

2024 Oklahoma/Arkansas ACT Summit

February 22, 2024

7:30 AM-4:15 PM CT

🕒 Viewing in Central Time

(Pre-Conference February 21)

Tulsa Technology Center – Owasso

Campus Conference Center

10800 N 137th E Ave.

Owasso, OK 74055

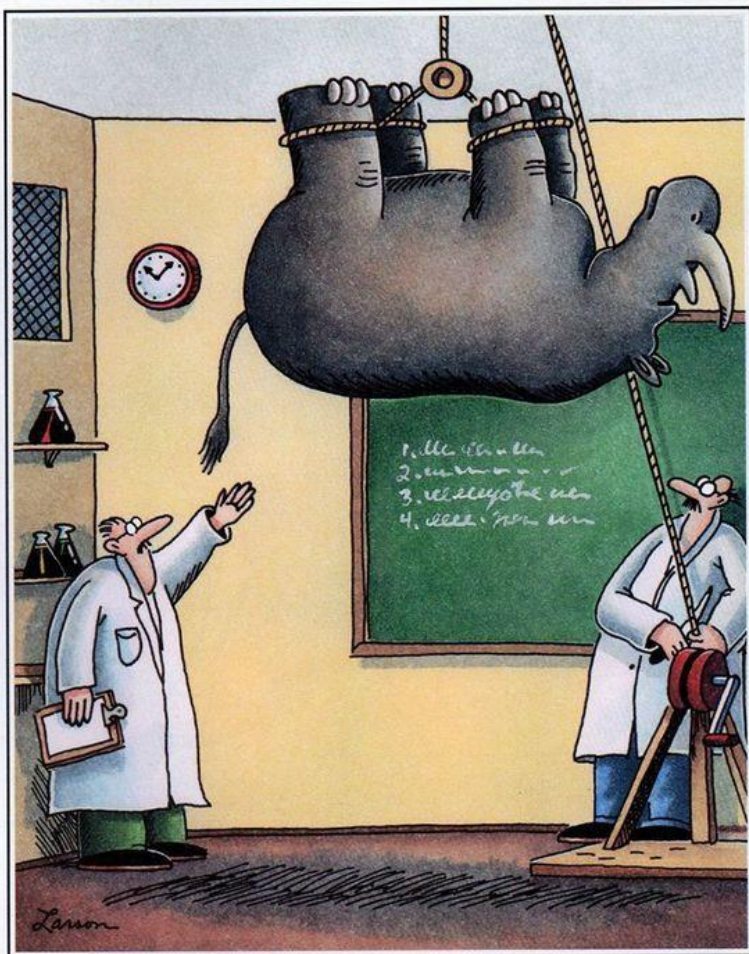
HOW CERTAIN FACTORS PREDICTED ACT SCORES
IN A LARGE ARKANSAS HIGH SCHOOL
– DR. JONATHON GUTHRIE
THURSDAY, FEBRUARY 22, 2024

THE EVOLUTION OF THE STUDY

- THE STUDY WAS INITIALLY GOING TO FOCUS ONLY ON THE EFFECT OF AP COURSES ON ACT SCORES.
- BENTONVILLE SCHOOLS HAS PARTNERED WITH A COMPANY, EQUAL OPPORTUNITY SCHOOLS, TO:
 - INCREASE THE NUMBER OF STUDENTS AT BENTONVILLE WEST HIGH SCHOOL TAKING ADVANCED PLACEMENT COURSES
 - CLOSE THE GAP BETWEEN THE NUMBER OF MINORITY AND NON-MINORITY STUDENTS ENROLLED IN AP COURSES.

THE EVOLUTION OF THE STUDY

- BENTONVILLE WEST HAS ALSO ELIMINATED OR LOWERED THE CRITERIA TO ENROLL IN A PRE-AP OR AP COURSE. MORE STUDENTS ARE TAKING AP CLASSES. ARE THESE ADVANCED CLASSES HELPING STUDENTS IMPROVE THEIR ACT SCORES? MORE SPECIFICALLY, NOW THAT MORE “FRINGE” STUDENTS ARE TAKING AP COURSES, ARE THE COURSES HELPING THEM ON THE ACT EXAM?
- THE ACT IS ARGUABLY THE SINGLE MOST IMPORTANT ASSESSMENT STUDENTS TAKE IN THEIR K-12 YEARS!



Testing whether or not rhinos land on their feet



Testing whether laughter is the best medicine

THE EVOLUTION OF THE STUDY

- AS THE EFFORT TO “LEVEL” STUDENTS FOR LEGITIMATE COMPARISON GREW, THE STUDY GREW. AND GREW. AND GREW.
- THE RESEARCHER DECIDED TO USE 8TH GRADE ASPIRE SCORES TO COMPARE DIFFERENT LEVELS OF STUDENTS USING THEIR READINESS SCORES.
- THROUGH DISCUSSIONS FOLLOWING THE PROPOSAL, THE RESEARCHER ADDED A NUMBER OF INDEPENDENT VARIABLES TO MAKE THE STUDY RICHER.



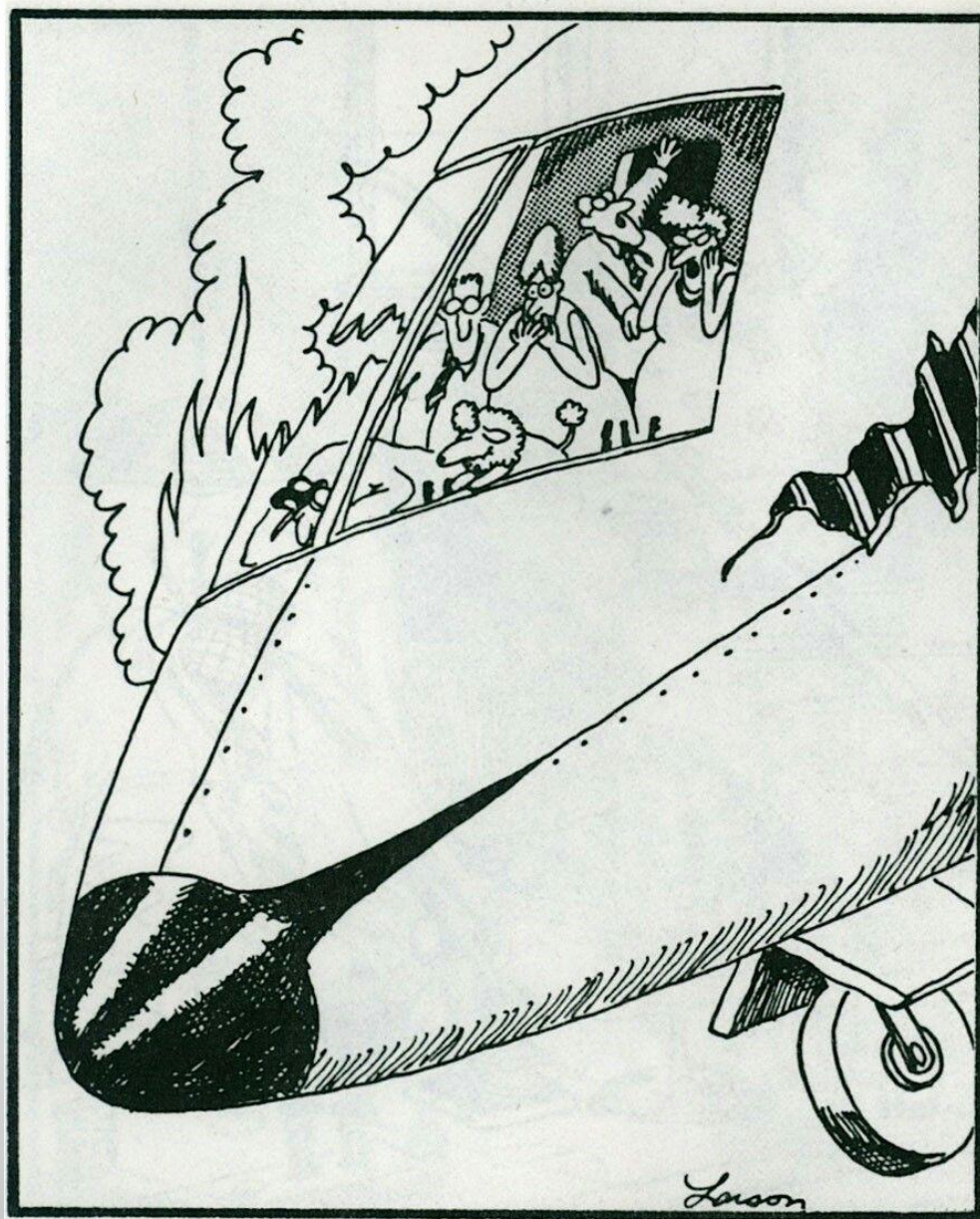
PURPOSE OF THE STUDY

THE PURPOSE OF THIS CORRELATIONAL STUDY WAS TO EXPLORE THE PREDICTIVE RELATIONSHIPS BETWEEN STUDENTS' ACT ASPIRE SCORES, GENDER, SOCIO-ECONOMIC STATUS, ENROLLMENT IN PRE-AP AND AP COURSES AND THEIR ACT SCORES.



RESEARCH QUESTIONS

- RQ1: WHAT IS THE RELATIONSHIP BETWEEN GENDER, SOCIO-ECONOMIC STATUS, ACT ASPIRE SCORES, ACT ASPIRE READINESS SCORES, THE NUMBER OF PRE-AP AND AP COURSES TAKEN BY GRADE 11, AND SECONDARY STUDENTS' ACT SCORES?
- RQ2: FOR LOW-ACHIEVING STUDENTS, WHAT IS THE RELATIONSHIP BETWEEN GENDER, SOCIO-ECONOMIC STATUS, ACT ASPIRE SCORES, ACT ASPIRE READINESS SCORES, THE NUMBER OF PRE-AP AND AP COURSES TAKEN BY GRADE 11, AND SECONDARY STUDENTS' ACT SCORES?
- RQ3: FOR STUDENTS WHO QUALIFY FOR FREE OR REDUCED LUNCH, WHAT IS THE RELATIONSHIP BETWEEN GENDER, SOCIO-ECONOMIC STATUS, ACT ASPIRE SCORES, ACT ASPIRE READINESS SCORES, THE NUMBER OF PRE-AP AND AP COURSES TAKEN BY GRADE 11, AND SECONDARY STUDENTS' ACT SCORES?
- RQ4: WHAT IS THE RELATIONSHIP BETWEEN THE NUMBER OF PRE-AP AND AP COURSES TAKEN BY GRADE 11 AND SECONDARY STUDENTS' ACT SCORES?



Suddenly, amidst all the confusion, Fifi seized the controls and saved the day.

IN OTHER WORDS...

THE RESEARCHER STUDIED WHETHER THESE

INDEPENDENT VARIABLES: # *ADVANCED COURSES,*

GENDER, SES, ASPIRE ENGLISH (+ READINESS), ASPIRE

MATH (+ R), ASPIRE READING (+ R), ASPIRE SCIENCE (+

R), ASPIRE WRITING (+ R), AND COMPOSITE ASPIRE

WERE USEFUL IN PREDICTING THESE 5 DEPENDENT

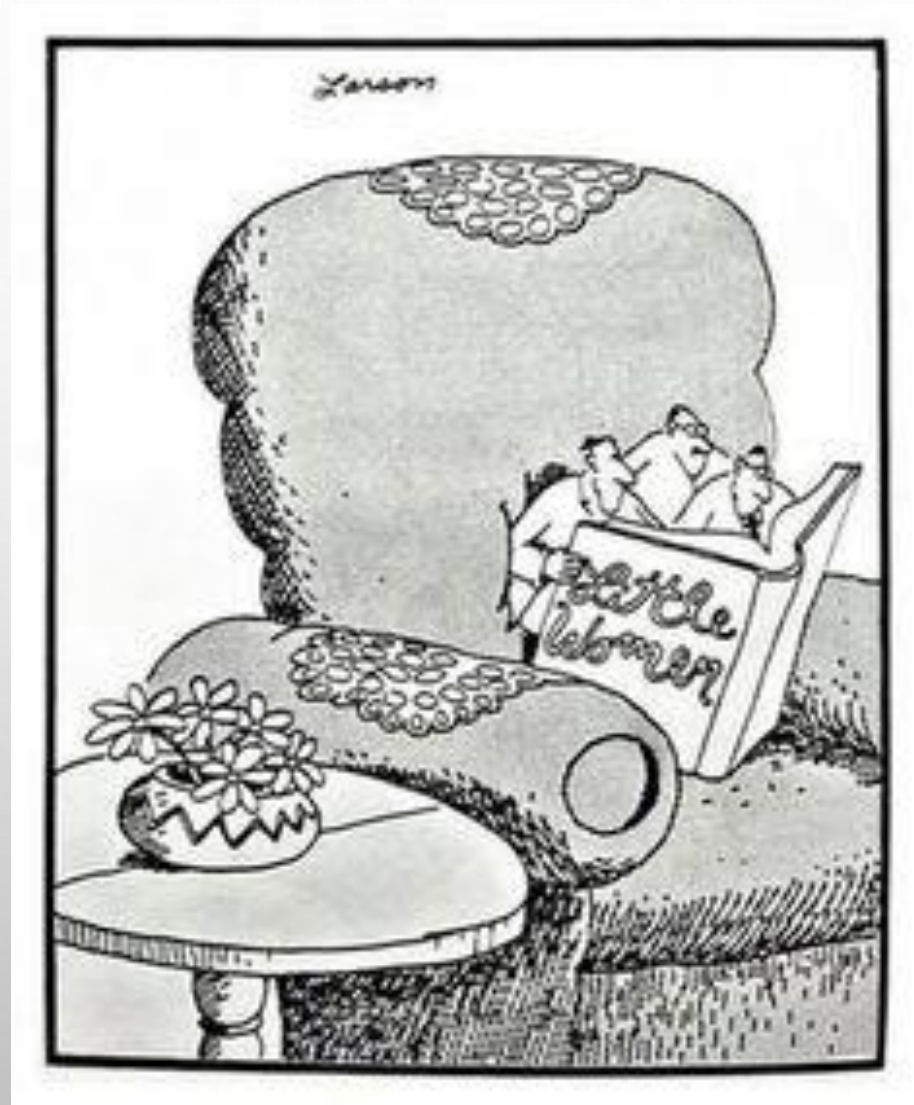
VARIABLES: *ACT MATH, ACT ENGLISH, ACT READING, ACT*

SCIENCE, OR ACT COMPOSITE

WITH SPECIAL ATTENTION TO THREE FOCUS AREAS:

- **LOW ACHIEVING STUDENTS WHO SCORED “NEEDS IMPROVEMENT” OR “CLOSE” ON THE ASPIRE READINESS (“LOW-ACHIEVING STUDENTS”)**
- **STUDENTS WHO QUALIFY FOR F/R LUNCH**
- **NUMBER OF ADVANCED COURSES SELECTED**

REVIEW OF THE LITERATURE



LITERATURE REVIEW: EFFECTS OF ADVANCED COURSES

- **CONNIFEY-MARLIN (2016)** DETERMINED THAT STUDENTS WHO TOOK AP COURSES SCORED HIGHER ON THE ACT THAN THEIR COUNTERPARTS WHO DID NOT TAKE THE ADVANCED CLASSES.
- **MIRON (2008)** FOUND THAT AP TEST SCORE AVERAGES REMAINED THE SAME THE YEAR AFTER THE “FRINGE” STUDENTS WERE ALLOWED IN THE COURSES.
- **COLGREN (2014)** CONCLUDED THAT STUDENTS WHO TOOK AN AP COURSE SCORED HIGHER ON THE ACT THAN THEIR CLASSMATES WHO ENROLLED IN LOWER RIGOR COURSES. INTERESTINGLY, HE FOUND THAT TAKING THE AP COURSES HELPED WHITE AND NON-LOW-INCOME STUDENTS’ ACT SCORES MORE THAN NON-WHITE AND LOW-INCOME STUDENTS.

LITERATURE REVIEW: EFFECTS OF ADVANCED COURSES

- **SANTOLI (2002):** CONCLUDED THAT THERE ARE ALSO NEGATIVE EFFECTS OF A ROBUST AP PROGRAM:
 - TRACKS THE UPPER LEVEL STUDENTS TOGETHER.
 - TRACKS THE LOWER LEVEL STUDENTS TOGETHER; THESE STUDENTS COULD SUFFER ACADEMICALLY.
 - MORE EFFECTIVE TEACHERS ARE OFTEN PLACED IN AP COURSES, ROBBING THE LOWER LEVEL STUDENTS OF THE TOP TEACHERS.

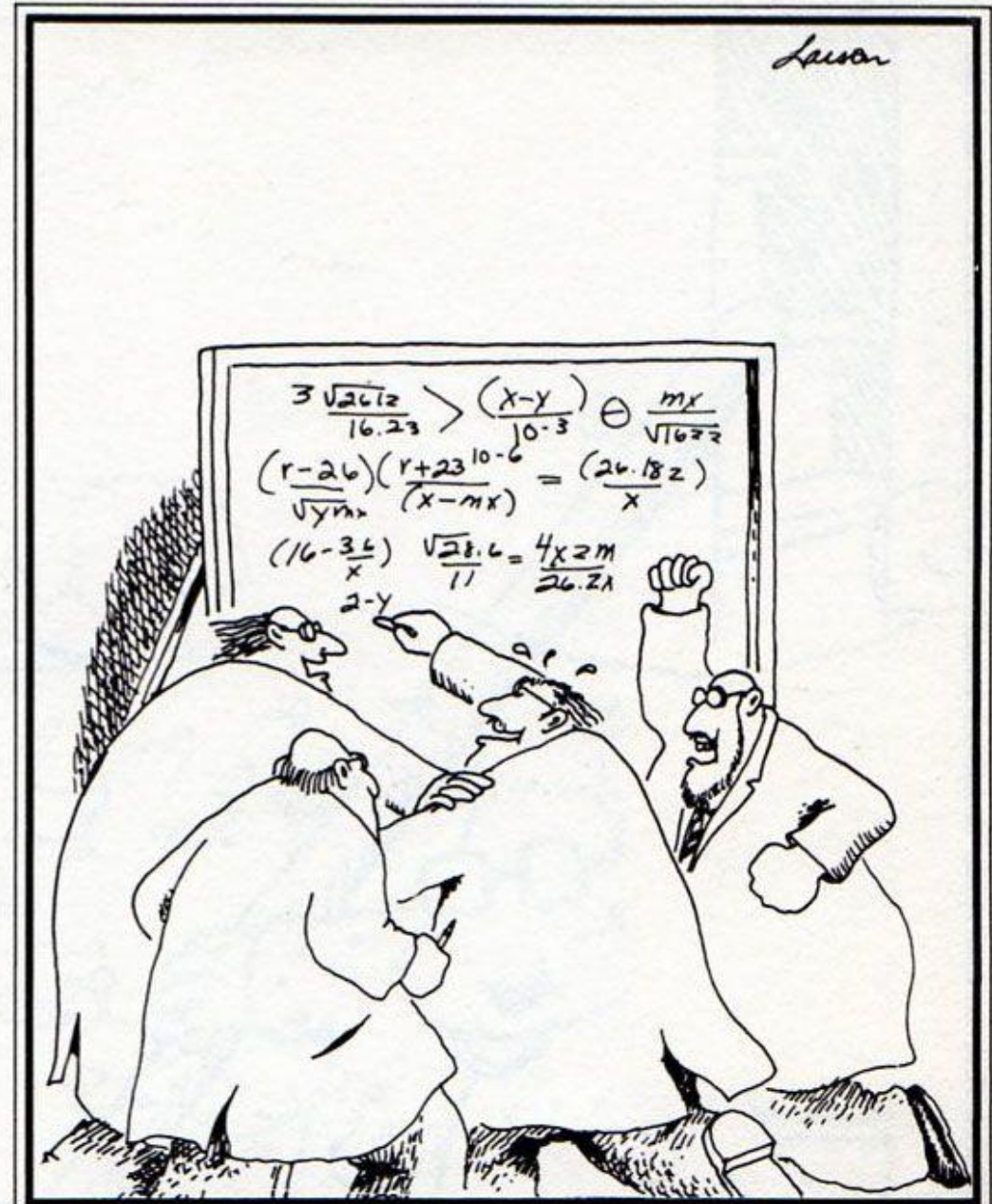
GENDER AND ACT SCORES

THE ARKANSAS ACT SCORE REPORTS FOR 2017, 2018, AND 2019 SHOWED THAT FEMALE STUDENTS CONSISTENTLY OUTPERFORMED THEIR MALE COUNTERPARTS ON ALMOST EVERY AREA THE ACT MEASURES. THE EXCEPTION IS A SLIGHT EDGE FOR MALES IN MATHEMATICS (ACT PROFILE, 2017; ACT PROFILE, 2018; ACT PROFILE, 2019).

SES STATUS AND ACT SCORES

STUDENTS FROM HOUSEHOLDS EARNING LESS THAN \$80,000 PERFORMED AT A LOWER RATE ON THE ACT THAN THOSE EARNING ABOVE \$80,000, AND THE GAP IS INCREASING (MATTERN, RADUNZEL, AND HARMSTON, 2016).

METHODOLOGY



"Go for it, Sidney! You've got it! You've got it! Good hands! Don't choke!"

METHODOLOGY

- **PARTICIPANTS:** STUDENTS FROM THE BWHS CLASS OF 2019
- **DATA COLLECTION:** (FROM THE STUDENTS' PERMANENT RECORDS): GENDER, SES, 8TH GRADE ASPIRE SCORES (INCLUDING READINESS LEVELS), NUMBER OF PRE-AP AND AP COURSES TAKEN BY GRADE 11, ACT COMPOSITE SCORES AND SUBJECT AREA SCORES
- THE DATA WERE ENTERED INTO A SPREADSHEET, THEN SPSS WHERE MULTIPLE STATISTICAL PROCESSES WERE RUN WITH THE DATA.

METHODOLOGY

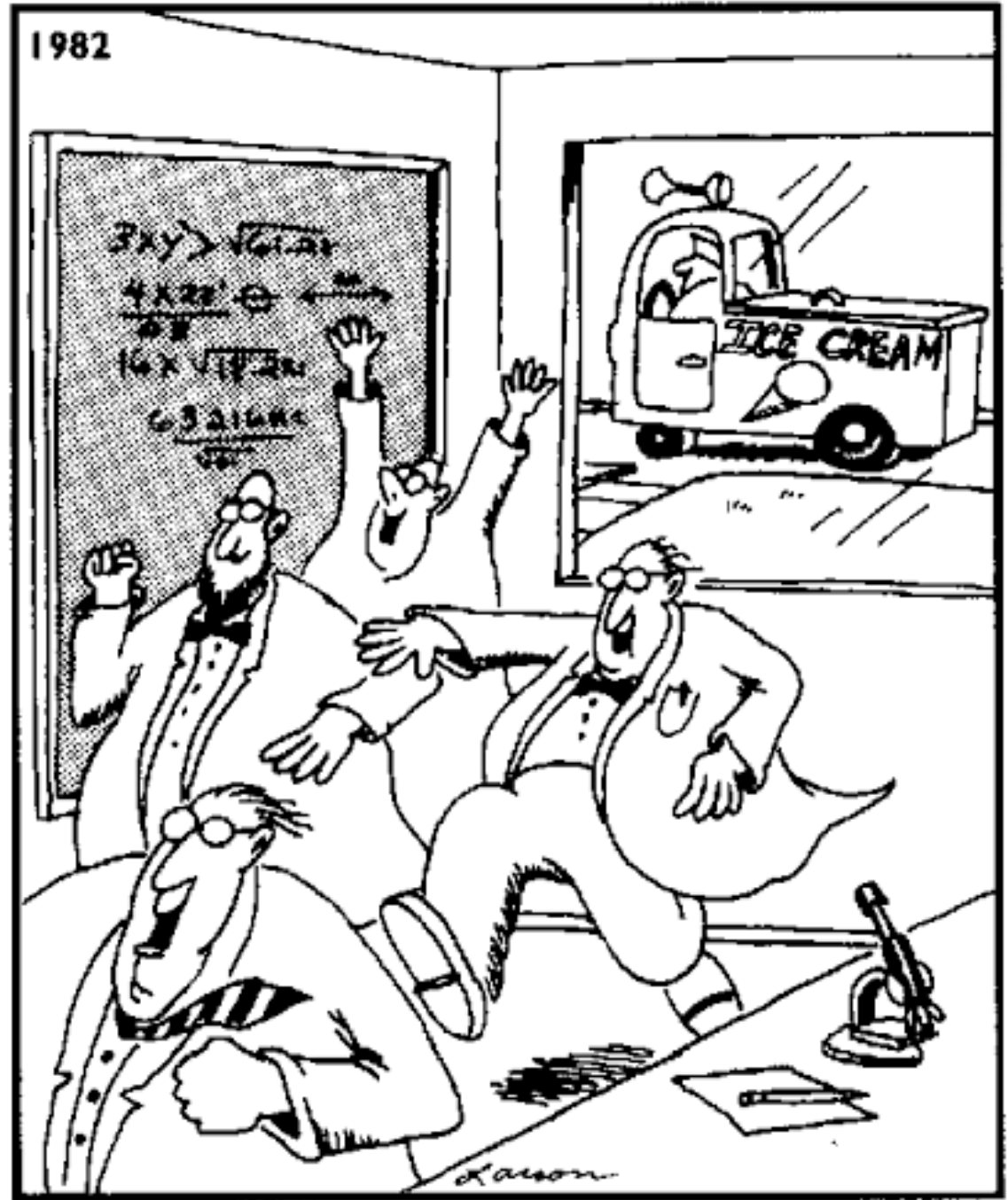
DATA ANALYSIS: STEPS

1. DESCRIPTIVE STATISTICS
2. THE RESEARCHER EMPLOYED AN **MGLH (MULTIVARIATE GENERAL LINEAR HYPOTHESIS)** MODEL VIA SPSS TO DETERMINE IF ANY OF THE INDEPENDENT VARIABLES COULD BE USEFUL IN PREDICTING THE DEPENDENT VARIABLES AT AN ALPHA LEVEL OF $P < .05$.
3. ONCE THE MGLH DETERMINED WHICH INDEPENDENT VARIABLES COULD BE USEFUL IN PREDICTING THE DEPENDENT VARIABLES, THE RESEARCHER RAN A **REGRESSION (BETWEEN-SUBJECTS EFFECTS)** WITH THAT SINGLE INDEPENDENT VARIABLE IN ORDER TO DETERMINE ITS LEVEL OF PREDICTABILITY ON THE DEPENDENT VARIABLES.

METHODOLOGY

- THE RESEARCHER EXPLORED THE DATA FOR EACH OF READINESS LEVELS FOR EACH OF THE SUBJECT AREA ACT ASPIRE SCORES.
 - FOR EXAMPLE: FOR THE STUDENTS WHO SCORED “NEEDS SUPPORT” OR “CLOSE” ON THEIR MATH ASPIRE READINESS TEST, WHAT ARE THE BEST PREDICTORS OF ACT SCORE FOR THOSE STUDENTS?
 - ALSO, HOW USEFUL ARE THE PREDICTORS (FOUND BY LOOKING AT THE ADJUSTED R SQUARED)?
 - GENERATE THE COEFFICIENTS OF THE EQUATIONS TO PREDICT ACT SCORES

RESULTS



DESCRIPTIVE STATISTICS

- GENDER: MALE 47%, FEMALE 53%
- SOCIO-ECONOMIC STATUS:
 - 28% FREE/REDUCED LUNCH
 - 72% NON-F/R LUNCH
- MEAN ACT SCORE: 21.22
 - HIGHEST MEAN SCORE: READING 22.2
 - LOWEST MEAN SCORE: MATH 20.28



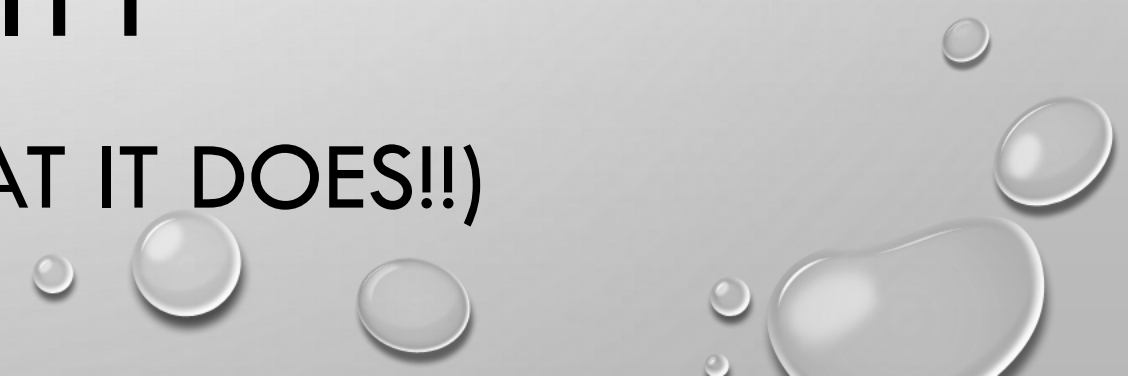
A WORD OF WARNING!!

PREDICTABILITY

≠

CAUSALITY

(WE CAN'T SAY THAT IT DOES!!)



DATA ANALYSIS

- THE RESEARCHER CHOSE TO USE A *MULTIVARIATE LINEAR REGRESSION* MODEL BECAUSE THERE WERE MULTIPLE DEPENDENT VARIABLES BEING PREDICTED (SALKIND, 2017).
- THE GOAL WAS TO DISCOVER:
 - WHICH INDEPENDENT VARIABLES PREDICTED WHICH DEPENDENT VARIABLES.
 - PREDICTIVE EQUATIONS FOR THE DEPENDENT VARIABLES.

DATA ANALYSIS – PREDICTABILITY FOR THE SAMPLE

- THE MULTIVARIATE TEST YIELDED THREE INDEPENDENT VARIABLES AS POTENTIAL PREDICTORS OF ACT SCORES AT A CONFIDENCE LEVEL OF $P < .05$.
- THE NULL WAS REJECTED.
- THE NEXT STEP WAS TO USE THE BETWEEN-SUBJECT EFFECTS TO DETERMINE WHICH INDEPENDENT VARIABLES CONTRIBUTED TO THE PREDICTABILITY OF ACT SCORES.

DATA ANALYSIS – PREDICTABILITY FOR THE SAMPLE

- IN THE TEST OF BETWEEN-SUBJECTS EFFECTS, THE GENERAL LINEAR MODEL MULTIVARIATE TEST DETERMINED THAT GENDER, NUMBER OF ADVANCED CLASSES TAKEN BY GRADE 11, ACT ASPIRE ENGLISH READINESS SCORE, AND ACT ASPIRE WRITING SCORE ADDED SIGNIFICANTLY TO THE PREDICTABILITY OF MORE THAN ONE OF THE DEPENDENT VARIABLES WHEN THE ENTIRE SAMPLE POPULATION IS TESTED.
- GENDER ADDED TO THE PREDICTABILITY OF ACT MATH SCORES ($P = .043$) AND ACT SCIENCE SCORES ($P = .048$).
- THE NUMBER OF ADVANCED CLASSES TAKEN BY GRADE 11 HELPED PREDICT MORE DEPENDENT VARIABLES THAN ANY OTHER INDEPENDENT VARIABLE.
 - THE NUMBER OF ADVANCED CLASSES TAKEN ADDED TO THE PREDICTABILITY OF THE ACT ENGLISH SCORE ($P = .001$), THE ACT MATH SCORE ($P = .003$), THE ACT SCIENCE SCORE ($P = .015$), AND THE ACT COMPOSITE SCORE ($P = .001$).

DATA ANALYSIS – PREDICTABILITY FOR THE SAMPLE

- THE ACT ASPIRE ENGLISH READINESS SCORE WAS THE ONLY READINESS SCORE TO ADD TO THE PREDICTABILITY OF ANY ACT SUBJECT AREA OR COMPOSITE SCORE.
- THE ASPIRE ENGLISH READINESS SCORE ADDED TO THE PREDICTABILITY OF THE ACT ENGLISH SCORE ($P = .013$), THE ACT READING SCORE ($P = .002$), AND THE ACT COMPOSITE SCORE ($P = .003$).
- THE ACT ASPIRE WRITING SCORES ALSO PREDICTED THREE ACT SCORES, THE ENGLISH ($P = .013$), THE READING ($P = .029$), AND THE ACT COMPOSITE SCORE ($P = .011$).

DATA ANALYSIS – PREDICTABILITY FOR THE ENTIRE SAMPLE

Reasonable Predictive Equations for All Dependent Variables and All Independent Variables

ACT Score	Constant	Coef 1	Predictor Variable 1	Coef 2	Predictor Variable 2	Coef 3	Predictor Variable 3	Adj R ²	Std Error
English	-267.32	0.67	Aspire Comp	0.45	#AP to Gr 11	-1.40	Lunch Status	0.772	3.309
Reading	-240.93	0.61	Aspire Comp	0.40	#AP to Gr 11			0.66	3.831
Math	-175.25	0.24	Aspire Comp	0.22	Aspire Math	0.35	#AP to Gr 11	0.736	2.39
Science	-186.25	0.48	Aspire Comp	0.32	#AP to Gr 11			0.648	3.114
Composite	-203.69	0.52	Aspire Comp	0.37	#AP to Gr 11	-0.98	Lunch Status	0.815	2.273

JUST FOR FUN, LET'S TRY IT OUT

Composite	-203.69	0.52	Aspire Comp	0.37	#AP to Gr 11	-0.98	Lunch Status	0.815	2.273
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Johnny's Composite ACT Score = -203.69 + 0.52(Aspire Composite) + 0.37(#Adv Courses) - 0.98(F/R Lunch)

Composite ACT Score = -203.69 + 0.52(430) + 0.37(4) - 0.98(1)

Johnny's Composite ACT Score = 20.41

FOCUS AREA 1 – LOW ACHIEVING STUDENTS

- “LOW-ACHIEVING” WAS DEFINED AS STUDENTS WHOSE ACT ASPIRE READINESS SCORES WERE “NEEDS SUPPORT” OR “CLOSE.”

Table 1

BWHS Class of 2019 Aspire Readiness Scores

Aspire Readiness Score Area	Number Tested (n)	Needs Support or Close	Ready or Exceeds
English	302	21.80%	78.10%
Reading	303	46.90%	53.10%
Math	303	37.30%	62.70%
Science	303	42.60%	57.40%
Writing	301	53.10%	46.90%

FOCUS AREA 1 – LOW ACHIEVING STUDENTS

- **LOW ACHIEVING IN ENGLISH:**
 - 66 STUDENTS – *NOT ENOUGH TO BE A SIGNIFICANT SAMPLE
 - **NUMBER OF ADVANCED COURSES PREDICTED ACT ENGLISH, READING, MATH, SCIENCE AND COMPOSITE.**
 - **ASPIRE WRITING PREDICTED ACT SCIENCE AND COMPOSITE.**

FOCUS AREA 1 – LOW ACHIEVING STUDENTS

- **LOW ACHIEVING IN MATH:**
 - **113 STUDENTS – *NOT ENOUGH TO BE A SIGNIFICANT SAMPLE**
 - **NUMBER OF ADVANCED COURSES PREDICTED ACT ENGLISH, READING, MATH, SCIENCE AND COMPOSITE.**
 - **SES PREDICTED ACT ENGLISH AND COMPOSITE.**
 - **ASPIRE WRITING PREDICTED ACT MATH AND COMPOSITE.**
 - **ASPIRE COMPOSITE PREDICTED ACT COMPOSITE.**

FOCUS AREA 1 – LOW ACHIEVING STUDENTS

- **LOW ACHIEVING IN READING:**
 - **142 STUDENTS**
 - **NUMBER OF ADVANCED COURSES PREDICTED ACT ENGLISH, READING, MATH, SCIENCE AND COMPOSITE.**
 - **SES PREDICTED ACT ENGLISH.**
 - **ASPIRE READING PREDICTED ACT COMPOSITE.**
 - **ASPIRE WRITING PREDICTED ACT READING.**
 - **ASPIRE WRITING READINESS PREDICTED ACT READING AND COMPOSITE.**

FOCUS AREA 1 – LOW ACHIEVING STUDENTS

- **LOW ACHIEVING IN SCIENCE:**
 - 129 STUDENTS
 - **GENDER PREDICTED ACT ENGLISH AND READING**
 - **NUMBER OF ADVANCED COURSES PREDICTED ACT ENGLISH, READING, SCIENCE AND COMPOSITE.**
 - **SES PREDICTED ACT ENGLISH.**
 - **ASPIRE ENGLISH READINESS PREDICTED ACT READING.**
 - **ASPIRE SCIENCE READINESS PREDICTED ACT MATH.**
 - **ASPIRE WRITING READINESS PREDICTED ACT READING.**

FOCUS AREA 1 – LOW ACHIEVING STUDENTS

- **LOW ACHIEVING IN WRITING:**
 - 160 STUDENTS (OVER HALF THE CLASS!)
 - **NUMBER OF ADVANCED COURSES PREDICTED ACT ENGLISH, READING, MATH, SCIENCE AND COMPOSITE.**
 - **SES PREDICTED ENGLISH AND MATH.**
 - **ENGLISH READINESS PREDICTED ACT READING.**

FOCUS AREA 2 – SOCIO-ECONOMIC STATUS (F/R LUNCH)

Reasonable Predictive Equations for All Dependent Variables and All Independent Variables for Students who Receive Free or Reduced Lunch

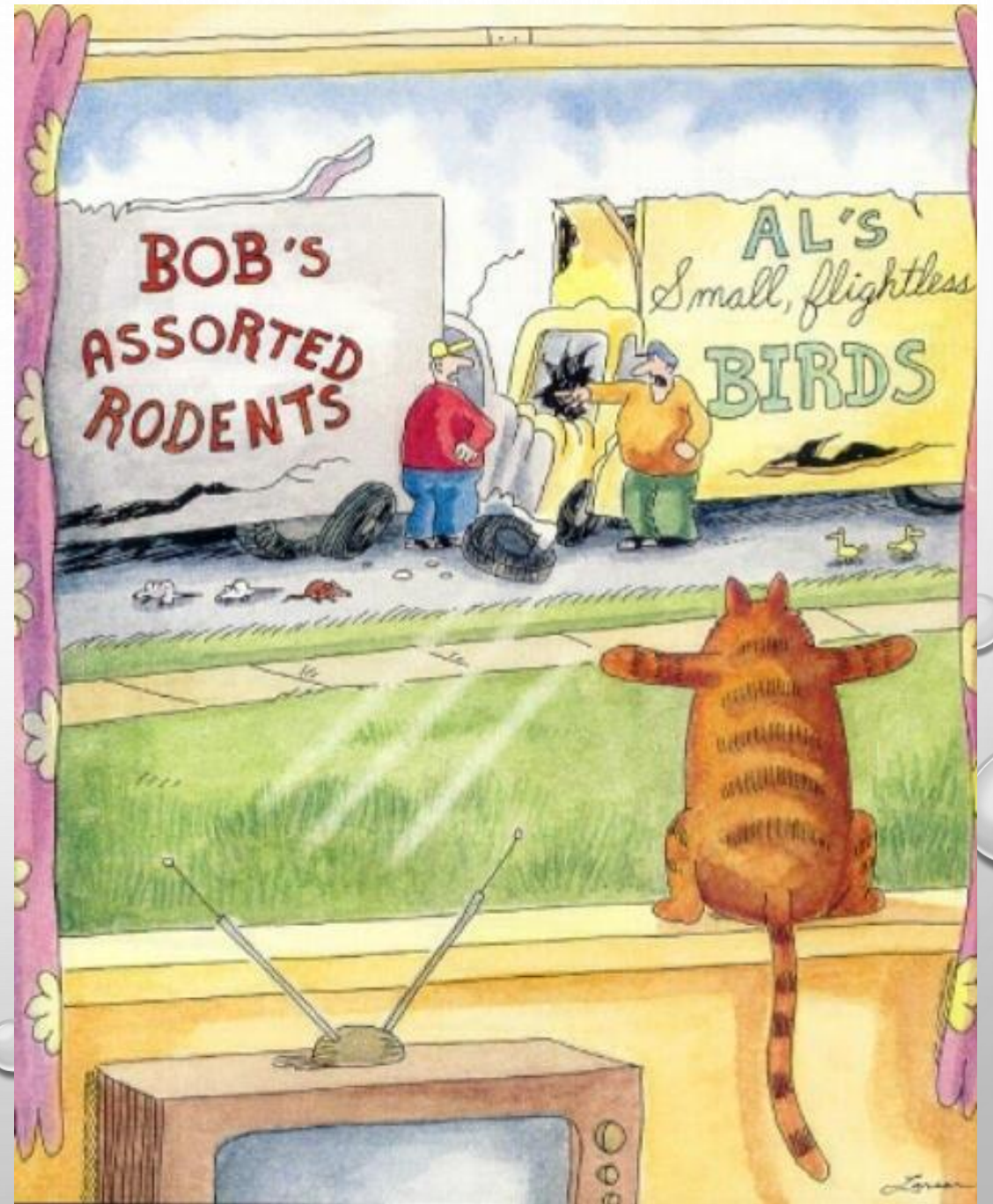
ACT Score	Constant	Coef 1	Predictor Variable 1	Coef 2	Predictor Variable 2	Adj R ²
English	-304.77	0.76	Aspire Comp			0.670
Reading	-301.94	0.95	Aspire Comp	-0.191	Aspire Science	0.673
Math	-148.20	0.26	Aspire Comp	0.135	Aspire Math	0.496
Science	-180.94	0.47	Aspire Comp	0.426	#AP to Gr 11	0.530
Composite	-209.01	0.54	Aspire Comp	0.265	#AP to Gr 11	0.749

FOCUS AREA 3 – NUMBER OF ADVANCED COURSES (TABLE 4)

Reasonable Predictive Equations for All Dependent Variables and the Number of Advanced Courses Completed

ACT Score	Constant	Coefficient	Lower Bd	Upper Bd	Adj R ²
English	16.62	1.66	1.48	1.83	0.538
Reading	18.15	1.47	1.29	1.65	0.464
Math	17.19	1.11	0.99	1.23	0.524
Science	18.25	1.17	1.02	1.31	0.454
Composite	17.58	1.31	1.18	1.44	0.570

CONCLUSIONS



IMPLICATIONS FOR PRACTICE

- THE ACT ASPIRE COMPOSITE SCORE WAS THE MOST SIGNIFICANT CONTRIBUTOR TO PREDICTABILITY IN EACH REGRESSION EQUATION FOR THE GENERAL POPULATION, FOLLOWED BY THE NUMBER OF ADVANCED COURSES CHOSEN.
- THEREFORE THE CHOICE TO TAKE ADVANCED PLACEMENT COURSES SHOULD BE CONSIDERED BY SCHOOLS AS ONE WAY TO HELP INCREASE ACT SCORES, AS THIS CHOICE OCCURS THREE TIMES DURING A STUDENT'S HIGH SCHOOL CAREER BEFORE THE STUDENT TAKES THE ACT EXAMINATION IN THE JUNIOR YEAR.

IMPLICATIONS FOR PRACTICE

- **TO IMPROVE ACT SCORES, SCHOOL LEADERS SHOULD:**
 - **PLACE MORE STUDENTS INTO ADVANCED COURSES.**
 - **EMBRACE PROGRAMS THAT ENCOURAGE MORE STUDENTS TO TAKE ADVANCED CLASSES.**
 - **REMOVE BARRIERS TO TAKING ADVANCED CLASSES.**
 - **EDUCATE PARENTS AND STUDENTS ABOUT THE BENEFITS OF TAKING ADVANCED COURSES.**

IMPLICATIONS FOR PRACTICE

- TO IMPROVE ACT SCORES, SCHOOL LEADERS SHOULD:
 - PARTNER WITH MIDDLE SCHOOLS AND JUNIOR HIGH SCHOOLS TO PREPARE STUDENTS EARLIER.
 - STUDENTS WOULD PERFORM BETTER ON THE ACT ASPIRE.
 - STUDENTS WOULD BE BETTER PREPARED TO TAKE ADVANCED COURSES EARLIER, AND THEREFORE MORE ADVANCED COURSES.

IMPLICATIONS FOR PRACTICE

- TO IMPROVE ACT SCORES, SCHOOL LEADERS SHOULD:
 - SUPPORT LOWER ACHIEVING STUDENTS
 - BEFORE 8TH GRADE IF POSSIBLE.
 - ANYTHING TO IMPROVE THOSE ACT SCORES!
 - COLLEGE ACCEPTANCE
 - SCHOLARSHIP DOLLARS
 - COLLEGE RETENTION

RECOMMENDATIONS FOR ADDITIONAL RESEARCH

- **RESEARCHERS COULD:**
 - **INCLUDE A SIGNIFICANTLY LARGER NUMBER OF STUDENT RECORDS.**
 - **LARGER GEOGRAPHIC AREA**
 - **MULTIPLE YEARS OF DATA**
 - **META-ANALYSES OF EXISTING STUDIES**

RECOMMENDATIONS FOR ADDITIONAL RESEARCH

- **RESEARCHERS COULD:**
 - **INTRODUCE ADDITIONAL INDEPENDENT VARIABLES:**
 - **PRE-AP AND AP COURSE GRADES**
 - **AP EXAM GRADES**
 - **INVOLVEMENT IN CO-CURRICULAR PROGRAMS (FINE ARTS, ATHLETICS, ETC.)**

IN CLOSING...

- THE ACT ASPIRE COMPOSITE SCORE TURNED OUT TO CONTRIBUTE TO ACT SCORE PREDICTABILITY THE MOST SIGNIFICANTLY.
- IN GENERAL, THE NUMBER OF ADVANCED COURSES CHOSEN WAS THE NEXT MOST SIGNIFICANT PREDICTOR.
- INTERESTINGLY, THE ASPIRE SUBJECT AREA SCORES DID NOT CONTRIBUTE SIGNIFICANTLY TO THE PREDICTABILITY OF THE CORRESPONDING ACT SUBJECT AREA SCORES.

IN CLOSING...

- THE BENEFITS OF TAKING ADVANCED COURSES WERE REPEATEDLY DEMONSTRATED, AND OUTWEIGH THE NEGATIVE EFFECTS.
- ACT SCORES FOR STUDENTS WHO QUALIFY FOR FREE OR REDUCED LUNCH CONTINUE TO LAG BEHIND THEIR COUNTERPARTS WHO DO NOT QUALIFY. THIS STUDY DEMONSTRATED THAT BY TAKING THESE ADVANCED COURSES, A STUDENT MAY BE ABLE TO COUNTERACT OR EVEN NEGATE THE EFFECTS THE FREE/REDUCED STATUS HAS ON ACT SCORES.
- PREDICTABILITY $\neq$ CAUSALITY

THANK YOU!! QUESTIONS??



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