement**
  * To Ensure Data Confidentiality & Accountability

Competition Details

* **Selection Team**
  * Independent Data experts
    * Health Industry
    * Education
    * Technology
* **Superintendent's Advisory Committee Member**

* **Special Thanks to Gary Hensley from EdBacker.com**
  * For his support throughout the process

Lessons Learned - Process

* **Data – Accountability & Privacy Issues**
  - MOU (Drafted by our Legal Counsel)
  - Protection of Student Identities and APS Data
    - State Data
    - APS Data
* **Support for Data**
  - Consistency (as data spans years)
  - Interpretation (Non EDUCATION teams)
* **Binary or Categorical Outcomes to Compare**

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Lessons Learned - Platform

* **A framework to execute the model**

* **Language and MOU**
    * To protect district's interests and accountability of the participants

* **Process to Prepare Data**
    * Protection of Student Identity
    * Encryption and Encoding

* **Secured Platforms to Share Data**

* **Methodology to help make the report comparisons**

Event Sponsor

* **CK-12 Foundation**

  http://www.ck12.org

  - CEO – Neeru Khosla
    * Education Visionary and Global thought leader

  - Andy Set, Senior Implementations and Community Relations Manager

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APS Big Data Challenge Award

Deep Learning Analytics and Affiliates

* **Six-member team**
  - John Kaufhold, Ph.D., *Managing Partner and Data Scientist, Deep Learning Analytics*
  - Aaron Schumacher, *Data Scientist, Booz Allen Hamilton*
  - Diane Murphy, Ph.D., *Chair, IT and Management Science Department, Marymount University*
  - Tommy Shen, *Data Science Consultant, The World Bank*
  - Ajay Deonarine, *SAS Analyst/Modeler/Actuary, AIG, New York*
  - Alec Hubel, *Student, University of California, Berkeley*

Big Data Findings

* Analysis of student data in this study for APS revealed that **Attendance, Behavior** and **Course** performance **(*the ABC's*)** together with **socio-economic status,** are the most predictive indicators.

* **Systemic recommendations** on how APS captures and interprets some of the student performance attributes to allow for more accurate predictive models.

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Big Data Findings *(cont'd.)*

* **Existing school data collection systems (local, State and Federal)** must evolve to better inform school district practices and educational policy decisions.

* **State presented data coupled with District data can give us greater insight** as we have the opportunity to analyze different sets.

* **Raising the level of consistency in the way data are interpreted and captured in the systems** will bring much greater value to the analysis.

Questions?

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