Response grade

Actual by Predicted Plot

grade Predicted P<.0001 RSq=0.66 RMSE=7.9551
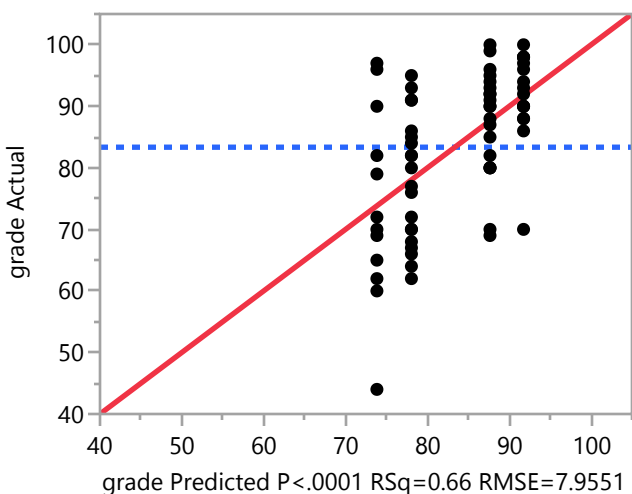
Effect Summary

Source	LogWorth		PValue
group	2.229		0.00591
gender	0.470		0.33879
group*gender	0.005		0.98910

Summary of Fit

RSquare	0.661825
RSquare Adj	0.645973
Root Mean Square Error	7.955144
Mean of Response	83.35294
Observations (or Sum Wgts)	68

AICc	BIC
496.82	508.76

Parameter Estimates

Term	Estimate	Std Error	DFDen	t Ratio	Prob>|t|	Lower 95%	Upper 95%
Intercept	82.820833	2.093619	13	39.56	<.0001*	78.297845	87.343822
group[Method]	-6.879167	2.093619	13	-3.29	0.0059*	-11.40216	-2.356178
group[Method]*gender[F]	-0.029167	2.093619	13	-0.01	0.9891	-4.552155	4.4938219
gender[F]	-2.079167	2.093619	13	-0.99	0.3388	-6.602155	2.4438219

Random Effect Predictions

Term	BLUP	Std Error	DFDen	t Ratio	Prob>|t|	Lower 95%	Upper 95%
student[s1]	-0.583627	4.807127	16.51	-0.12	0.9048	-10.74879	9.5815368
student[s10]	13.553116	5.167926	13.6	2.62	0.0205*	2.438083	24.668148
student[s11]	-3.112677	4.807127	16.51	-0.65	0.5262	-13.27784	7.0524865
student[s12]	-2.645776	4.577015	19.32	-0.58	0.5699	-12.2148	6.9232483
student[s13]	1.0505286	4.577015	19.32	0.23	0.8209	-8.518495	10.619553
student[s14]	6.4977138	4.577015	19.32	1.42	0.1716	-3.07131	16.066738
student[s15]	-10.95922	5.167926	13.6	-2.12	0.0529	-22.07425	0.1558147
student[s16]	-2.593898	5.167926	13.6	-0.50	0.6238	-13.70893	8.5211349

Response grade

Random Effect Predictions

Term	BLUP	Std Error	DFDen	t Ratio	Prob>|t|	Lower 95%	Upper 95%
student[s17]	-5.680636	4.577015	19.32	-1.24	0.2294	-15.24966	3.888388
student[s2]	2.9181349	4.807127	16.51	0.61	0.5521	-7.247029	13.083299
student[s3]	0.7781693	4.807127	16.51	0.16	0.8734	-9.386994	10.943333
student[s4]	-5.758453	4.577015	19.32	-1.26	0.2233	-15.32748	3.8105711
student[s5]	0.8559862	4.577015	19.32	0.19	0.8536	-8.713038	10.42501
student[s6]	7.7427847	4.577015	19.32	1.69	0.1068	-1.826239	17.311809
student[s7]	4.8246497	4.577015	19.32	1.05	0.3048	-4.744374	14.393674
student[s8]	-1.400705	4.577015	19.32	-0.31	0.7629	-10.96973	8.1683192
student[s9]	-5.486094	4.577015	19.32	-1.20	0.2452	-15.05512	4.0829303

REML Variance Component Estimates

Random Effect	Var Ratio	Var Component	Std Error	95% Lower	95% Upper	Pct of Total
student	0.8769856	55.499434	28.149106	0.3282	110.67067	46.723
Residual		63.284314	12.532162	44.446132	97.325879	53.277
Total		118.78375	29.51101	77.005647	206.99055	100.000

 -2 LogLikelihood = 483.44300008

Note: Total is the sum of the positive variance components.

Total including negative estimates = 118.78375

Covariance Matrix of Variance Component Estimates

Random Effect	student	Residual
student	792.37218	-39.26377
Residual	-39.26377	157.05507

Iterations

Iter	-2LogLike	Norm Gradient	Parameters	
0	498.29804	52	0	108.3776
1	483.443	7.354e-13	55.499434	63.284314

 Iterations Converged in the Gradient

Fixed Effect Tests

Source	Nparm	DF	DFDen	F Ratio	Prob > F
group	1	1	13	10.7963	0.0059*
group*gender	1	1	13	0.0002	0.9891
gender	1	1	13	0.9862	0.3388

Response grade

Prediction Expression

82.8208333333332

$+ \text{Match}(\text{group}) \begin{vmatrix} \text{"Method"} & \Rightarrow -6.8791666666667 \\ \text{"NewMethod"} & \Rightarrow 6.87916666666665 \\ \text{else} & \Rightarrow . \end{vmatrix}$

$+ \text{Match}(\text{group}) \begin{vmatrix} \text{"Method"} & \Rightarrow \text{Match}(\text{gender}) \begin{vmatrix} \text{"F"} & \Rightarrow -0.0291666666667 \\ \text{"M"} & \Rightarrow 0.02916666666666 \\ \text{else} & \Rightarrow . \end{vmatrix} \\ \text{"NewMethod"} & \Rightarrow \text{Match}(\text{gender}) \begin{vmatrix} \text{"F"} & \Rightarrow 0.02916666666666 \\ \text{"M"} & \Rightarrow -0.0291666666667 \\ \text{else} & \Rightarrow . \end{vmatrix} \\ \text{else} & \Rightarrow . \end{vmatrix}$

$+ \text{Match}(\text{gender}) \begin{vmatrix} \text{"F"} & \Rightarrow -2.0791666666667 \\ \text{"M"} & \Rightarrow 2.07916666666665 \\ \text{else} & \Rightarrow . \end{vmatrix}$

Residual by Predicted Plot
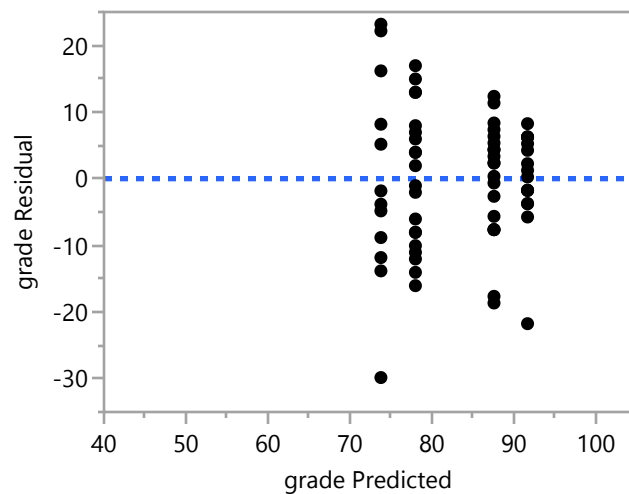
Residual by Row Plot
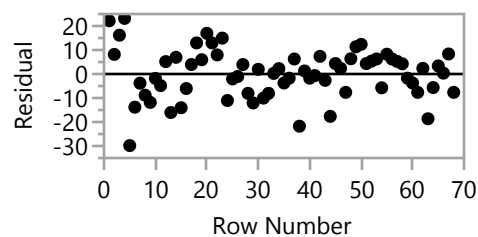
Response grade

Effect Details

group

Leverage Plot

group Leverage, P=0.0059
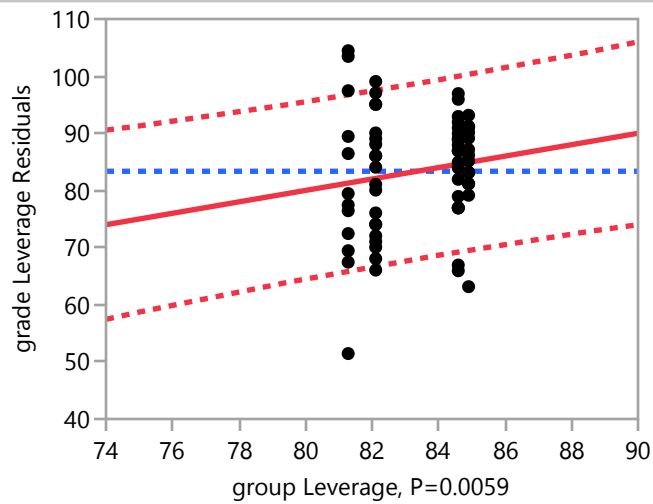
Least Squares Means Table

Level	Least Sq Mean	Std Error	Lower 95%	Upper 95%
Method	75.941667	3.0837318	69.279669	82.603664
NewMethod	89.700000	2.8325885	83.580565	95.819435

group*gender

Leverage Plot

group*gender Leverage, P=0.9891
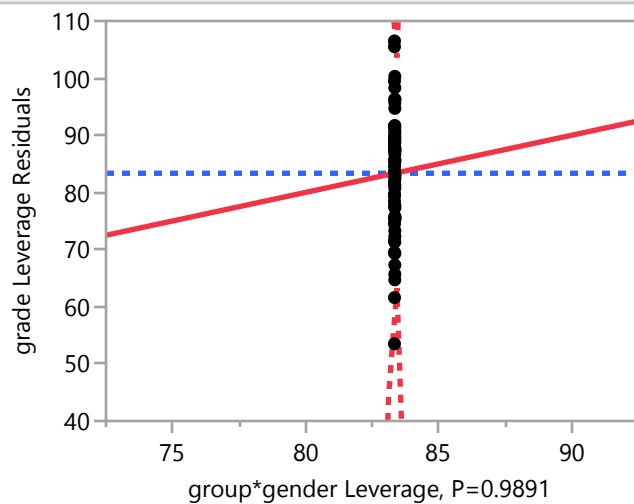
Response grade

Effect Details

group*gender

Least Squares Means Table

Level	Least Sq Mean	Std Error	Lower 95%	Upper 95%
Method,F	73.833333	4.8758081	63.299790	84.36688
Method,M	78.050000	3.7767847	69.890753	86.20925
NewMethod,F	87.650000	3.7767847	79.490753	95.80925
NewMethod,M	91.750000	4.2225736	82.627684	100.87232

gender

Leverage Plot

gender Leverage, P=0.3388
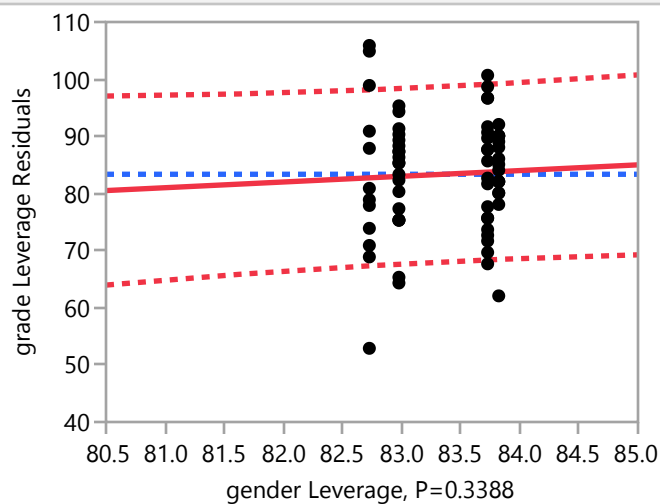
Least Squares Means Table

Level	Least Sq Mean	Std Error	Lower 95%	Upper 95%
F	80.741667	3.0837318	74.079669	87.403664
M	84.900000	2.8325885	78.780565	91.019435

student

Least Squares Means Table

Level	Least Sq Mean	Std Error	Lower 95%	Upper 95%
s1	82.237206	4.5336825	72.813951	91.66046
s10	96.373949	4.6734139	86.546335	106.20156
s11	79.708156	4.5336825	70.284901	89.13141
s12	80.175058	4.4477371	70.993619	89.35650
s13	83.871362	4.4477371	74.689923	93.05280
s14	89.318547	4.4477371	80.137109	98.49999
s15	71.861616	4.6734139	62.034001	81.68923
s16	80.226936	4.6734139	70.399322	90.05455
s17	77.140197	4.4477371	67.958759	86.32164
s2	85.738968	4.5336825	76.315713	95.16222

Response grade

Effect Details

student

Least Squares Means Table

Level	Least Sq Mean	Std Error	Lower 95%	Upper 95%
s3	83.599003	4.5336825	74.175748	93.02226
s4	77.062380	4.4477371	67.880942	86.24382
s5	83.676820	4.4477371	74.495381	92.85826
s6	90.563618	4.4477371	81.382180	99.74506
s7	87.645483	4.4477371	78.464045	96.82692
s8	81.420129	4.4477371	72.238690	90.60157
s9	77.334740	4.4477371	68.153301	86.51618