

```
822 0 OUTPUT ACTIVATE CriterionValidityOutput.  
822 0 M> OUTPUT ACTIVATE CriterionValidityOutput.  
823 0 TITLE 'Predictive Criterion Validity'.  
823 0 M> TITLE 'Predictive Criterion Validity'.
```

Predictive Criterion Validity

```
824 0
824 0 M>
825 0 GET DATA
825 0 M> GET DATA
826 0 /TYPE=TXT /FILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Criterion Validity\dataset.csv' /ENCODING='
      UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
826 0 M> /TYPE=TXT /FILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Criterion Validity\dataset.csv' /ENCODING='
      G='UTF8' /DELCASE=LINE /DELIMITERS=', ' /QUALIFIER='''
827 0 /ARRANGEMENT=DELIMITED /FIRSTCASE=2
827 0 M> /ARRANGEMENT=DELIMITED /FIRSTCASE=2
828 0 /VARIABLES=
828 0 M> /VARIABLES=
829 0 school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0 Fedu F8.0
829 0 M> school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A8 Medu F8.0 Fedu F8.0
830 0 Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime F8.0 failures F8.0
830 0 M> Mjob A16 Fjob A16 reason A16 guardian A16 traveltime F8.0 studytime F8.0 failures F8.0
831 0 schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A8
831 0 M> schoolsup A8 famsup A8 paid A8 activities A8 nursery A8 higher A8 internet A8 romantic A8
832 0 famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0 absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
832 0 M> famrel F8.0 freetime F8.0 goout F8.0 Dalc F8.0 Walc F8.0 health F8.0 absences F8.0 G1 F8.0 G2 F8.0 G3 F8.0.
833 0 DATASET NAME CriterionValidityData.
833 0 M> DATASET NAME CriterionValidityData.
834 0 COMPUTE subject_id=$CASENUM.
834 0 M> COMPUTE subject_id=$CASENUM.
835 0 COMPUTE Dalc_R=6-Dalc.
835 0 M> COMPUTE Dalc_R=6-Dalc.
836 0 COMPUTE Walc_R=6-Walc.
836 0 M> COMPUTE Walc_R=6-Walc.
```

Predictive Criterion Validity

```
837 0 RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
837 0 M> RECODE schoolsup famsup paid activities higher internet ('no'=0) ('yes'=1)
838 0 INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b.
838 0 M> INTO schoolsup_b famsup_b paid_b activities_b higher_b internet_b
.
839 0 EXECUTE.
839 0 M> EXECUTE.
840 0
840 0 M>
841 0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
841 0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
842 0 TITLE 'Predictive Criterion Validity'.
842 0 M> TITLE 'Predictive Criterion Validity'.
```

Predictive Criterion Validity

843 0 SUBTITLE 'Earlier G1 G2 composite validated against later G3'.

843 0 M> SUBTITLE 'Earlier G1 G2 composite validated against later G3'.

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

844 0 DESCRIPTIVES VARIABLES=G1 G2 /SAVE.

844 0 M> DESCRIPTIVES VARIABLES=G1 G2 /SAVE.

Descriptives

Notes

Output Created		18-JUL-2026 10:55:16
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Criterion Validity\dataset.csv
	Active Dataset	CriterionValidityData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=G1 G2 /SAVE.
Resources	Processor Time	00:00:00.11
	Elapsed Time	00:00:00.23
Variables Created or Modified	ZG1	Zscore(G1)
	ZG2	Zscore(G2)

[CriterionValidityData]

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
G1	649	0	19	11.40	2.745
G2	649	0	19	11.57	2.914
Valid N (listwise)	649				

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

```

845  0  COMPUTE earlier_grade=(ZG1+ZG2)/2.
845  0  M>  COMPUTE earlier_grade=(ZG1+ZG2)/2.
846  0  CORRELATIONS /VARIABLES=earlier_grade G3 /PRINT=TWOTAIL NOSIG /MISSIN
G=PAIRWISE.
846  0  M>  CORRELATIONS /VARIABLES=earlier_grade G3 /PRINT=TWOTAIL NOSIG /MIS
SING=PAIRWISE.

```

Correlations

Notes

Output Created		18-JUL-2026 10:55:17
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Criterion Validity\dataset.csv
	Active Dataset	CriterionValidityData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=earlier_grad e G3 /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.11
	Elapsed Time	00:00:00.15

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

Correlations

		earlier_grade	G3
earlier_grade	Pearson Correlation	1	.903**
	Sig. (2-tailed)		.000
	N	649	649
G3	Pearson Correlation	.903**	1
	Sig. (2-tailed)	.000	
	N	649	649

** . Correlation is significant at the 0.01 level (2-tailed).

```
847 0 REGRESSION /STATISTICS=COEFF R ANOVA CI(95) /DEPENDENT G3 /METHOD=ENTER earlier_grade /SAVE PRED RESID.
```

```
847 0 M> REGRESSION /STATISTICS=COEFF R ANOVA CI(95) /DEPENDENT G3 /METHOD=ENTER earlier_grade /SAVE PRED RESID.
```

Regression

Notes

Output Created		18-JUL-2026 10:55:17
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Criterion Validity\dataset.csv
	Active Dataset	CriterionValidityData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

Notes

Syntax	REGRESSION /STATISTICS=COEFF R ANOVA CI(95) /DEPENDENT G3 /METHOD=ENTER earlier_grade /SAVE PRED RESID.	
Resources	Processor Time	00:00:00.19
	Elapsed Time	00:00:00.19
	Memory Required	4288 bytes
	Additional Memory Required for Residual Plots	0 bytes
Variables Created or Modified	PRE_1	Unstandardized Predicted Value
	RES_1	Unstandardized Residual

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	earlier_grade ^b	.	Enter

a. Dependent Variable: G3

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903 ^a	.816	.816	1.386

a. Predictors: (Constant), earlier_grade

b. Dependent Variable: G3

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5520.908	1	5520.908	2875.199	.000 ^b
	Residual	1242.358	647	1.920		
	Total	6763.267	648			

a. Dependent Variable: G3

b. Predictors: (Constant), earlier_grade

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.906	.054		218.886	.000
	earlier_grade	3.023	.056	.903	53.621	.000

Coefficients^a

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	11.799	12.013
	earlier_grade	2.912	3.133

a. Dependent Variable: G3

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.83	19.39	11.91	2.919	649
Residual	-10.353	5.679	.000	1.385	649
Std. Predicted Value	-3.452	2.565	.000	1.000	649
Std. Residual	-7.471	4.098	.000	.999	649

a. Dependent Variable: G3

848 0 GRAPH /SCATTERPLOT(BIVAR)=earlier_grade WITH G3.

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

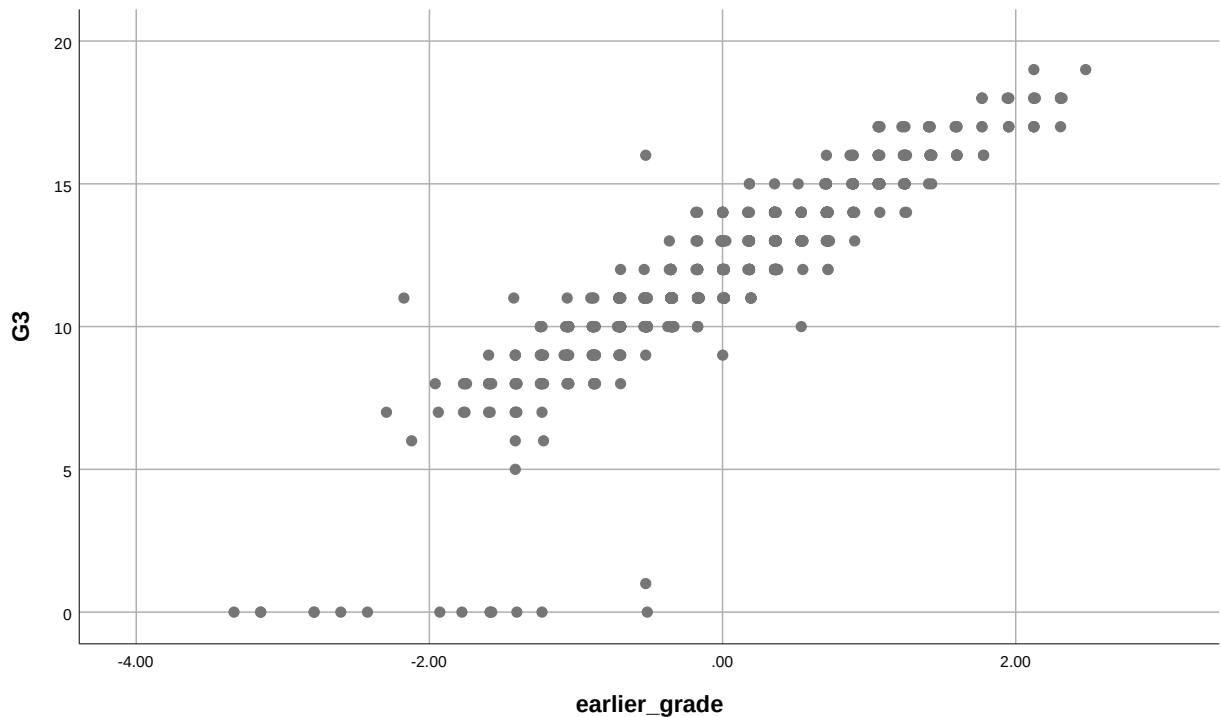
848 0 M> GRAPH /SCATTERPLOT(BIVAR)=earlier_grade WITH G3.

Graph

Notes

Output Created		18-JUL-2026 10:55:17
Comments		
Input	Data	D:\DATA ANALYSIS\L Validity Factor Analysis and Scale Testing\Criterion Validity\dataset.csv
	Active Dataset	CriterionValidityData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /SCATTERPLOT (BIVAR)=earlier_grade WITH G3.
Resources	Processor Time	00:00:00.64
	Elapsed Time	00:00:01.06

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3



```

849 0 * END METHOD-SPECIFIC SPSS WORKFLOW.
849 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.
850 0
850 0 M>
851 0 SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scale T
esting\Criterion Validity\SPSS_Output\sav\criterion-va
      lidity_spss_ready_data.sav' /COMPRESSED.
851 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and Scal
e Testing\Criterion Validity\SPSS_Output\sav\criterion
      -validity_spss_ready_data.sav' /COMPRESSED.

852 0
852 0 M>
853 0 ECHO '=====
====='.
853 0 M> ECHO '=====
====='.
=====

854 0 ECHO 'PREDICTIVE CRITERION VALIDITY'.
854 0 M> ECHO 'PREDICTIVE CRITERION VALIDITY'.
PREDICTIVE CRITERION VALIDITY

```

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

```
855 0 ECHO 'Design: G1/G2 academic composite validated against later G3 per
formance.'.
855 0 M> ECHO 'Design: G1/G2 academic composite validated against later G3
performance.'.
Design: G1/G2 academic composite validated against later G3 performance.
856 0 ECHO 'Null hypothesis: The earlier-grade composite has zero associati
on with G3.'.
856 0 M> ECHO 'Null hypothesis: The earlier-grade composite has zero associ
ation with G3.'.
Null hypothesis: The earlier-grade composite has zero association with G3.
857 0 ECHO 'Formula: r=cor(mean[z(G1),z(G2)],G3); regression R2=r^2.'.
857 0 M> ECHO 'Formula: r=cor(mean[z(G1),z(G2)],G3); regression R2=r^2.'.
Formula: r=cor(mean[z(G1),z(G2)],G3); regression R2=r^2.
858 0 ECHO 'Variables: G1, G2, G3'.
858 0 M> ECHO 'Variables: G1, G2, G3'.
Variables: G1, G2, G3
859 0 ECHO 'Rows analyzed: 649'.
859 0 M> ECHO 'Rows analyzed: 649'.
Rows analyzed: 649
860 0 ECHO 'criterion_r = 0.9034976113559182'.
860 0 M> ECHO 'criterion_r = 0.9034976113559182'.
criterion_r = 0.9034976113559182
861 0 ECHO 'n_cases = 649'.
861 0 M> ECHO 'n_cases = 649'.
n_cases = 649
862 0 ECHO 'p_value = 2.9749991570957307e-240'.
862 0 M> ECHO 'p_value = 2.9749991570957307e-240'.
p_value = 2.9749991570957307e-240
863 0 ECHO 'predictor_items = 2'.
863 0 M> ECHO 'predictor_items = 2'.
predictor_items = 2
864 0 ECHO 'r_squared = 0.8163079337258499'.
864 0 M> ECHO 'r_squared = 0.8163079337258499'.
r_squared = 0.8163079337258499
865 0 ECHO 'Cross-check status: pass'.
865 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
866 0 ECHO '=====
====='
```

Predictive Criterion Validity
Earlier G1 G2 composite validated against later G3

```
866  0 M> ECHO '=====
====='.
=====
867  0
867  0 M>
868  0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis and
Scale Testing\Criterion Validity\SPSS_Output\spv\crite
rion-validity_spss_output.spv'.
868  0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\L Validity Factor Analysis a
nd Scale Testing\Criterion Validity\SPSS_Output\spv\cr
iterion-validity_spss_output.spv'.
869  0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING
869  0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING
```