

Your temporary usage period for IBM SPSS Statistics will expire in 3499 days.

```
* =====.
* OnlineInternetCafe.com Statistics Workflow.
* Topic: Lilliefors Test / Kolmogorov-Lilliefors Normality Test.
* Step 3: SPSS Syntax.
* Dataset: UCI Student Performance Dataset.
* Outcome Variable: G3 Final Grade.
*
* IMPORTANT:
* SPSS usually reports the Lilliefors result inside:
* Explore > Tests of Normality
* as Kolmogorov-Smirnov with Lilliefors Significance Correction.
*
* This syntax creates an SPSS output folder and exports one PDF:
* D:\low kda score priority basis posts\first post\Lilliefors Test\SPSS\lillie
fors_spss_output_report.pdf
* =====.
```

```
* =====.
* 1. Create SPSS output folder.
* =====.
```

```
HOST COMMAND=['cmd /c if not exist "D:\low kda score priority basis posts\first post\Lilliefors Test\SPSS" mkdir "D:\low kda score priority basis posts\first post\Lilliefors Test\SPSS"'].
```

Host

[DataSet0]

```
* =====.
* 2. Import CSV file.
* =====.
* This import is designed for the comma-separated student-por.csv file
* currently used in your R and Python outputs.
*
* If your file name is student-por(12).csv, replace student-por.csv below.
* =====.
```

```
GET DATA
  /TYPE=TXT
  /FILE='D:\low kda score priority basis posts\first post\Lilliefors Test\stud
ent-por.csv'
  /ENCODING='UTF8'
  /DELCASE=LINE
  /DELIMITERS=","
  /QUALIFIER='"'
  /ARRANGEMENT=DELIMITED
  /FIRSTCASE=2
  /DATATYPEMIN PERCENTAGE=95.0
  /VARIABLES=
    school A40
    sex A20
    age F8.0
    address A20
    famsize A20
    pstatus A20
    medu F8.0
    fedu F8.0
    mjob A40
    fjob A40
    reason A40
    guardian A40
    traveltime F8.0
    studytime F8.0
    failures F8.0
    schoolsup A40
    famsup A40
    paid A40
    activities A40
    nursery A40
    higher A40
    internet A40
    romantic A40
    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
age_group_text A40
studytime_group_text A40
failures_group_text A60
absences_group_text A60.
CACHE.
EXECUTE.
```

```
DATASET NAME LillieforsData WINDOW=FRONT.
```

```
* =====.
* 3. Basic variable labels.
* =====.
```

```
VARIABLE LABELS
```

```
g3 "G3 final grade"
school "School"
sex "Student sex"
age "Student age"
studytime "Weekly study time category"
failures "Number of previous class failures"
absences "Number of school absences"
schoolsup "Extra educational support from school"
romantic "Romantic relationship status".
```

```
FORMATS age medu fedu traveltime studytime failures famrel freetime goout dalc
walc health absences g1 g2 g3 (F8.0).
```

```
* =====.
* 4. Create clean numeric grouping variables for SPSS output.
* =====.
```

```
NUMERIC school_group sex_group age_group studytime_group failures_group absenc
es_group schoolsup_group romantic_group (F8.0).
```

```
* School group.
```

```
DO IF (UPCASE(RTRIM(school)) = "GP" OR INDEX(UPCASE(school), "GABRIEL") > 0).
  COMPUTE school_group = 1.
```

```

ELSE IF (UPCASE(RTRIM(school)) = "MS" OR INDEX(UPCASE(school), "MOUSINHO") > 0
).
    COMPUTE school_group = 2.
END IF.

* Sex group.
DO IF (UPCASE(RTRIM(sex)) = "F" OR INDEX(UPCASE(sex), "FEMALE") > 0).
    COMPUTE sex_group = 1.
ELSE IF (UPCASE(RTRIM(sex)) = "M" OR INDEX(UPCASE(sex), "MALE") > 0).
    COMPUTE sex_group = 2.
END IF.

* Age group.
DO IF (age <= 16).
    COMPUTE age_group = 1.
ELSE IF (age = 17).
    COMPUTE age_group = 2.
ELSE IF (age = 18).
    COMPUTE age_group = 3.
ELSE IF (age >= 19).
    COMPUTE age_group = 4.
END IF.

* Study time group.
DO IF (studytime = 1).
    COMPUTE studytime_group = 1.
ELSE IF (studytime = 2).
    COMPUTE studytime_group = 2.
ELSE IF (studytime = 3).
    COMPUTE studytime_group = 3.
ELSE IF (studytime = 4).
    COMPUTE studytime_group = 4.
END IF.

* Previous failures group.
DO IF (failures = 0).
    COMPUTE failures_group = 1.
ELSE IF (failures >= 1).
    COMPUTE failures_group = 2.
END IF.

* Absences group.

```

```

DO IF (absences = 0).
  COMPUTE absences_group = 1.
ELSE IF (absences >= 1 AND absences <= 5).
  COMPUTE absences_group = 2.
ELSE IF (absences >= 6 AND absences <= 15).
  COMPUTE absences_group = 3.
ELSE IF (absences >= 16).
  COMPUTE absences_group = 4.
END IF.

* School support group.
DO IF (UPCASE(RTRIM(schoolsup)) = "NO" OR INDEX(UPCASE(schoolsup), "NO SCHOOL
SUPPORT") > 0).
  COMPUTE schoolsup_group = 1.
ELSE IF (UPCASE(RTRIM(schoolsup)) = "YES" OR INDEX(UPCASE(schoolsup), "RECEIVE
S") > 0).
  COMPUTE schoolsup_group = 2.
END IF.

* Romantic relationship group.
DO IF (UPCASE(RTRIM(romantic)) = "NO" OR INDEX(UPCASE(romantic), "NOT IN") > 0
).
  COMPUTE romantic_group = 1.
ELSE IF (UPCASE(RTRIM(romantic)) = "YES" OR INDEX(UPCASE(romantic), "IN ROMANT
IC") > 0).
  COMPUTE romantic_group = 2.
END IF.

EXECUTE.

```

```

>Warning # 657. Command name: EXECUTE
>The INDEX function is deprecated. Consider using the CHAR.INDEX function.

```

```

* =====.
* 5. Value labels for readable SPSS output.
* =====.

```

```

VALUE LABELS
  school_group
    1 "Gabriel Pereira School"
    2 "Mousinho da Silveira School"

```

sex_group

>Warning # 4492 in column 3. Text: sex_group
>The (ADD) VALUE LABELS command included a symbol other than a value where a
>value (either numeric or string) was expected. For compatibility with
>previous systems, a parenthesized value would have been acceptable. All valu
e
>labels up to the next slash will be ignored.

1 "Female"

2 "Male"

age_group

1 "16 or younger"

2 "17 years"

3 "18 years"

4 "19 or older"

studytime_group

1 "<2 hours"

2 "2 to 5 hours"

3 "5 to 10 hours"

4 ">10 hours"

failures_group

1 "No previous failures"

2 "One or more previous failures"

absences_group

1 "No absences"

2 "1 to 5 absences"

3 "6 to 15 absences"

4 "16 or more absences"

schoolsup_group

1 "No school support"

2 "Receives school support"

romantic_group

1 "Not in romantic relationship"

2 "In romantic relationship".

VARIABLE LABELS

school_group "School group"

sex_group "Sex group"

age_group "Age group"

studytime_group "Study time group"

failures_group "Previous failures group"

absences_group "Absences group"

```

schools_group "School support group"
romantic_group "Romantic relationship group".

```

```
EXECUTE.
```

```

* =====.
* 6. Dataset checks.
* =====.

```

```

FREQUENCIES VARIABLES=g3 school_group sex_group age_group studytime_group fail
ures_group absences_group schoolsup_group romantic_group
/ORDER=ANALYSIS.

```

Frequencies

[LillieforsData]

Statistics

		G3 final grade	School group	Sex group	Age group	Study time group
N	Valid	649	649	649	649	649
	Missing	0	0	0	0	0

Statistics

		Previous failures group	Absences group	School support group	Romantic relationship group
N	Valid	649	649	649	649
	Missing	0	0	0	0

Frequency Table

G3 final grade

		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	0	15	2.3	2.3	2.3	
	1	1	.2	.2	2.5	
	5	1	.2	.2	2.6	
	6	3	.5	.5	3.1	
	7	10	1.5	1.5	4.6	
	8	35	5.4	5.4	10.0	
	9	35	5.4	5.4	15.4	
	10	97	14.9	14.9	30.4	
	11	104	16.0	16.0	46.4	
	12	72	11.1	11.1	57.5	
	13	82	12.6	12.6	70.1	
	14	63	9.7	9.7	79.8	
	15	49	7.6	7.6	87.4	
	16	36	5.5	5.5	92.9	
	17	29	4.5	4.5	97.4	
	18	15	2.3	2.3	99.7	
	19	2	.3	.3	100.0	
	Total		649	100.0	100.0	

School group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Gabriel Pereira School	423	65.2	65.2	65.2
	Mousinho da Silveira School	226	34.8	34.8	100.0
	Total	649	100.0	100.0	

Sex group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	383	59.0	59.0	59.0
	2	266	41.0	41.0	100.0
	Total	649	100.0	100.0	

Age group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	289	44.5	44.5	44.5
	2	179	27.6	27.6	72.1
	3	140	21.6	21.6	93.7
	4	41	6.3	6.3	100.0
	Total	649	100.0	100.0	

Study time group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	212	32.7	32.7	32.7
	2	305	47.0	47.0	79.7
	3	97	14.9	14.9	94.6
	4	35	5.4	5.4	100.0
	Total	649	100.0	100.0	

Previous failures group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	549	84.6	84.6	84.6
	2	100	15.4	15.4	100.0
	Total	649	100.0	100.0	

Absences group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	244	37.6	37.6	37.6
	2	234	36.1	36.1	73.7
	3	150	23.1	23.1	96.8
	4	21	3.2	3.2	100.0
	Total	649	100.0	100.0	

School support group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	581	89.5	89.5	89.5
	2	68	10.5	10.5	100.0
	Total	649	100.0	100.0	

Romantic relationship group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	410	63.2	63.2	63.2
	2	239	36.8	36.8	100.0
	Total	649	100.0	100.0	

```
DESCRIPTIVES VARIABLES=g3
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
G3 final grade	649	0	19	11.91	3.231
Valid N (listwise)	649				

```
* =====.
* 7. Overall Lilliefors / Kolmogorov-Smirnov normality test.
* =====.
* In SPSS Explore, look at:
* Tests of Normality table > Kolmogorov-Smirnov row.
* The footnote should show: Lilliefors Significance Correction.
* If Sig. < .05, reject normality.
* =====.
```

```
EXAMINE VARIABLES=g3
  /PLOT BOXPLOT HISTOGRAM NPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.
```

Explore

Case Processing Summary

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
G3 final grade	649	100.0%	0	0.0%	649	100.0%

Descriptives

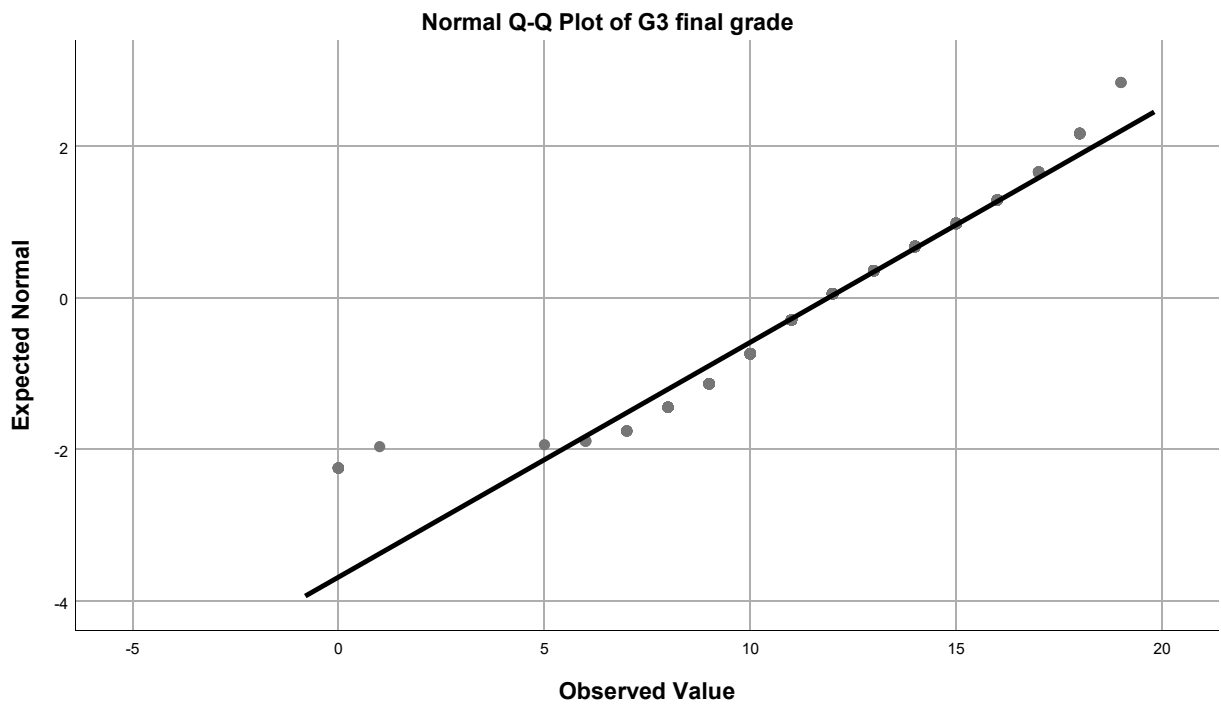
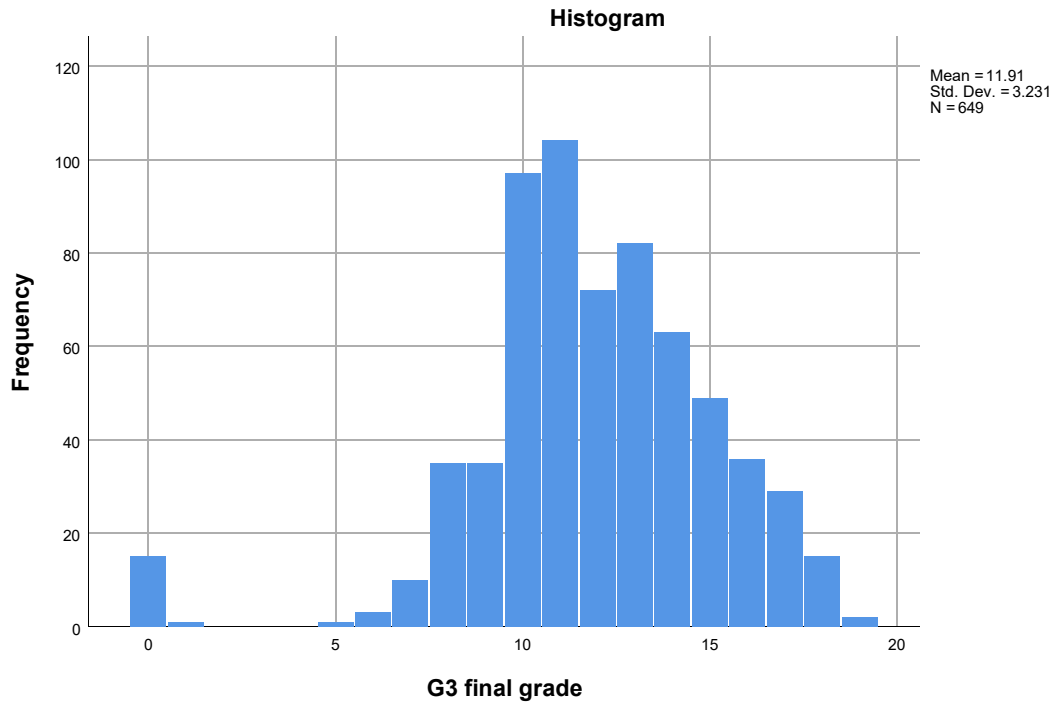
		Statistic	Std. Error	
G3 final grade	Mean	11.91	.127	
	95% Confidence Interval for Mean	Lower Bound	11.66	
		Upper Bound	12.16	
	5% Trimmed Mean	12.06		
	Median	12.00		
	Variance	10.437		
	Std. Deviation	3.231		
	Minimum	0		
	Maximum	19		
	Range	19		
	Interquartile Range	4		
	Skewness	-.913	.096	
	Kurtosis	2.712	.192	

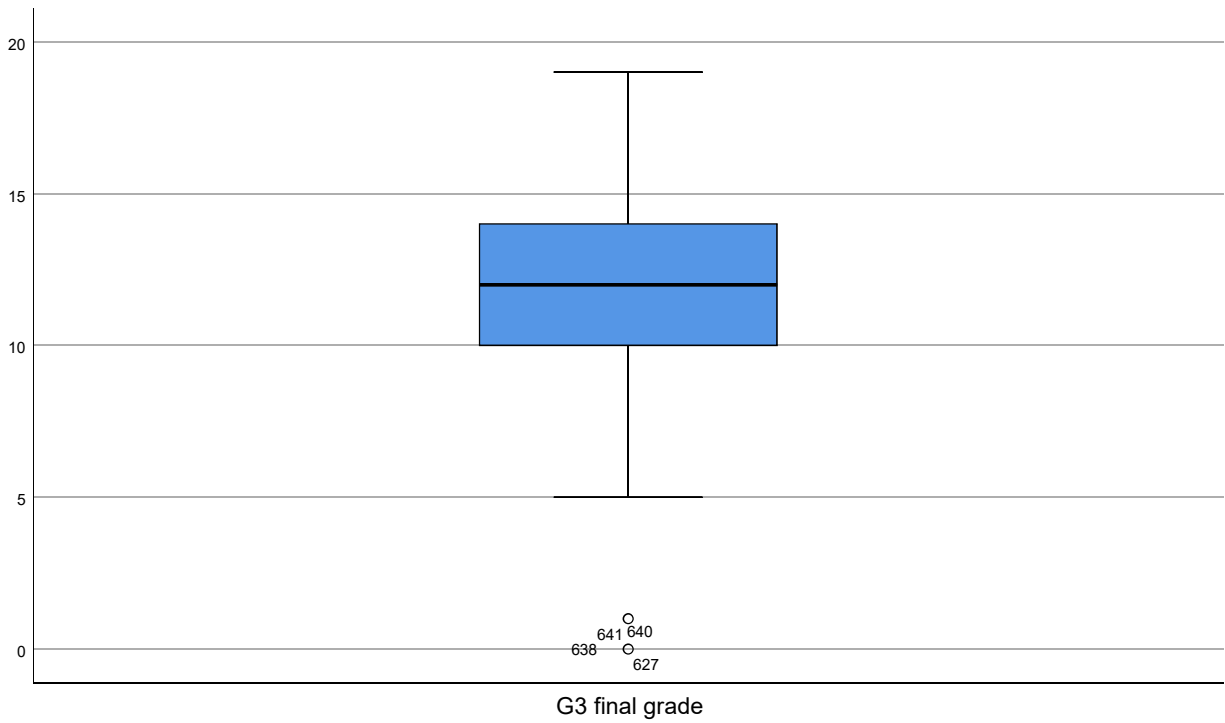
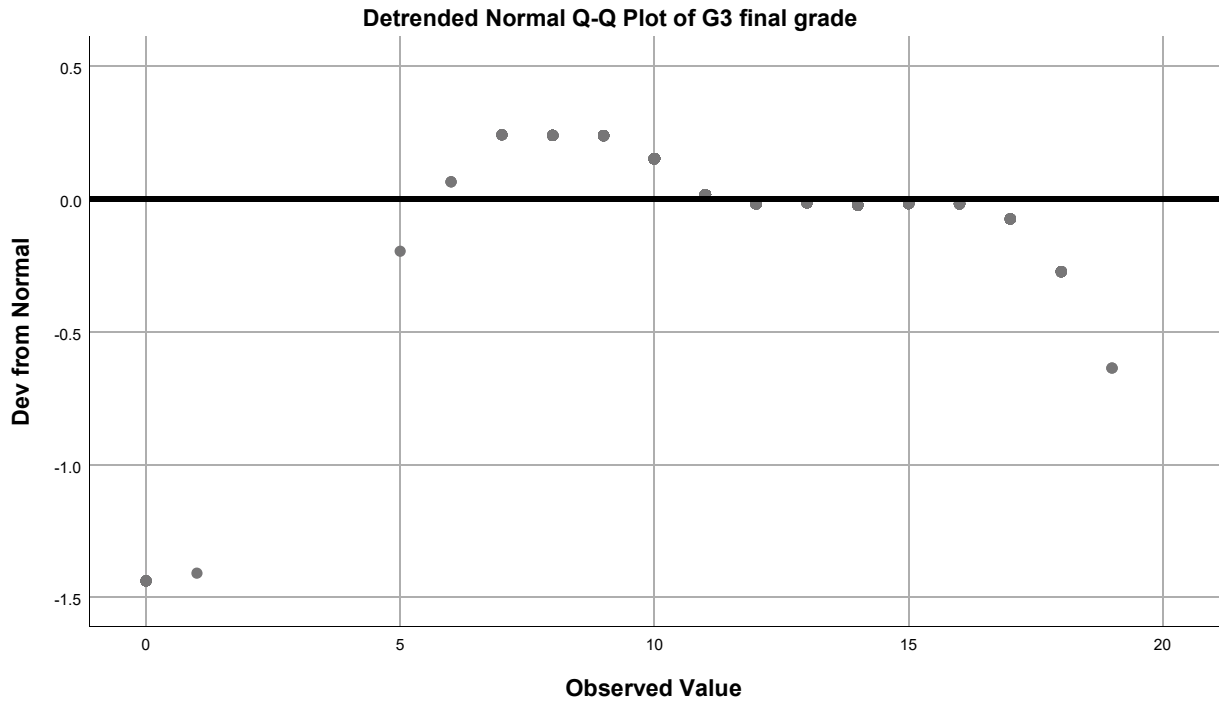
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
G3 final grade	.124	649	.000	.926	649	.000

a. Lilliefors Significance Correction

G3 final grade





```

* =====.
* 8. Group-specific Lilliefors / K-S normality tests.
* =====.
* Each Explore command below gives Tests of Normality by group.

```

* Use the Kolmogorov-Smirnov row with Lilliefors Significance Correction.
 * =====.

```
EXAMINE VARIABLES=g3 BY school_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
/CINTERVAL 95
/MISSING LISTWISE
/NOTOTAL.
```

Explore

School group

Case Processing Summary

		Cases				Total N
		Valid		Missing		
	School group	N	Percent	N	Percent	
G3 final grade	Gabriel Pereira School	423	100.0%	0	0.0%	423
	Mousinho da Silveira School	226	100.0%	0	0.0%	226

Case Processing Summary

		Cases
		Total Percent
	School group	
G3 final grade	Gabriel Pereira School	100.0%
	Mousinho da Silveira School	100.0%

Descriptives

School group		Statistic			
G3 final grade	Gabriel Pereira School	Mean	12.58		
		95% Confidence Interval for Mean	Lower Bound	12.33	
			Upper Bound	12.83	
		5% Trimmed Mean	12.62		
		Median	13.00		
		Variance	6.894		
		Std. Deviation	2.626		
		Minimum	0		
		Maximum	19		
		Range	19		
		Interquartile Range	3		
		Skewness	-.336		
		Kurtosis	1.388		
			Mousinho da Silveira School	Mean	10.65
				95% Confidence Interval for Mean	Lower Bound
Upper Bound	11.15				
5% Trimmed Mean	10.85				
Median	11.00				
Variance	14.699				
Std. Deviation	3.834				
Minimum	0				
Maximum	19				
Range	19				
Interquartile Range	4				
Skewness	-.828				
Kurtosis	1.778				

Descriptives

School group			Std. Error
G3 final grade	Gabriel Pereira School	Mean	.128
		95% Confidence Interval for Mean	Lower Bound
			Upper Bound
		5% Trimmed Mean	
		Median	
		Variance	
		Std. Deviation	
		Minimum	
		Maximum	
		Range	
	Interquartile Range		
	Skewness	.119	
	Kurtosis	.237	
	Mousinho da Silveira School	Mean	.255
		95% Confidence Interval for Mean	Lower Bound
			Upper Bound
		5% Trimmed Mean	
		Median	
		Variance	
		Std. Deviation	
Minimum			
Maximum			
Range			
Interquartile Range			
Skewness	.162		
Kurtosis	.322		

Tests of Normality

School group		Kolmogorov-Smirnov ^a			Shapiro-Wilk	
		Statistic	df	Sig.	Statistic	df
G3 final grade	Gabriel Pereira School	.092	423	.000	.965	423
	Mousinho da Silveira School	.147	226	.000	.905	226

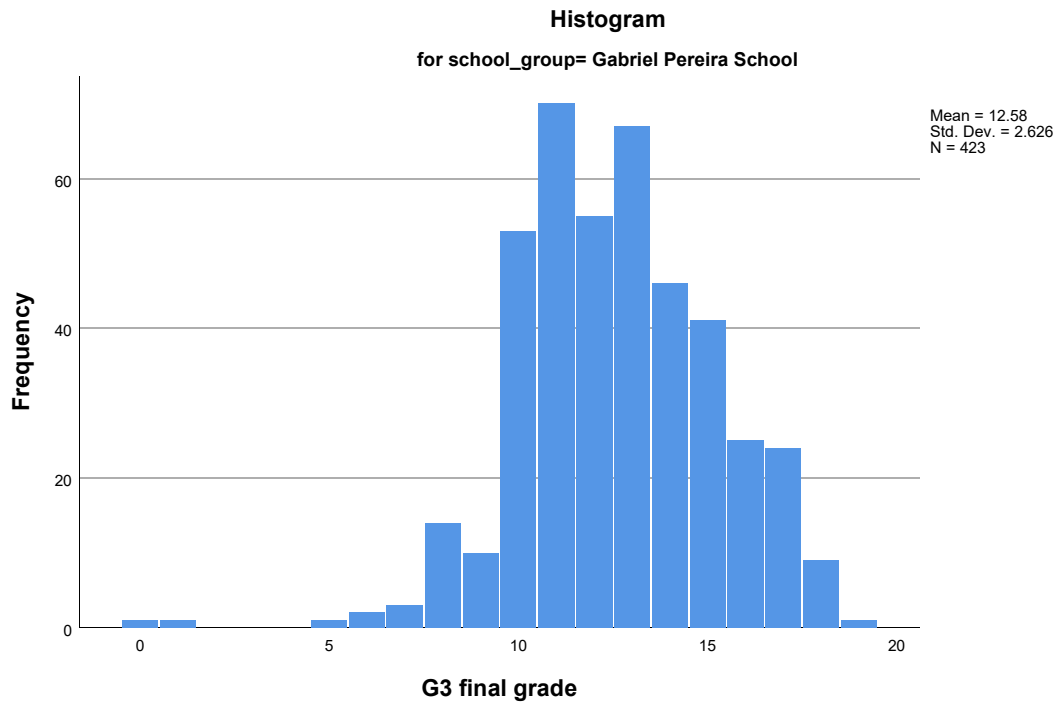
Tests of Normality

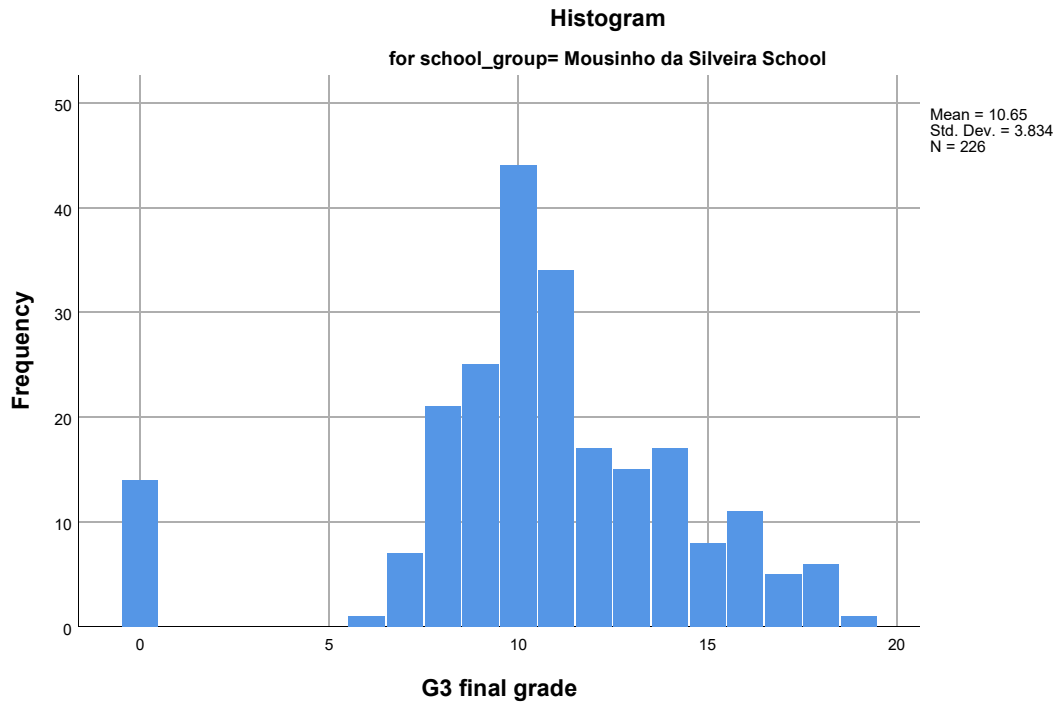
		Shapiro-...
School group		Sig.
G3 final grade	Gabriel Pereira School	.000
	Mousinho da Silveira School	.000

a. Lilliefors Significance Correction

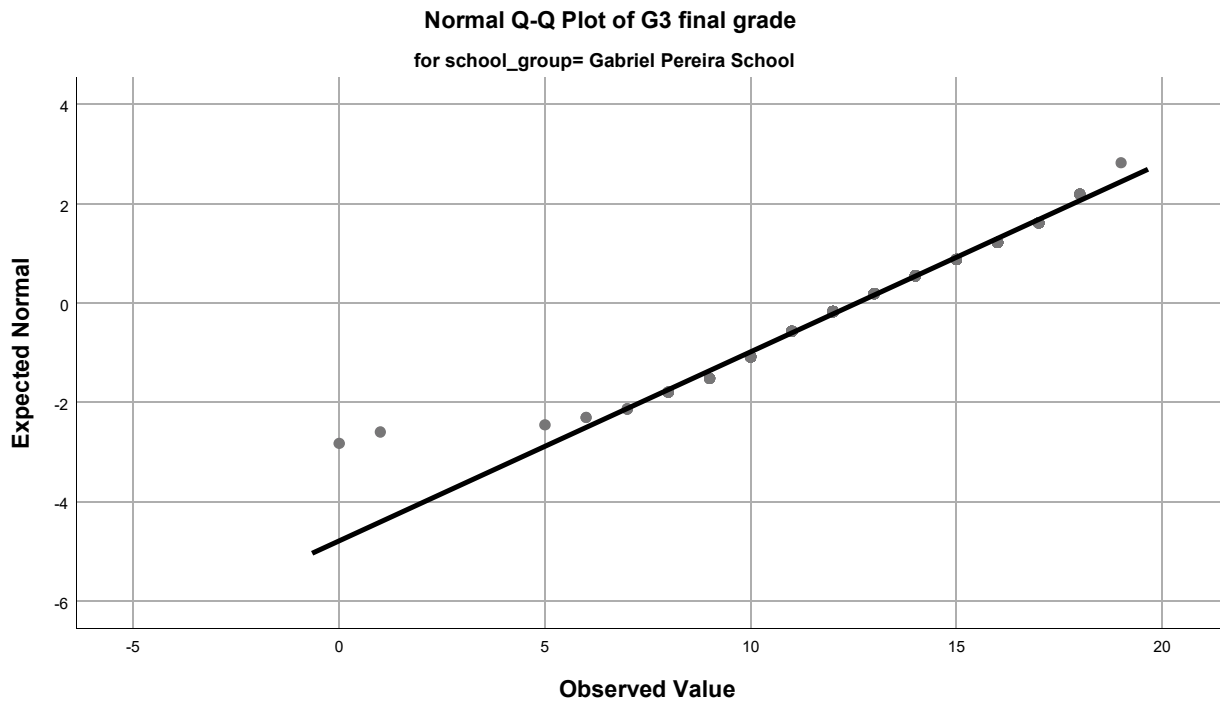
G3 final grade

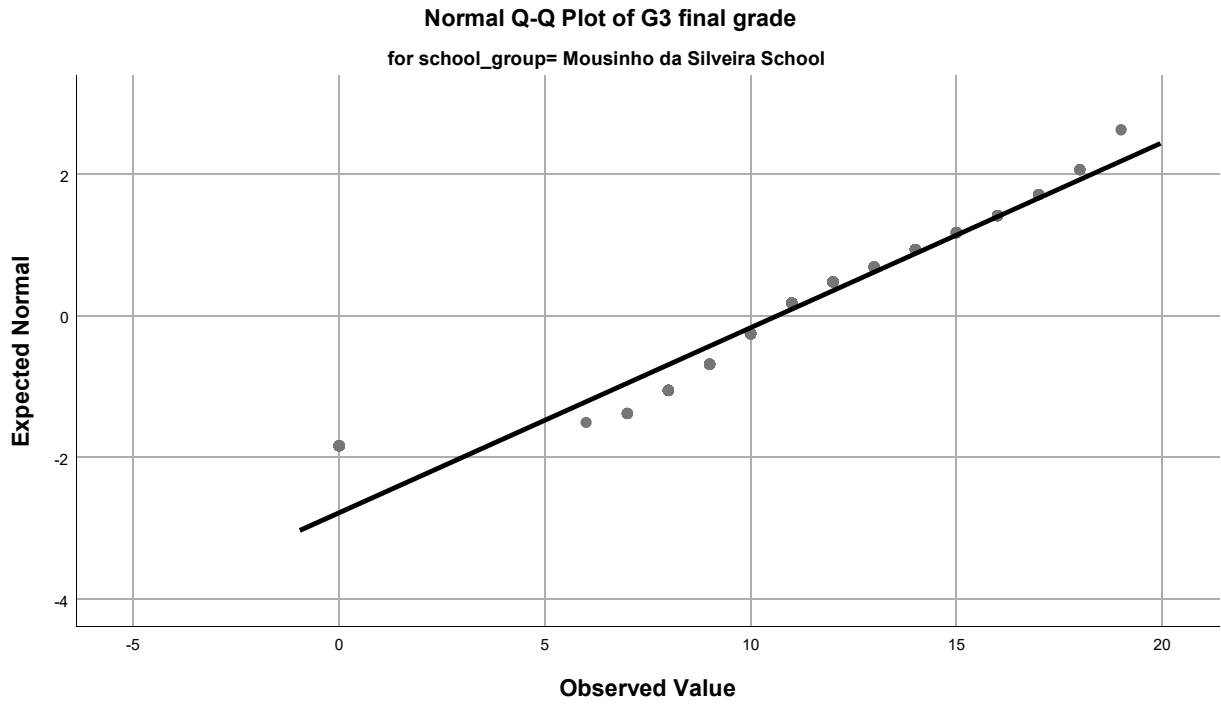
Histograms



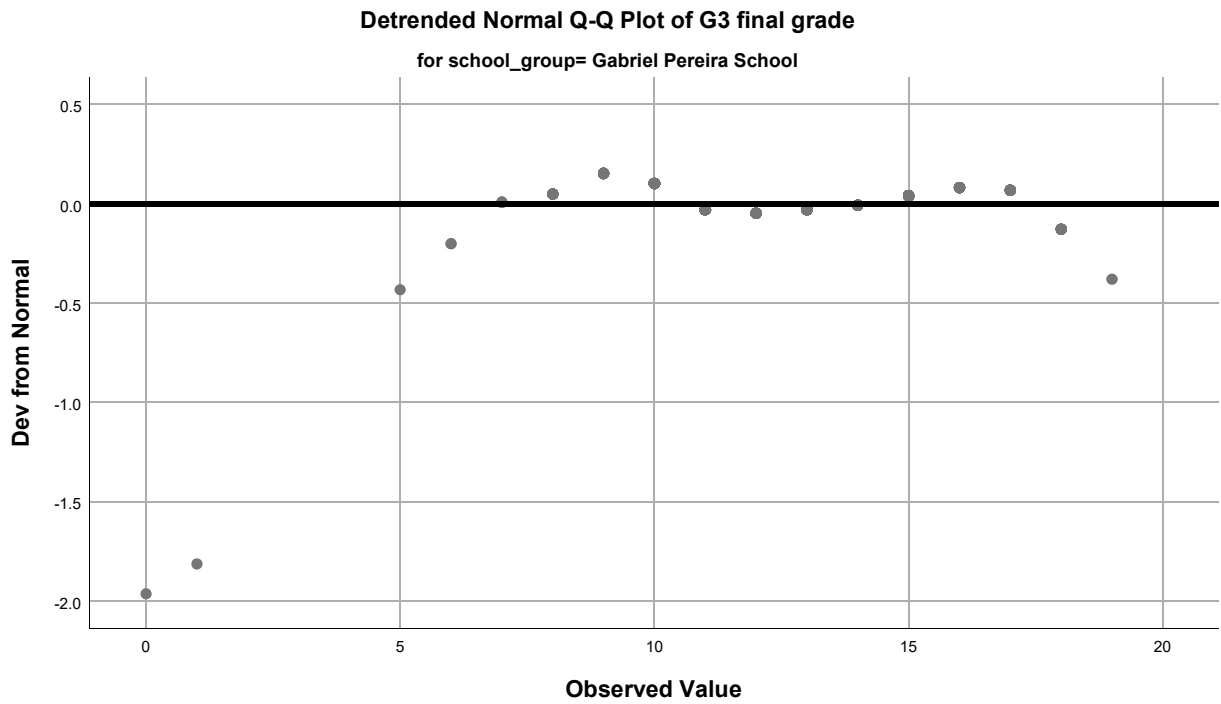


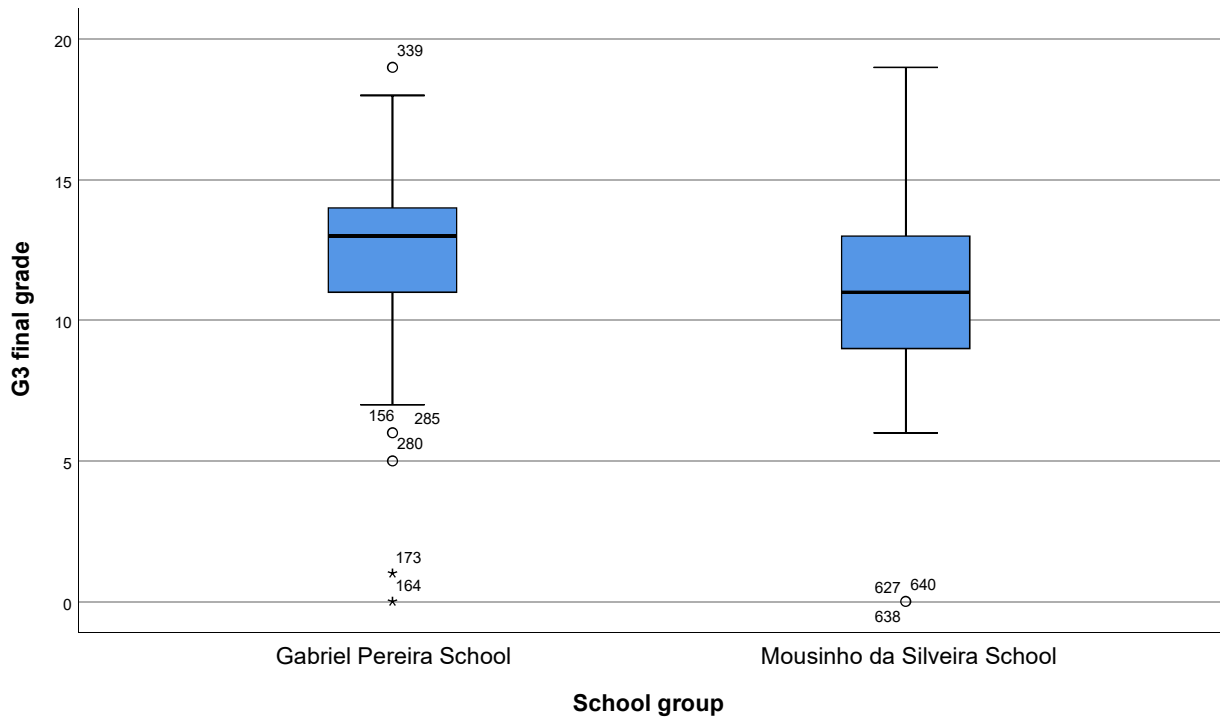
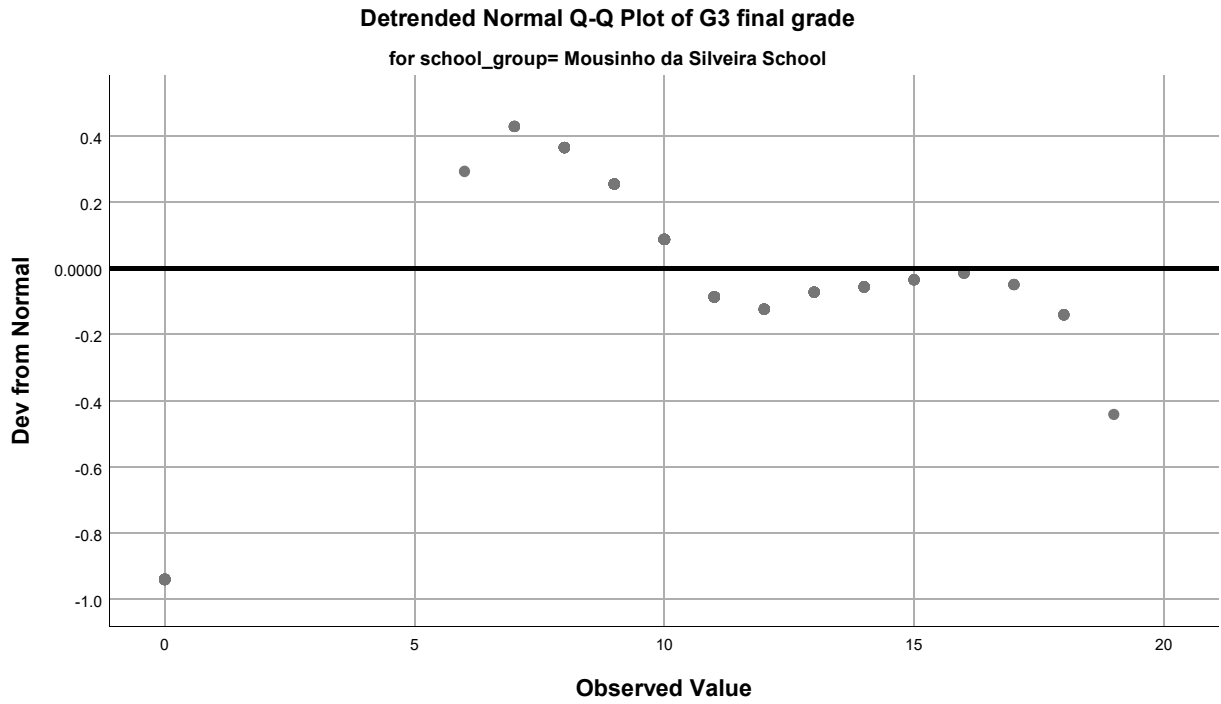
Normal Q-Q Plots





Detrended Normal Q-Q Plots





```
EXAMINE VARIABLES=g3 BY sex_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
```

/CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.

Explore

Sex group

Case Processing Summary

	Sex group	Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
G3 final grade	1	383	100.0%	0	0.0%	383	100.0%
	2	266	100.0%	0	0.0%	266	100.0%

Descriptives

Sex group		Statistic	Std. Error		
G3 final grade	1	Mean	12.25	.160	
		95% Confidence Interval for Mean	Lower Bound	11.94	
			Upper Bound	12.57	
		5% Trimmed Mean	12.37		
		Median	12.00		
		Variance	9.760		
		Std. Deviation	3.124		
		Minimum	0		
		Maximum	19		
		Range	19		
		Interquartile Range	4		
		Skewness	-.857	.125	
		Kurtosis	2.683	.249	
		2	Mean	11.41	.204
95% Confidence Interval for Mean	Lower Bound		11.01		
	Upper Bound		11.81		
5% Trimmed Mean	11.60				
Median	11.00				
Variance	11.027				
Std. Deviation	3.321				
Minimum	0				
Maximum	19				

Descriptives

Sex group		Statistic	Std. Error
	Range	19	
	Interquartile Range	3	
	Skewness	-.980	.149
	Kurtosis	2.803	.298

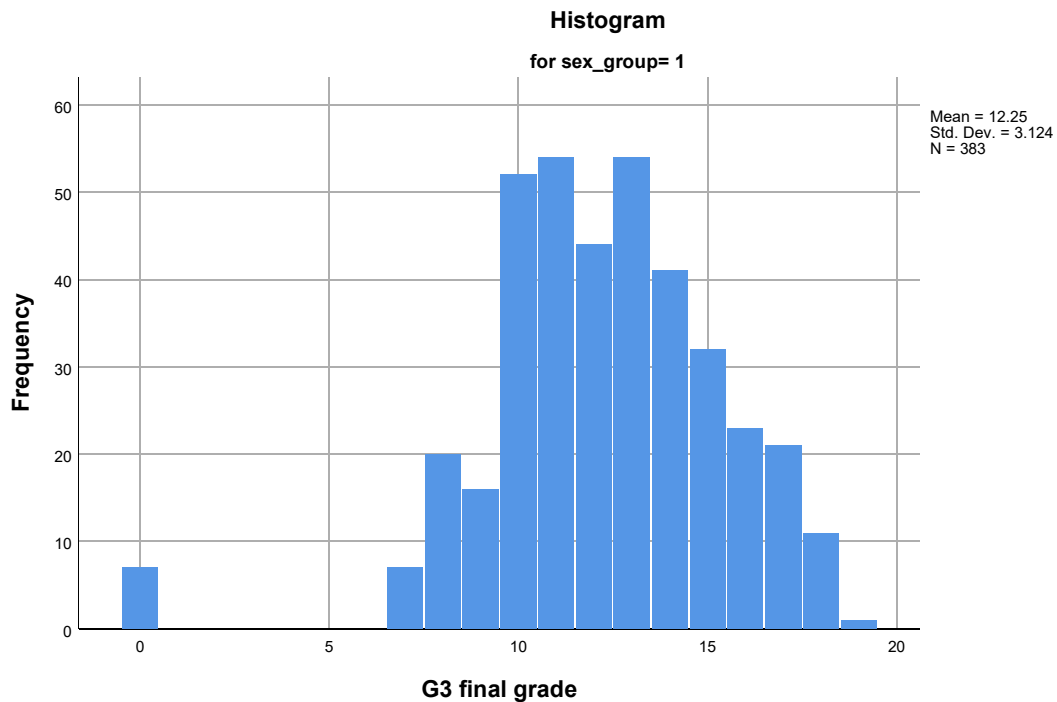
Tests of Normality

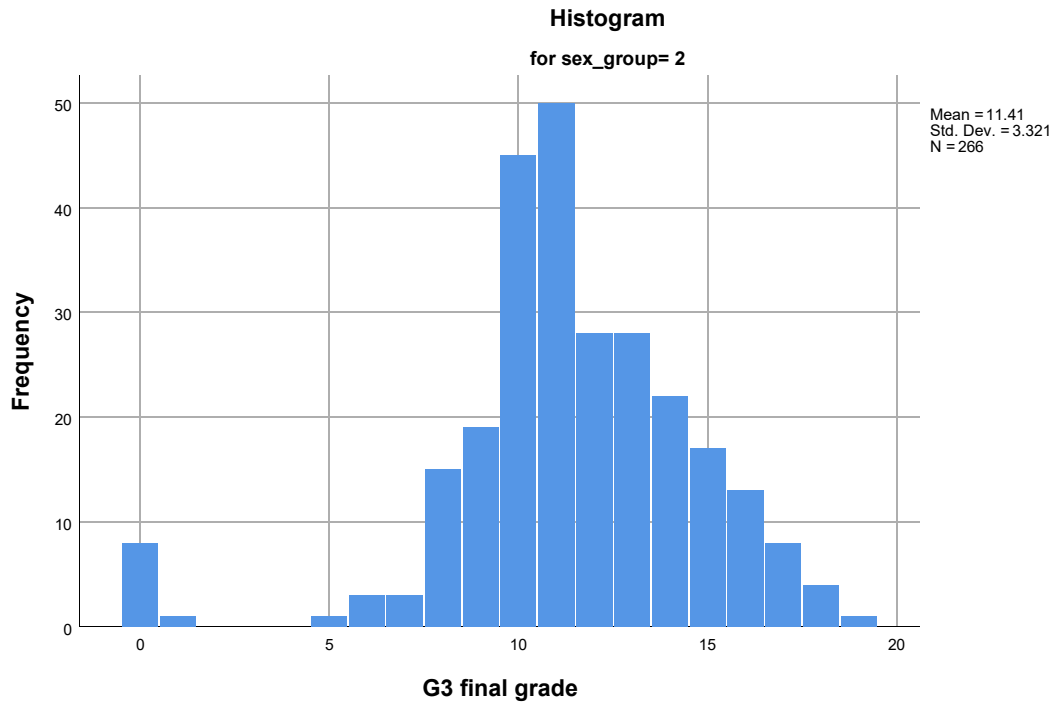
	Sex group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
G3 final grade	1	.105	383	.000	.934	383	.000
	2	.148	266	.000	.913	266	.000

a. Lilliefors Significance Correction

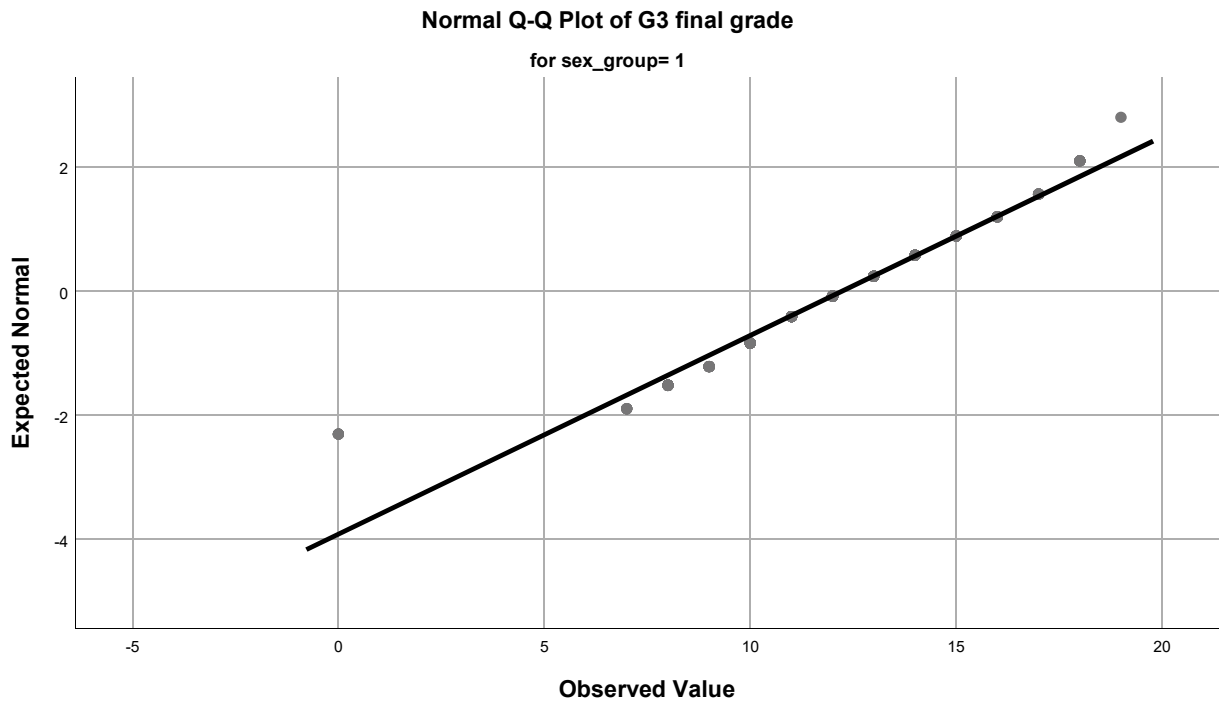
G3 final grade

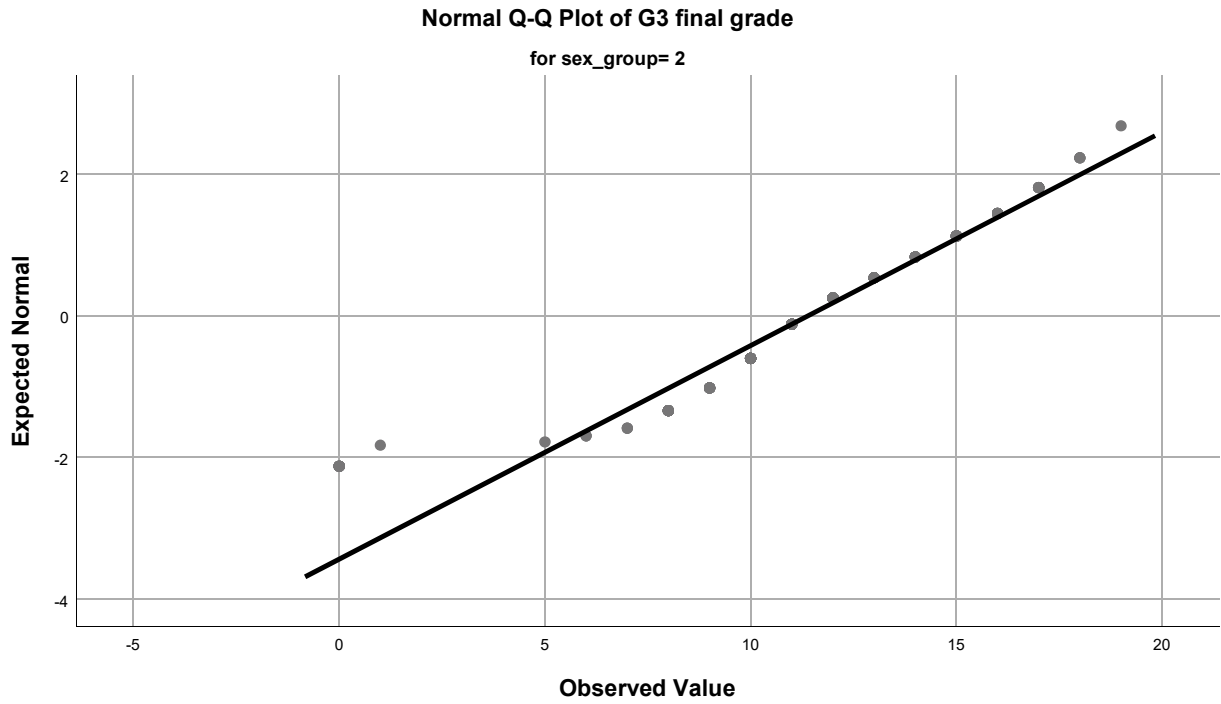
Histograms



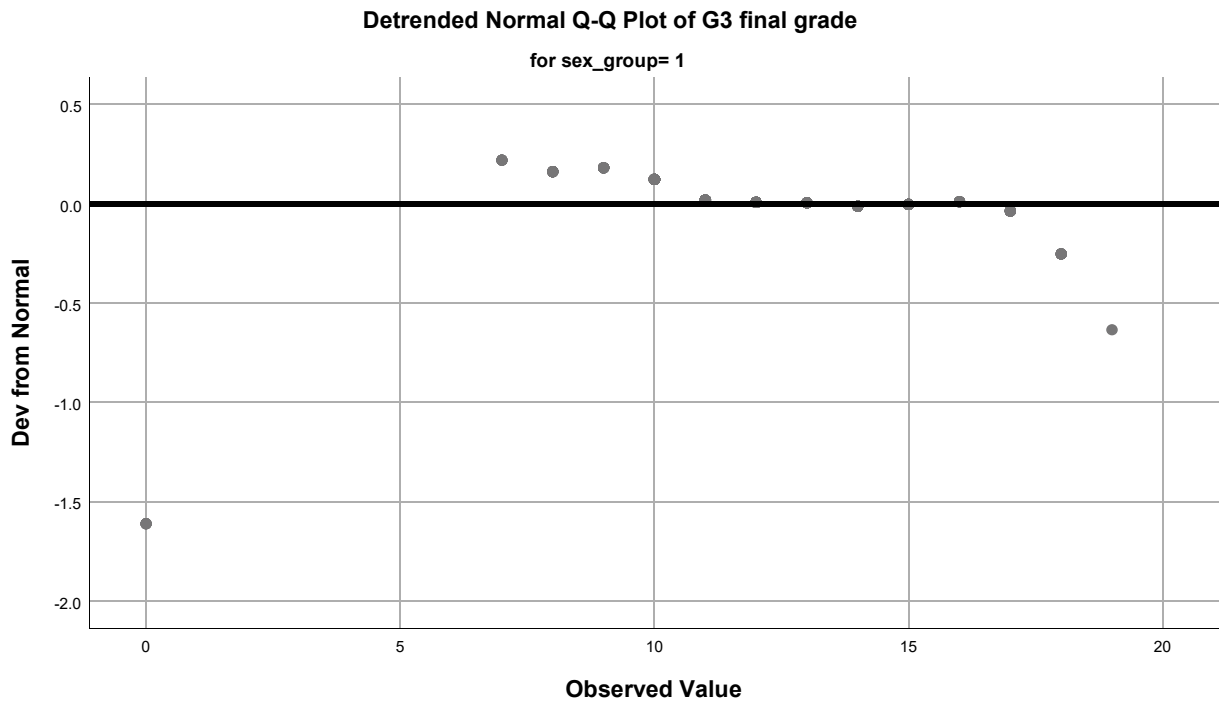


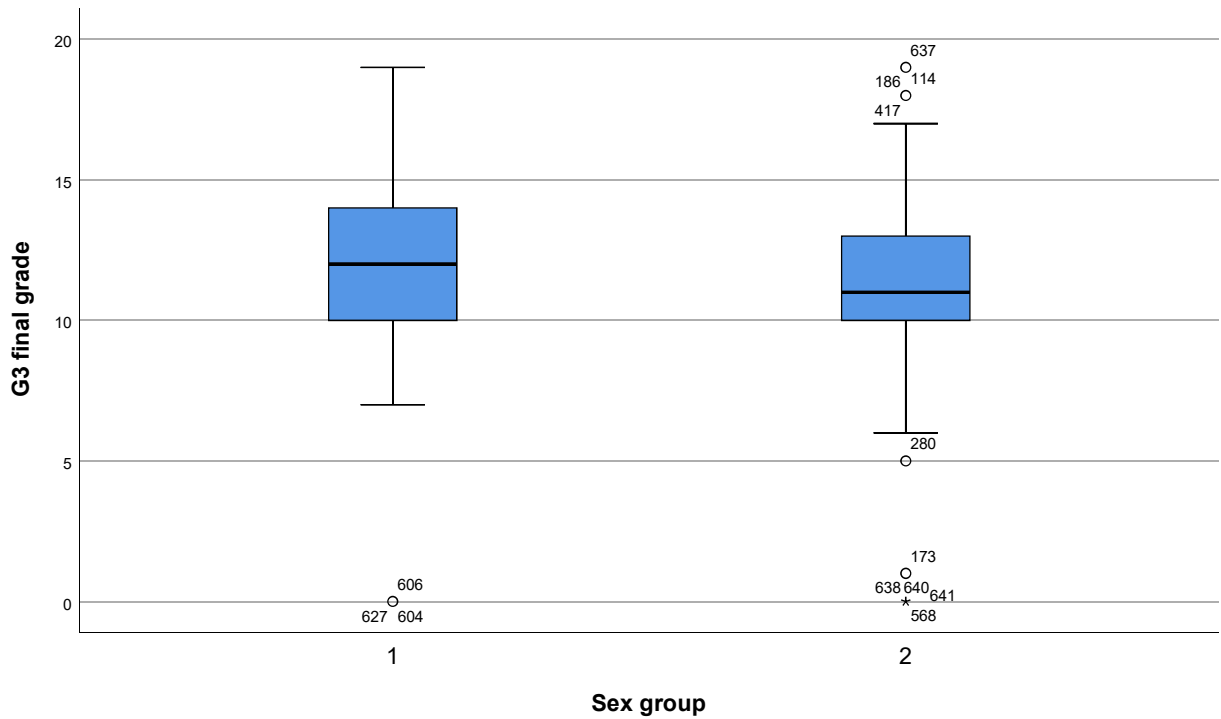
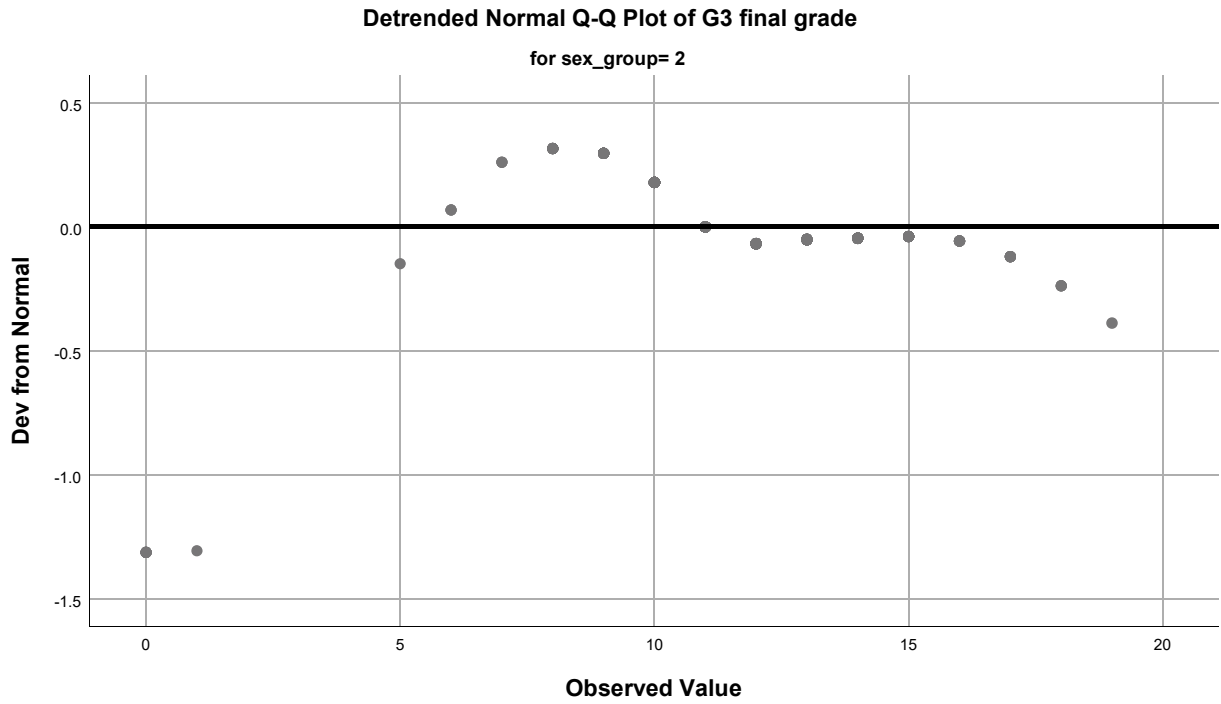
Normal Q-Q Plots





Detrended Normal Q-Q Plots





```

EXAMINE VARIABLES=g3 BY age_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES

```

/CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.

Explore

Age group

Case Processing Summary

	Age group	Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
G3 final grade	1	289	100.0%	0	0.0%	289	100.0%
	2	179	100.0%	0	0.0%	179	100.0%
	3	140	100.0%	0	0.0%	140	100.0%
	4	41	100.0%	0	0.0%	41	100.0%

Descriptives

Age group		Statistic	Std. Error		
G3 final grade	1	Mean	12.04	.153	
		95% Confidence Interval for Mean	Lower Bound	11.74	
			Upper Bound	12.34	
		5% Trimmed Mean	12.08		
		Median	12.00		
		Variance	6.759		
		Std. Deviation	2.600		
		Minimum	0		
		Maximum	18		
		Range	18		
		Interquartile Range	3		
		Skewness	-.688	.143	
		Kurtosis	3.126	.286	
		2	2	Mean	12.27
95% Confidence Interval for Mean	Lower Bound			11.80	
	Upper Bound			12.73	
5% Trimmed Mean	12.32				
Median	12.00				
Variance	9.916				
Std. Deviation	3.149				

Descriptives

Age group		Statistic	Std. Error	
3	Minimum	0		
	Maximum	19		
	Range	19		
	Interquartile Range	5		
	Skewness	-.391	.182	
	Kurtosis	1.248	.361	
	Mean	11.77	.351	
	95% Confidence Interval for Mean	Lower Bound	11.08	
		Upper Bound	12.47	
	5% Trimmed Mean	12.09		
	Median	12.00		
	Variance	17.257		
	Std. Deviation	4.154		
	Minimum	0		
Maximum	19			
Range	19			
Interquartile Range	5			
Skewness	-1.052	.205		
Kurtosis	1.524	.407		
4	Mean	9.85	.523	
	95% Confidence Interval for Mean	Lower Bound	8.80	
		Upper Bound	10.91	
	5% Trimmed Mean	10.12		
	Median	10.00		
	Variance	11.228		
	Std. Deviation	3.351		
	Minimum	0		
	Maximum	15		
	Range	15		
	Interquartile Range	2		
	Skewness	-1.782	.369	
	Kurtosis	3.882	.724	

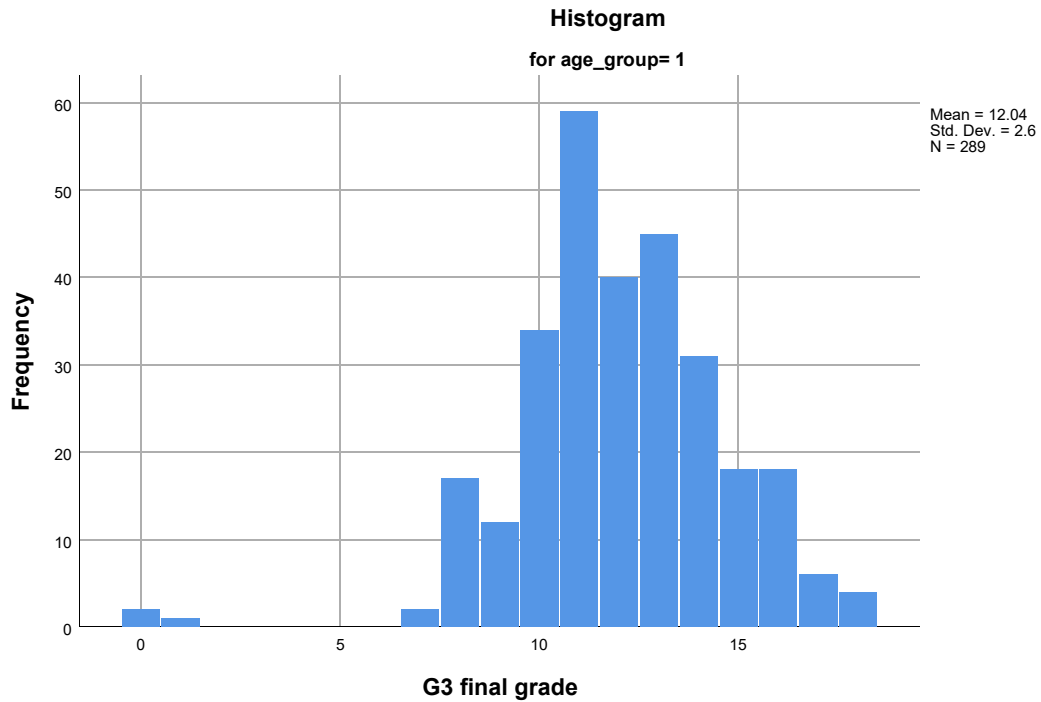
Tests of Normality

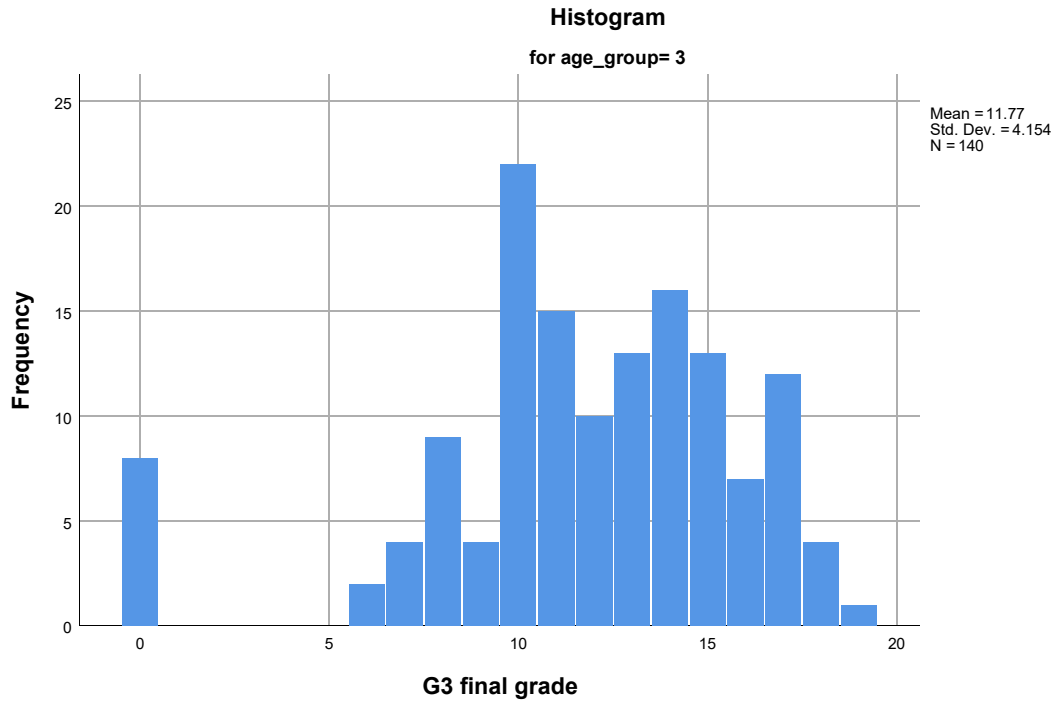
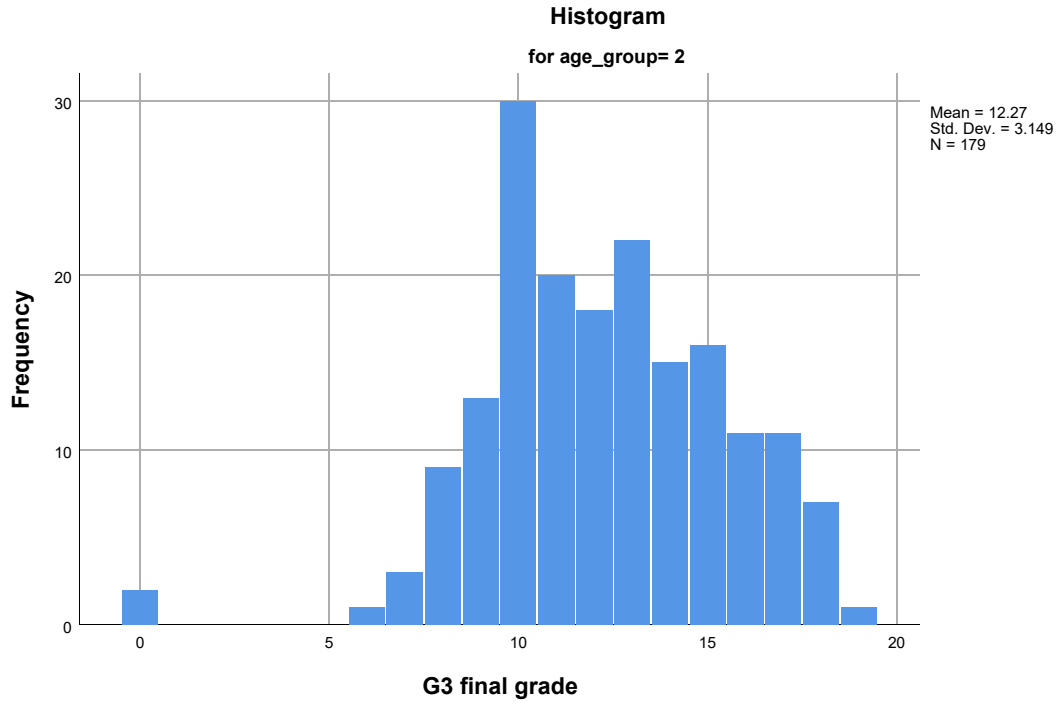
	Age group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
G3 final grade	1	.110	289	.000	.940	289	.000
	2	.092	179	.001	.957	179	.000
	3	.142	140	.000	.910	140	.000
	4	.278	41	.000	.778	41	.000

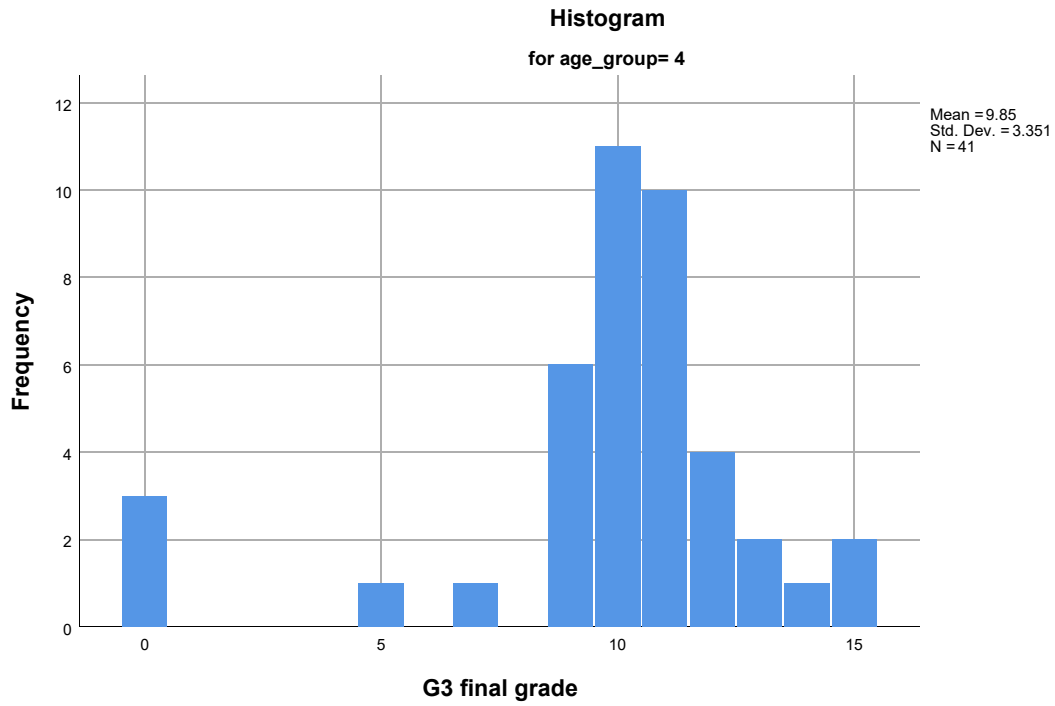
a. Lilliefors Significance Correction

G3 final grade

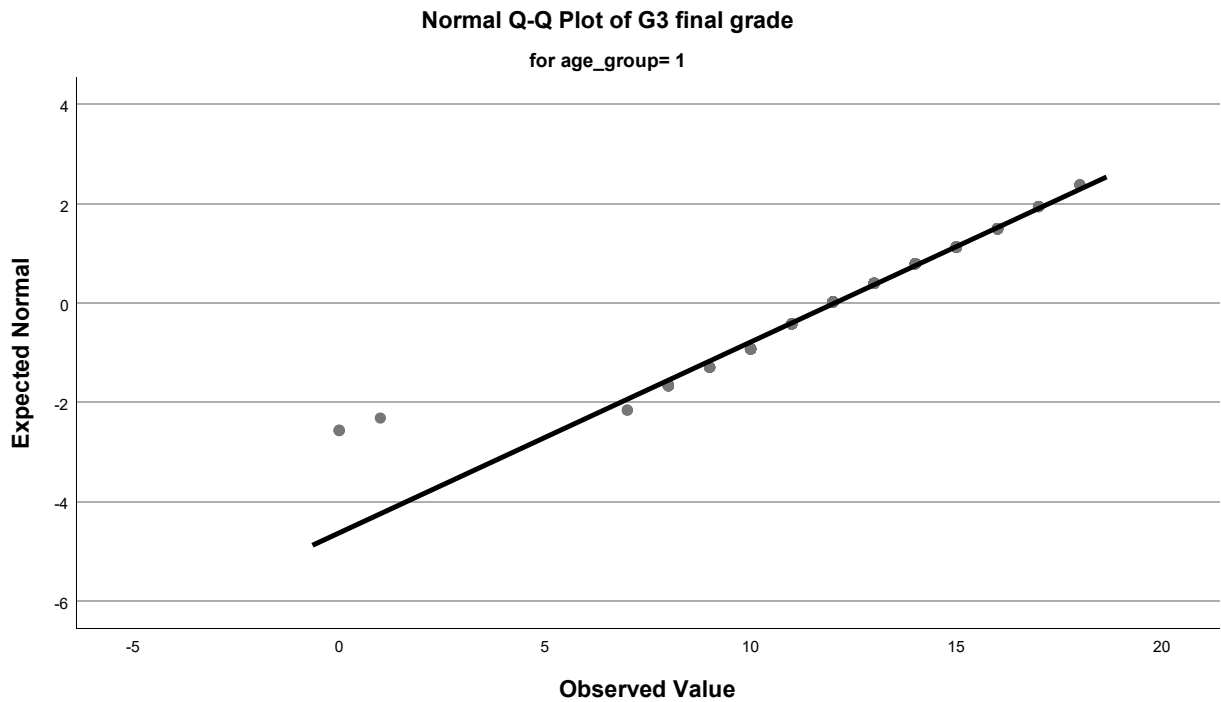
Histograms





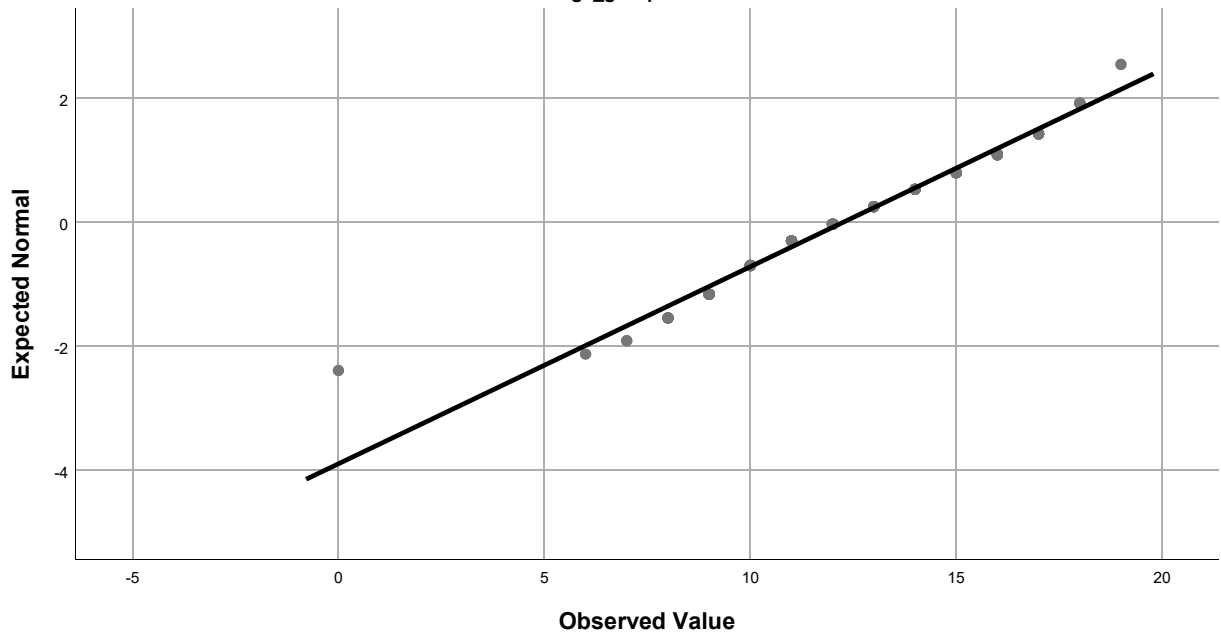


Normal Q-Q Plots



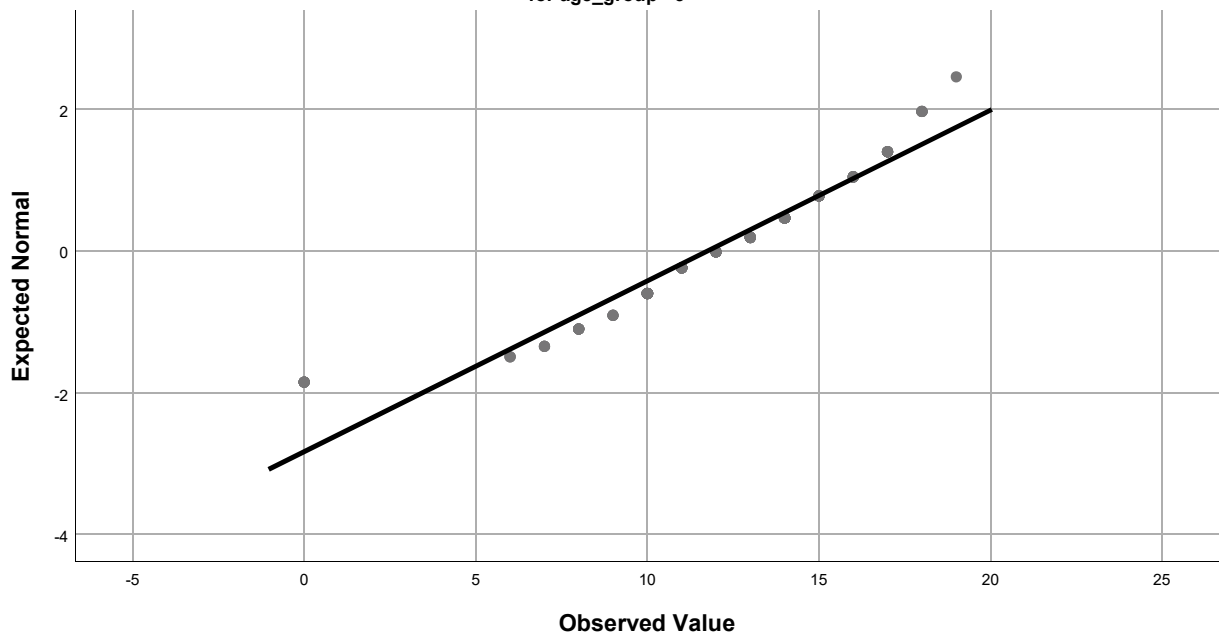
Normal Q-Q Plot of G3 final grade

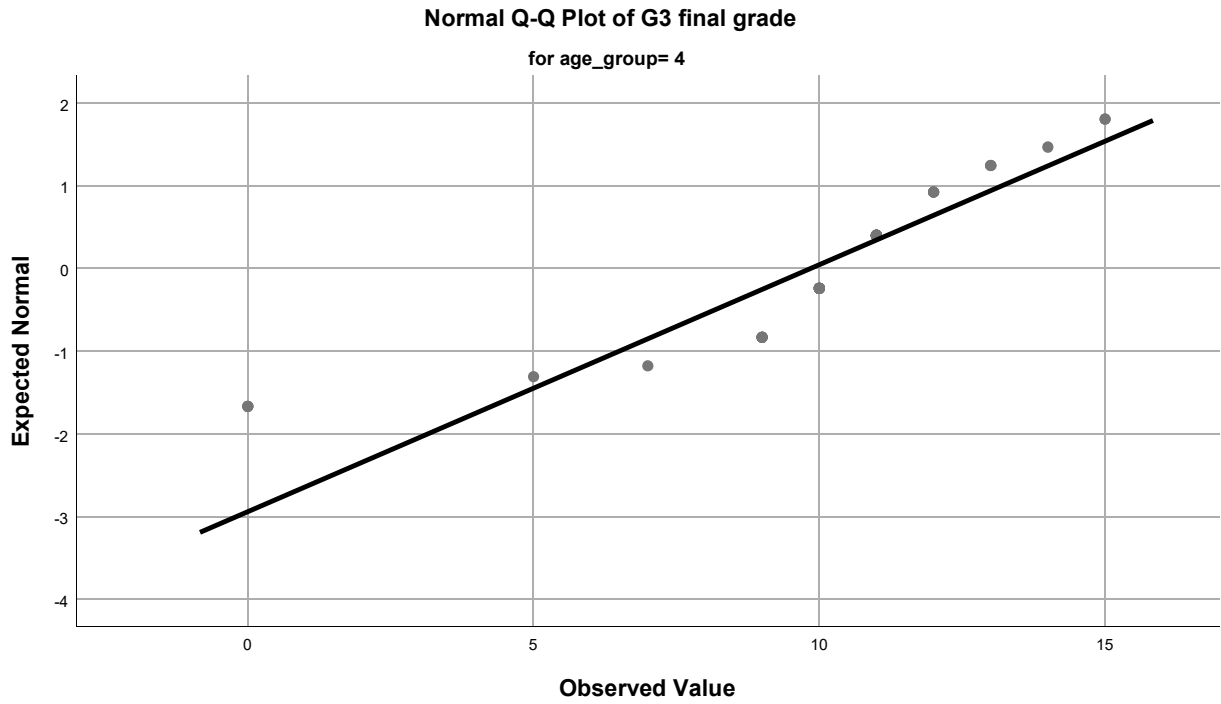
for age_group= 2



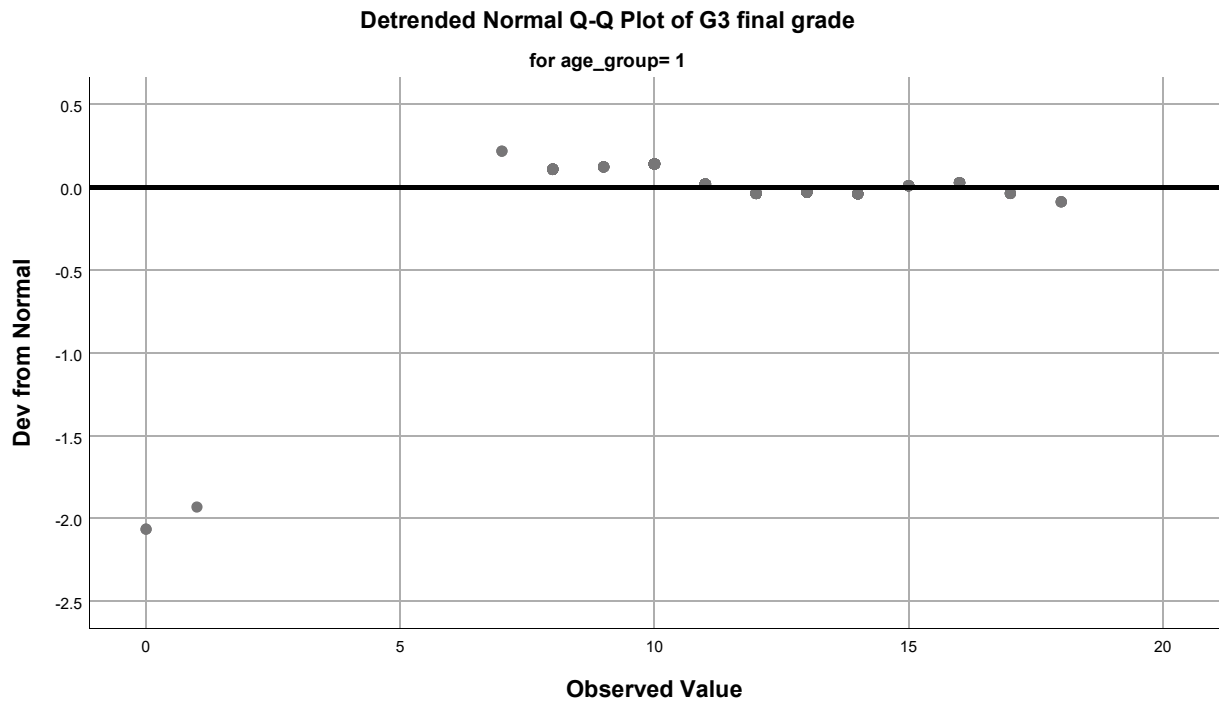
Normal Q-Q Plot of G3 final grade

for age_group= 3



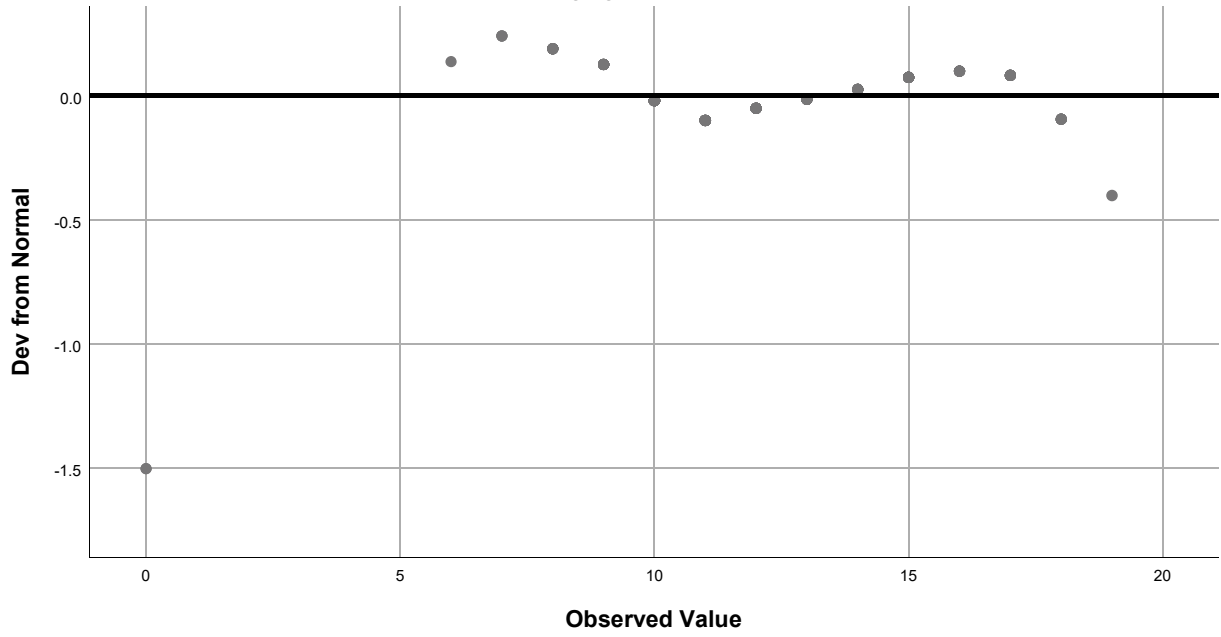


Detrended Normal Q-Q Plots



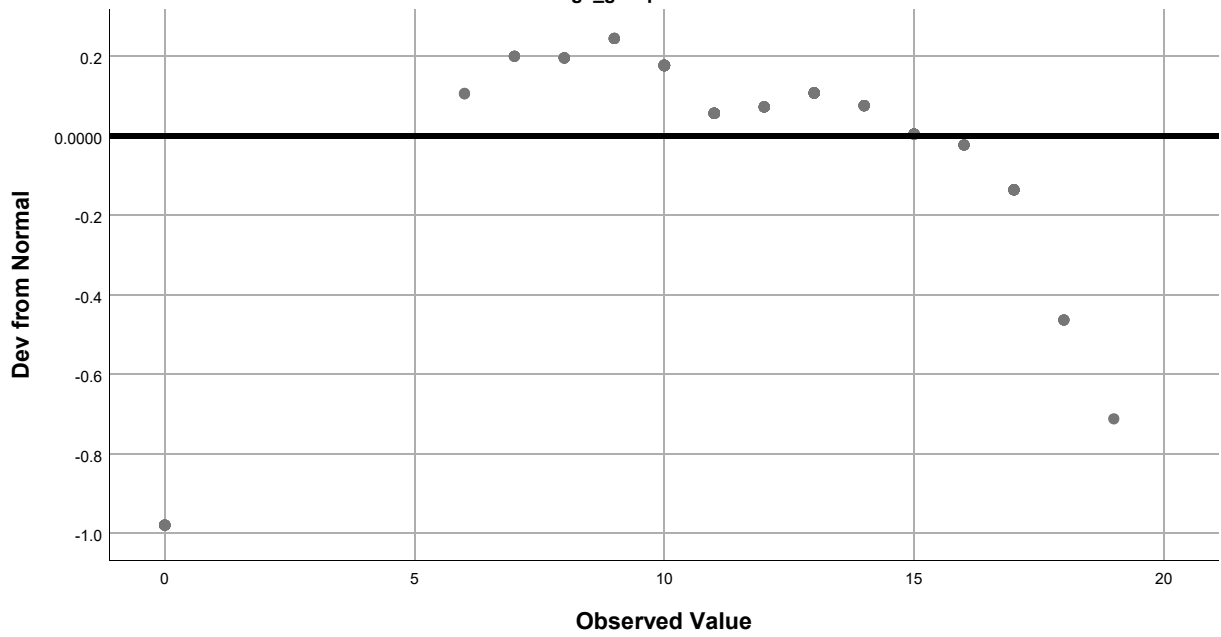
Detrended Normal Q-Q Plot of G3 final grade

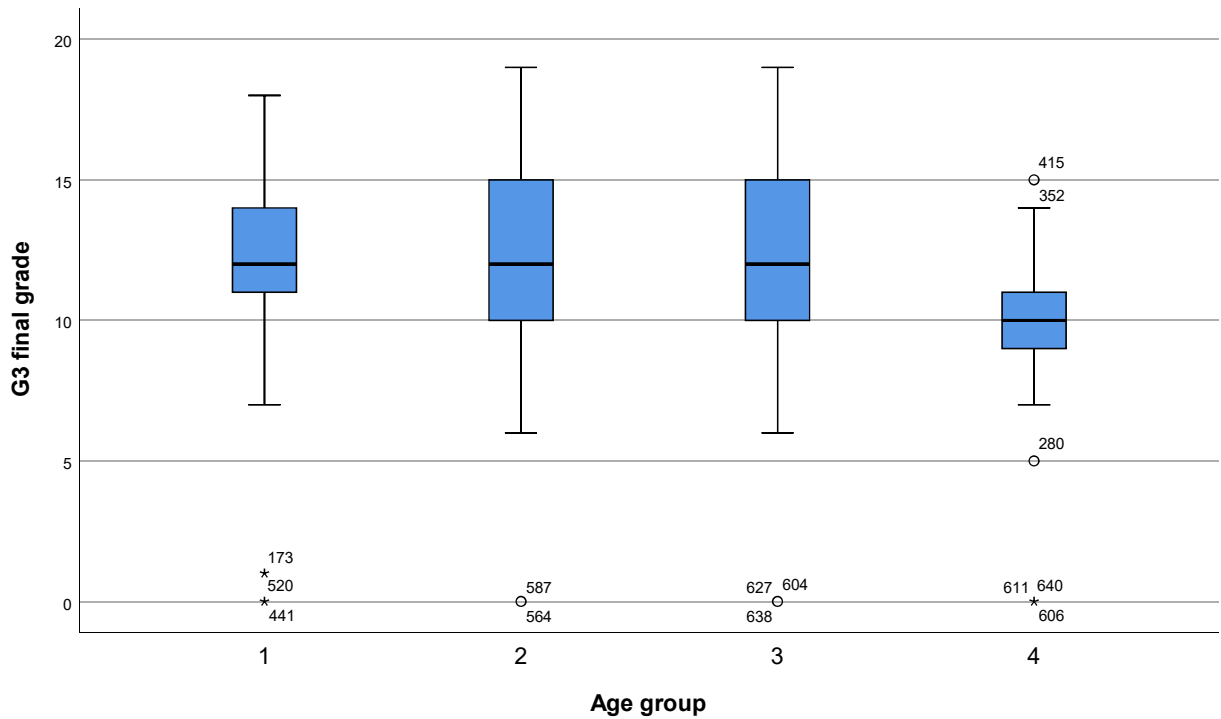
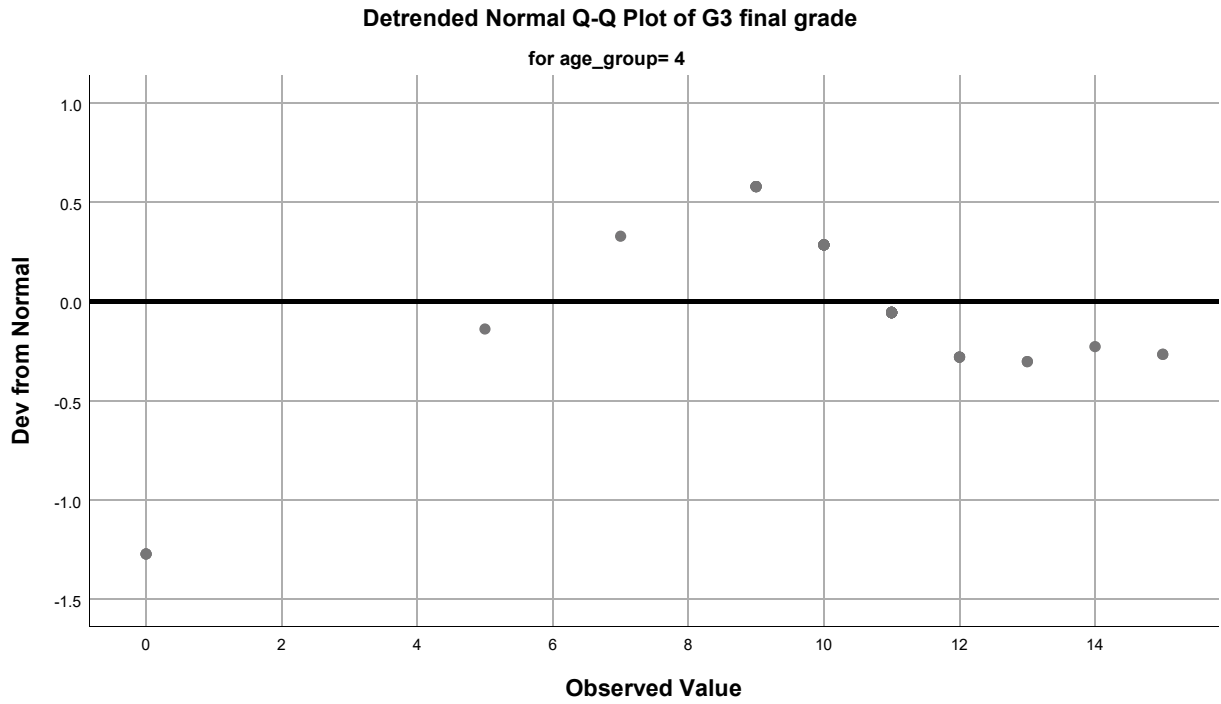
for age_group= 2



Detrended Normal Q-Q Plot of G3 final grade

for age_group= 3





```

EXAMINE VARIABLES=g3 BY studytime_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES

```

/CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.

Explore

Study time group

Case Processing Summary

	Study time group	Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
G3 final grade	1	212	100.0%	0	0.0%	212	100.0%
	2	305	100.0%	0	0.0%	305	100.0%
	3	97	100.0%	0	0.0%	97	100.0%
	4	35	100.0%	0	0.0%	35	100.0%

Descriptives

Study time group		Statistic	Std. Error		
G3 final grade	1	Mean	10.84	.221	
		95% Confidence Interval for Mean	Lower Bound	10.41	
			Upper Bound	11.28	
		5% Trimmed Mean	11.04		
		Median	11.00		
		Variance	10.360		
		Std. Deviation	3.219		
		Minimum	0		
		Maximum	18		
		Range	18		
		Interquartile Range	3		
		Skewness	-1.078	.167	
		Kurtosis	3.117	.333	
		2	2	Mean	12.09
95% Confidence Interval for Mean	Lower Bound			11.73	
	Upper Bound			12.46	
5% Trimmed Mean	12.25				
Median	12.00				
Variance	10.518				
Std. Deviation	3.243				

Descriptives

Study time group	Statistic	Std. Error		
3	Minimum	0		
	Maximum	19		
	Range	19		
	Interquartile Range	4		
	Skewness	-1.028	.140	
	Kurtosis	3.044	.278	
	Mean	13.23	.254	
	95% Confidence Interval for Mean	Lower Bound	12.72	
		Upper Bound	13.73	
	5% Trimmed Mean	13.27		
	Median	13.00		
	Variance	6.261		
	Std. Deviation	2.502		
	Minimum	8		
	Maximum	18		
	Range	10		
Interquartile Range	4			
Skewness	-.190	.245		
Kurtosis	-.502	.485		
4	Mean	13.06	.514	
	95% Confidence Interval for Mean	Lower Bound	12.01	
		Upper Bound	14.10	
	5% Trimmed Mean	13.07		
	Median	13.00		
	Variance	9.232		
	Std. Deviation	3.038		
	Minimum	6		
	Maximum	19		
	Range	13		
	Interquartile Range	4		
	Skewness	.209	.398	
	Kurtosis	-.339	.778	

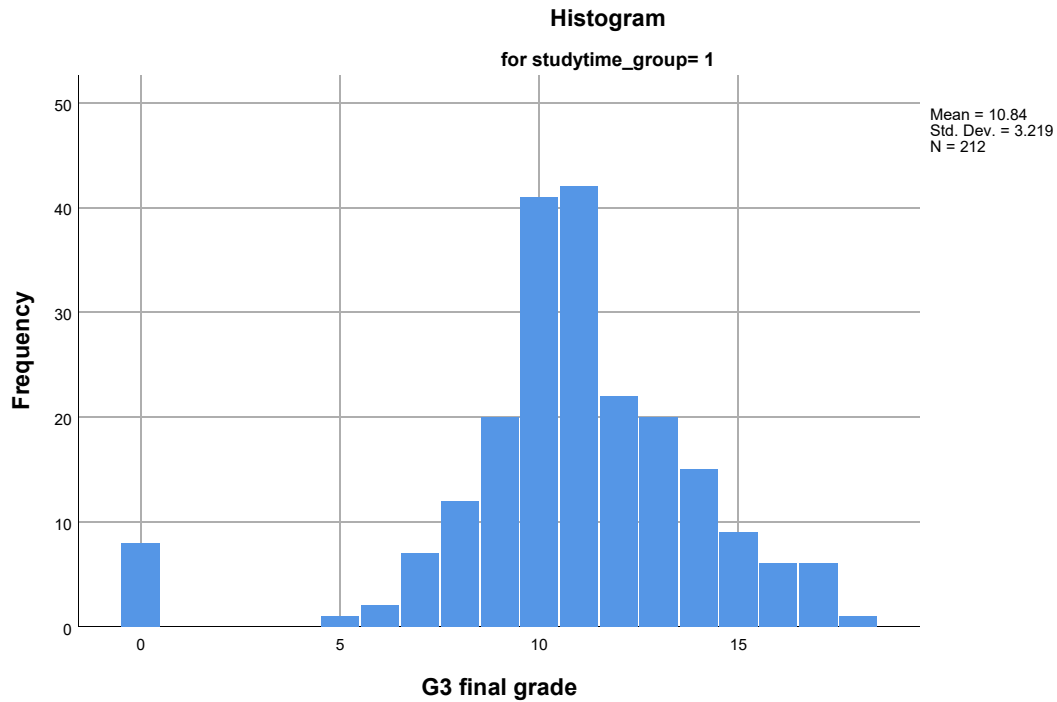
Tests of Normality

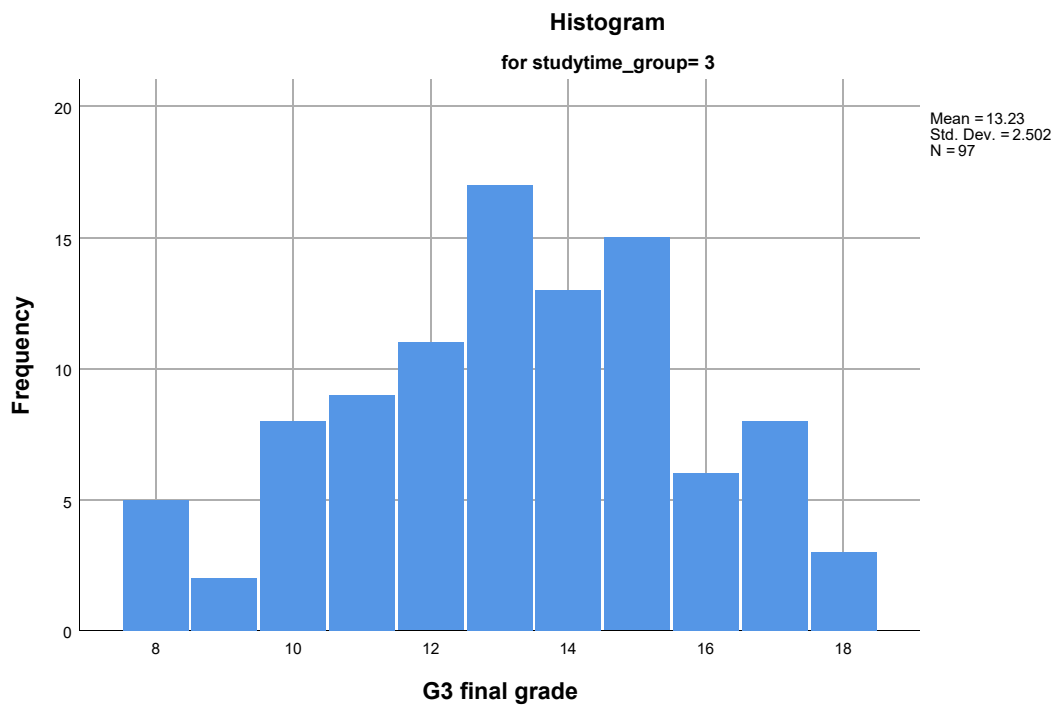
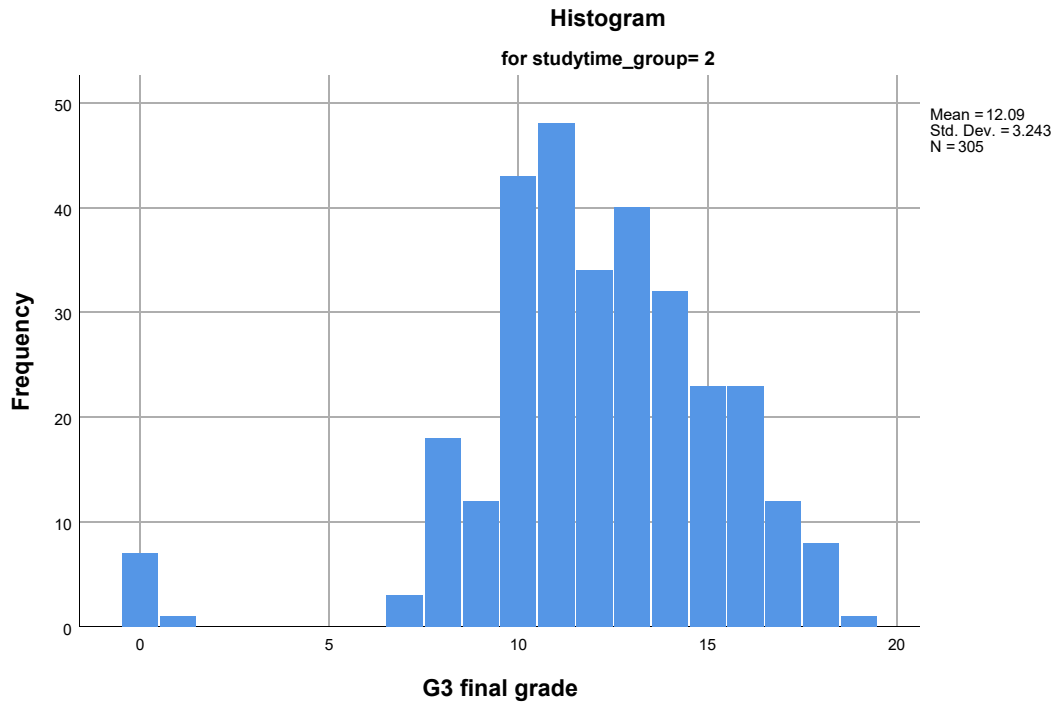
	Study time group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
G3 final grade	1	.161	212	.000	.898	212	.000
	2	.125	305	.000	.917	305	.000
	3	.103	97	.013	.970	97	.025
	4	.136	35	.099	.955	35	.166

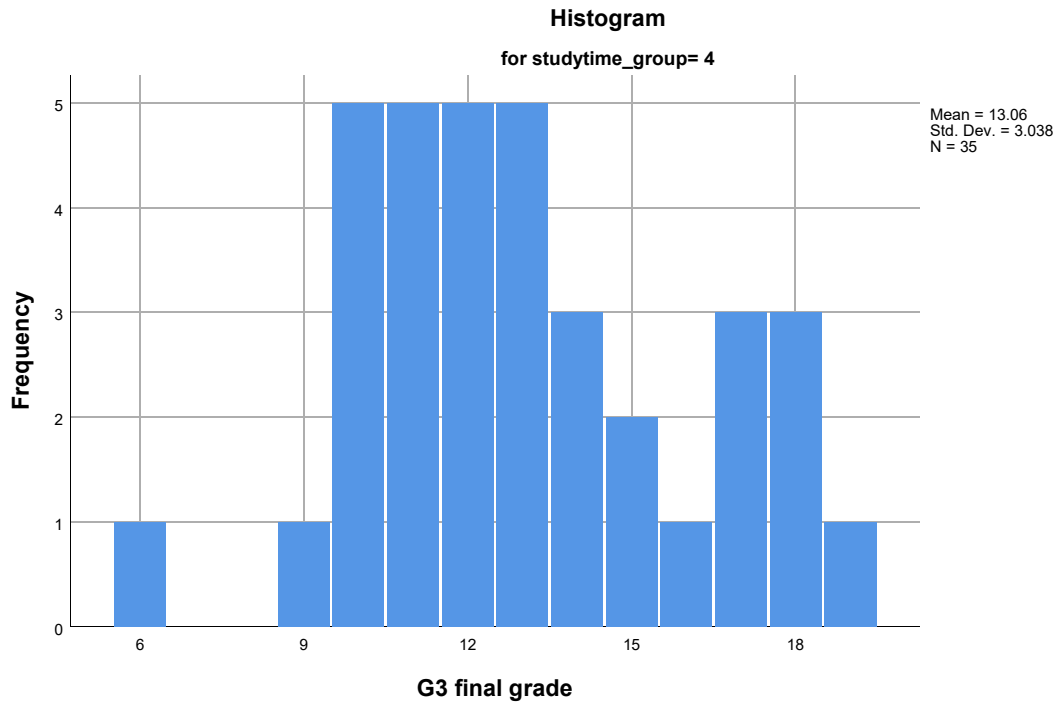
a. Lilliefors Significance Correction

G3 final grade

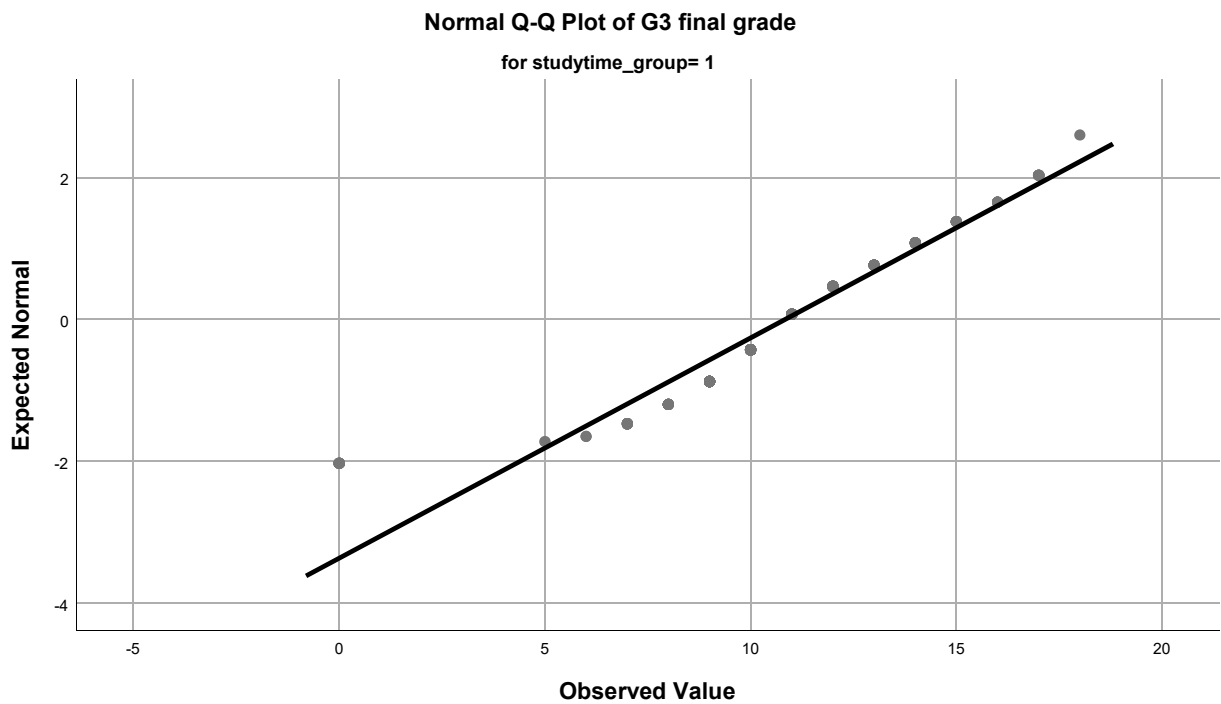
Histograms



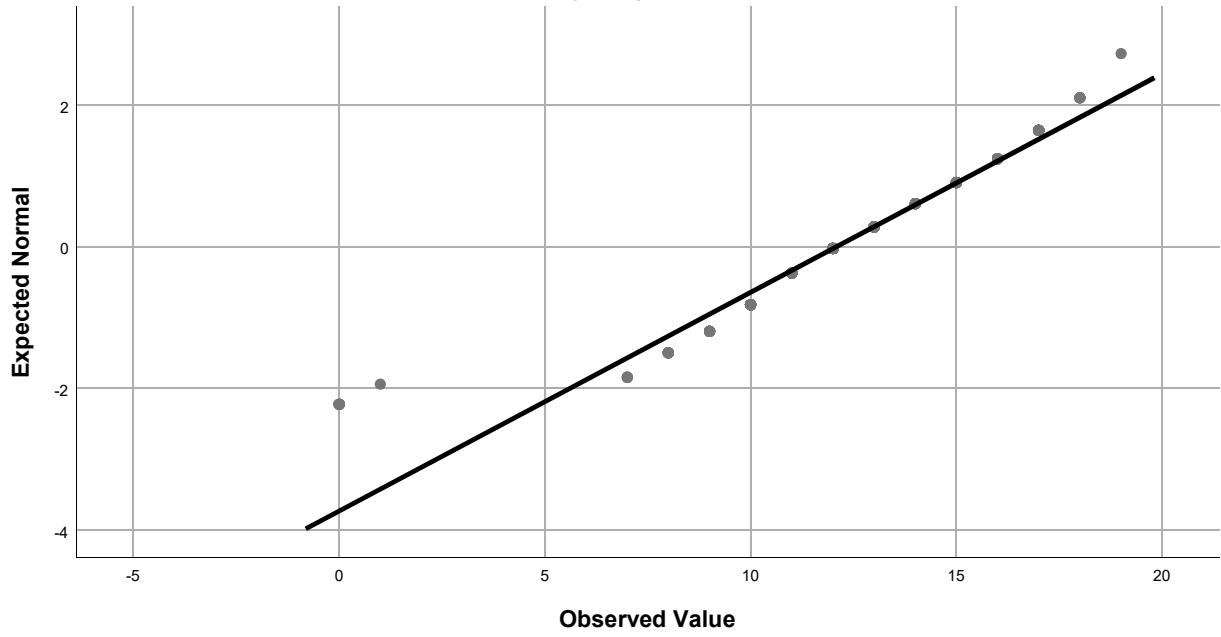




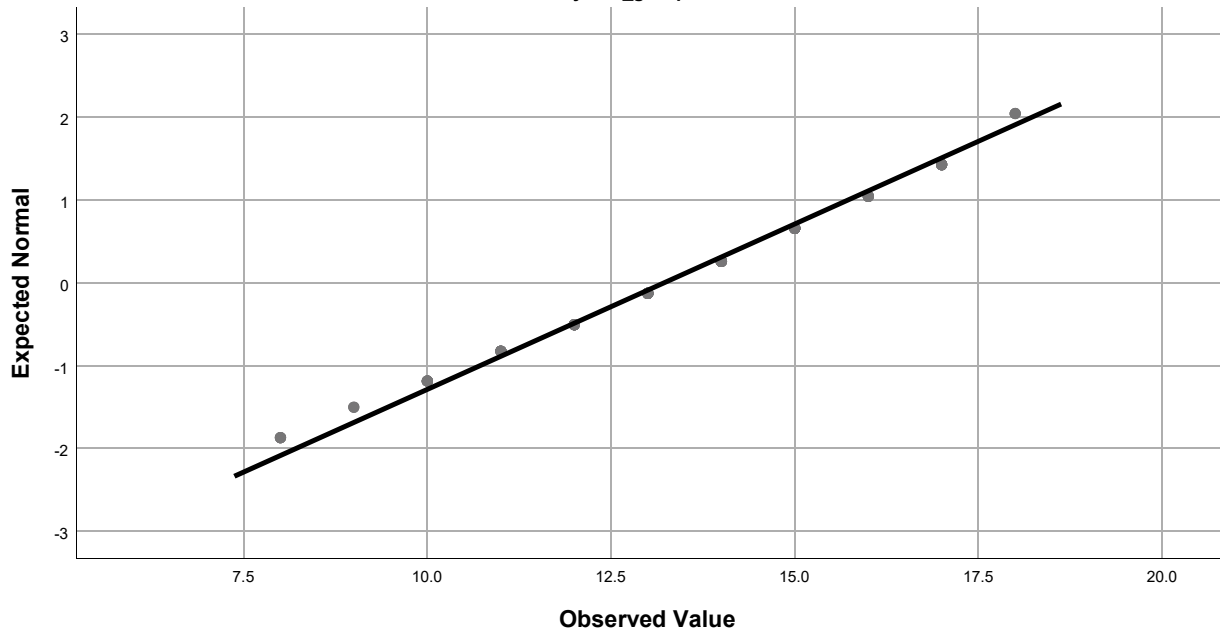
Normal Q-Q Plots

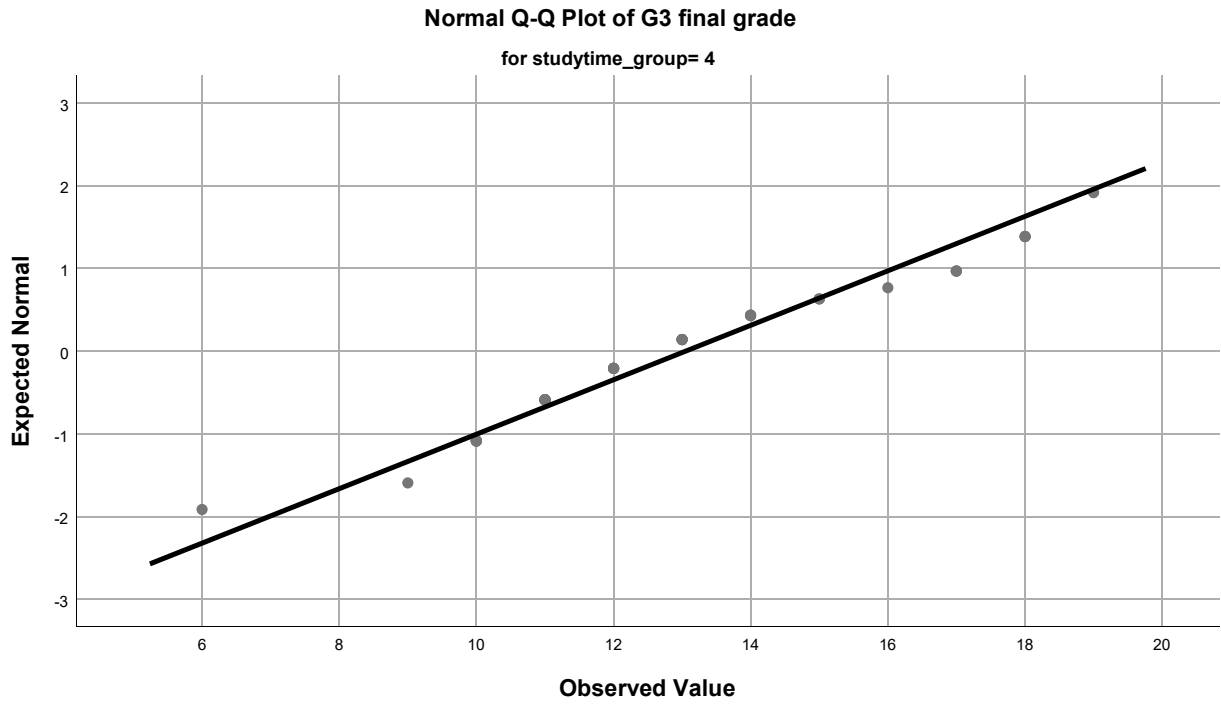


Normal Q-Q Plot of G3 final grade
for studytime_group= 2

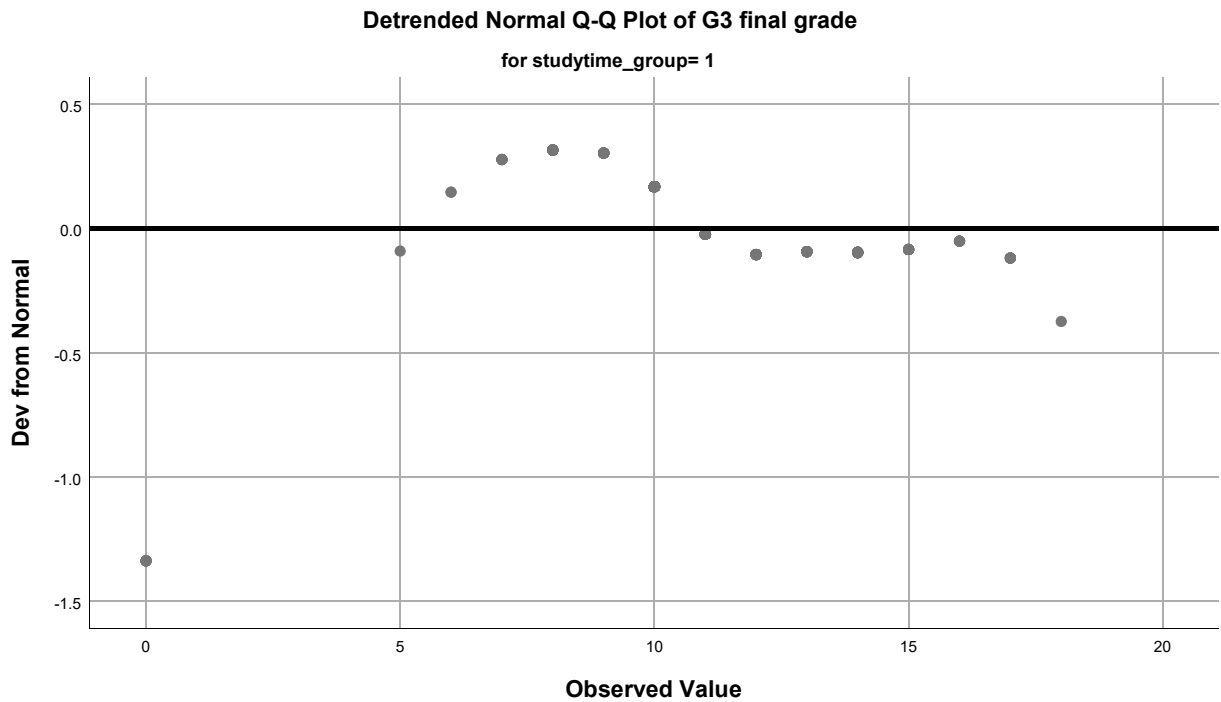


Normal Q-Q Plot of G3 final grade
for studytime_group= 3



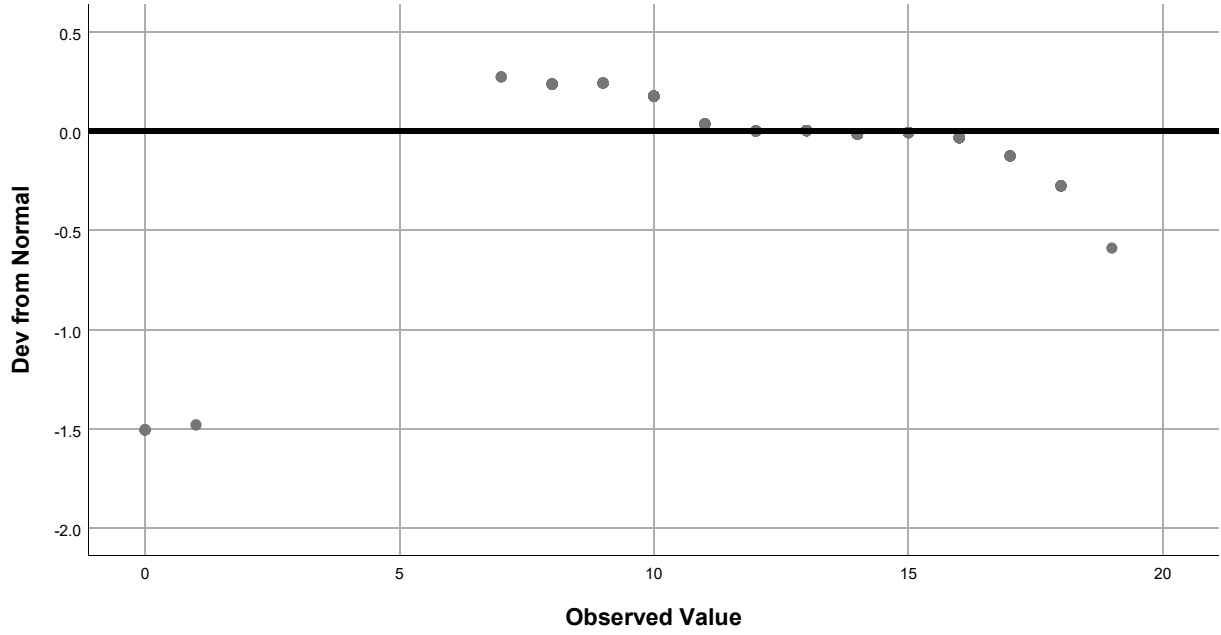


Detrended Normal Q-Q Plots



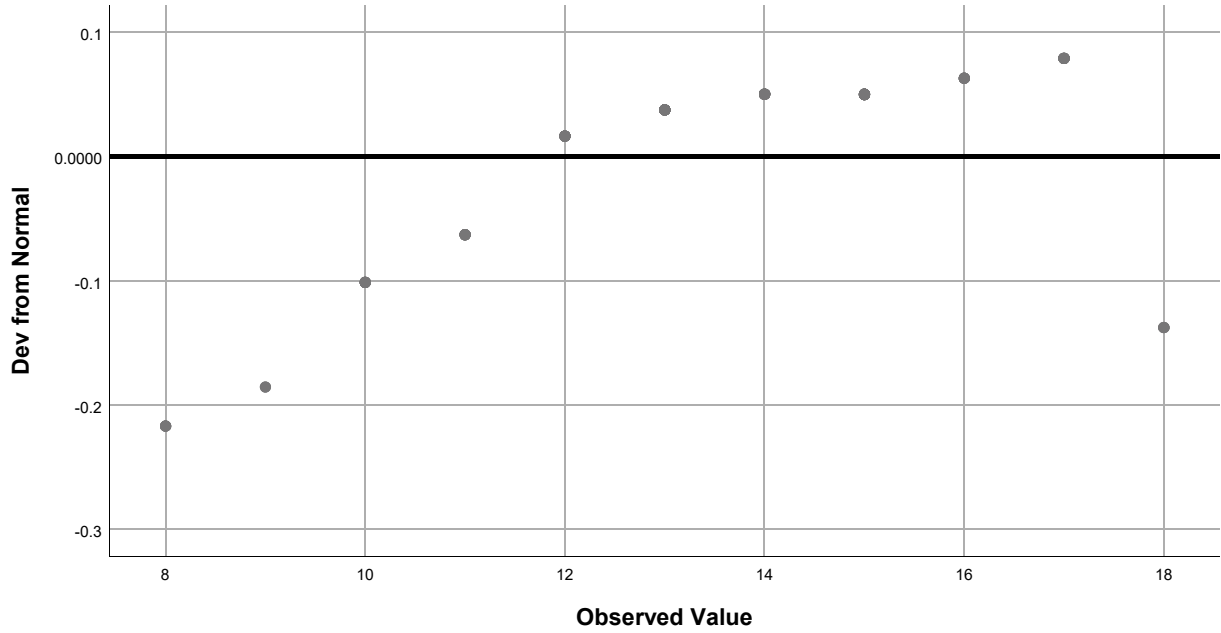
Detrended Normal Q-Q Plot of G3 final grade

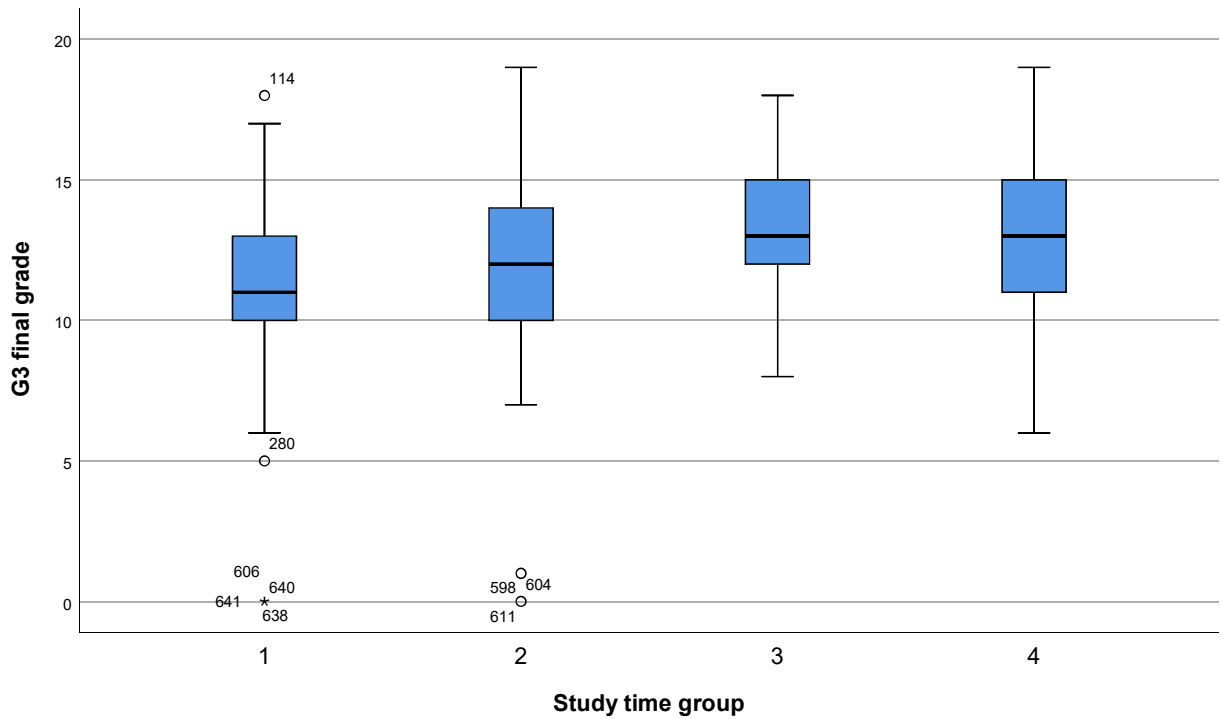
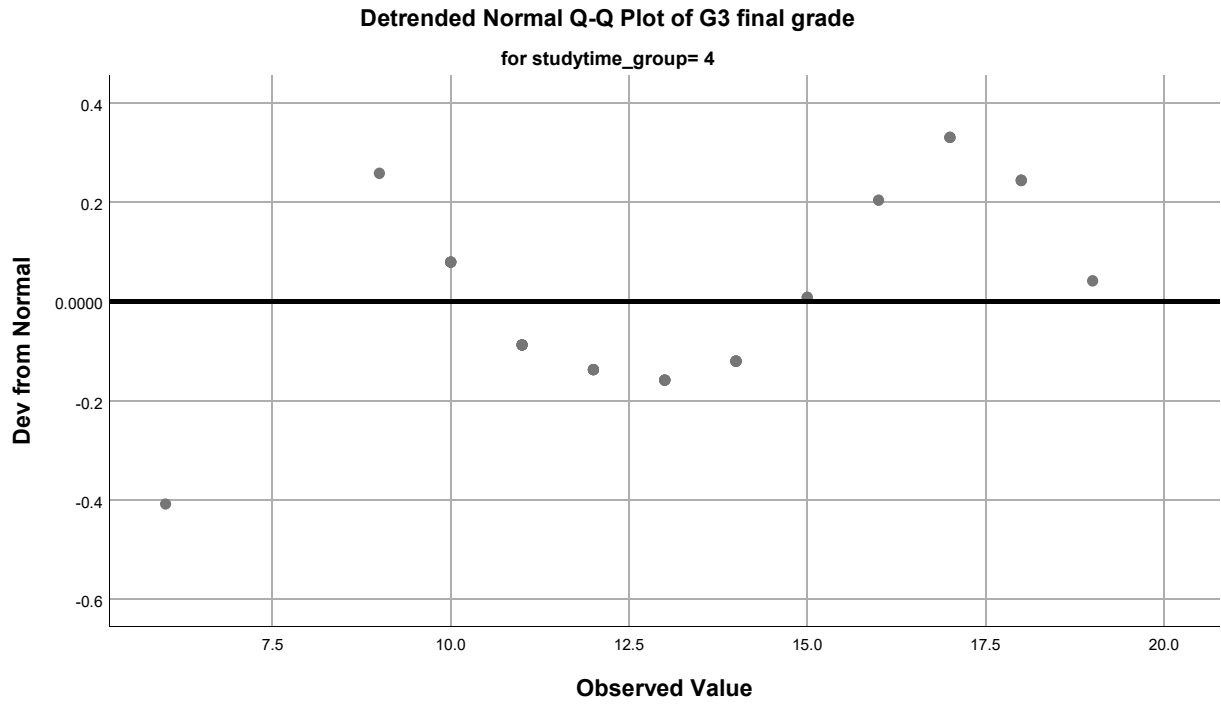
for studytime_group= 2



Detrended Normal Q-Q Plot of G3 final grade

for studytime_group= 3





```

EXAMINE VARIABLES=g3 BY failures_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES

```

/CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.

Explore

Previous failures group

Case Processing Summary

		Cases				
		Valid		Missing		Total
Previous failures group		N	Percent	N	Percent	N
G3 final grade	1	549	100.0%	0	0.0%	549
	2	100	100.0%	0	0.0%	100

Case Processing Summary

		Cases	
		Total	Percent
Previous failures group			
G3 final grade	1	100.0%	
	2	100.0%	

Descriptives

Previous failures group		Statistic	Std. Error		
G3 final grade	1	Mean	12.51	.121	
		95% Confidence Interval for Mean	Lower Bound	12.27	
			Upper Bound	12.75	
		5% Trimmed Mean	12.58		
		Median	12.00		
		Variance	8.002		
		Std. Deviation	2.829		
		Minimum	0		
		Maximum	19		
		Range	19		
		Interquartile Range	3		
		Skewness	-.696	.104	
		Kurtosis	2.838	.208	
		2	Mean	8.59	.330
	95% Confidence Interval for Mean		Lower Bound	7.94	
			Upper Bound	9.24	
	5% Trimmed Mean		8.77		
	Median		10.00		
	Variance		10.891		
	Std. Deviation		3.300		
Minimum	0				
Maximum	16				
Range	16				
Interquartile Range	2				
Skewness	-1.426	.241			
Kurtosis	2.265	.478			

Tests of Normality

Previous failures group		Kolmogorov-Smirnov ^a			Shapiro-Wilk	
		Statistic	df	Sig.	Statistic	df
G3 final grade	1	.095	549	.000	.941	549
	2	.239	100	.000	.799	100

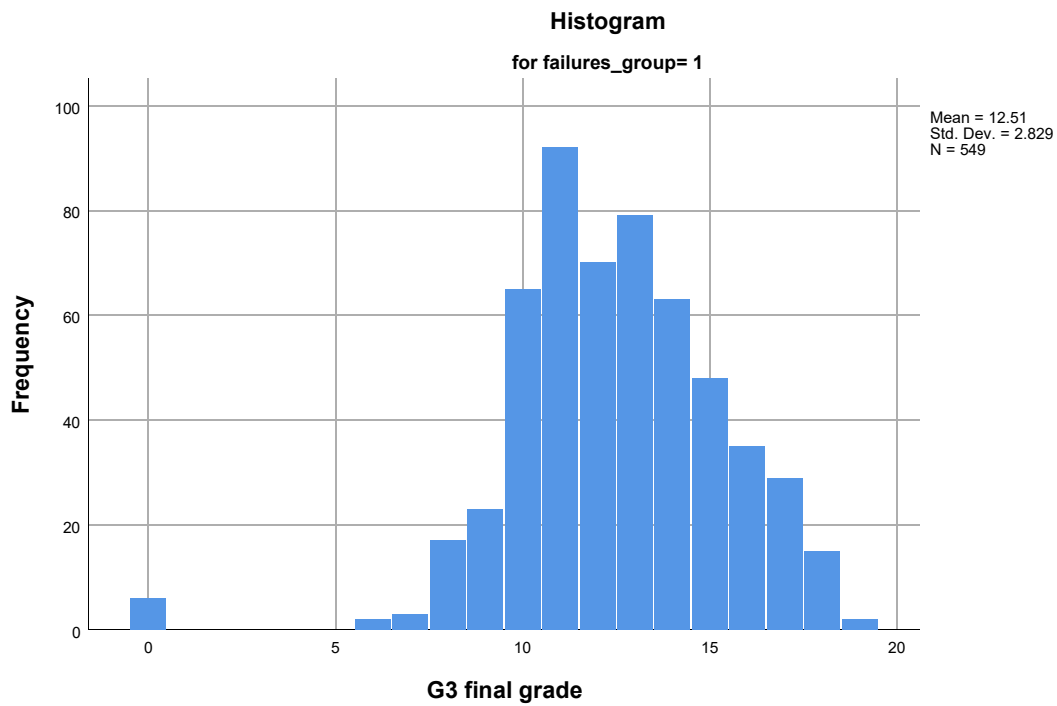
Tests of Normality

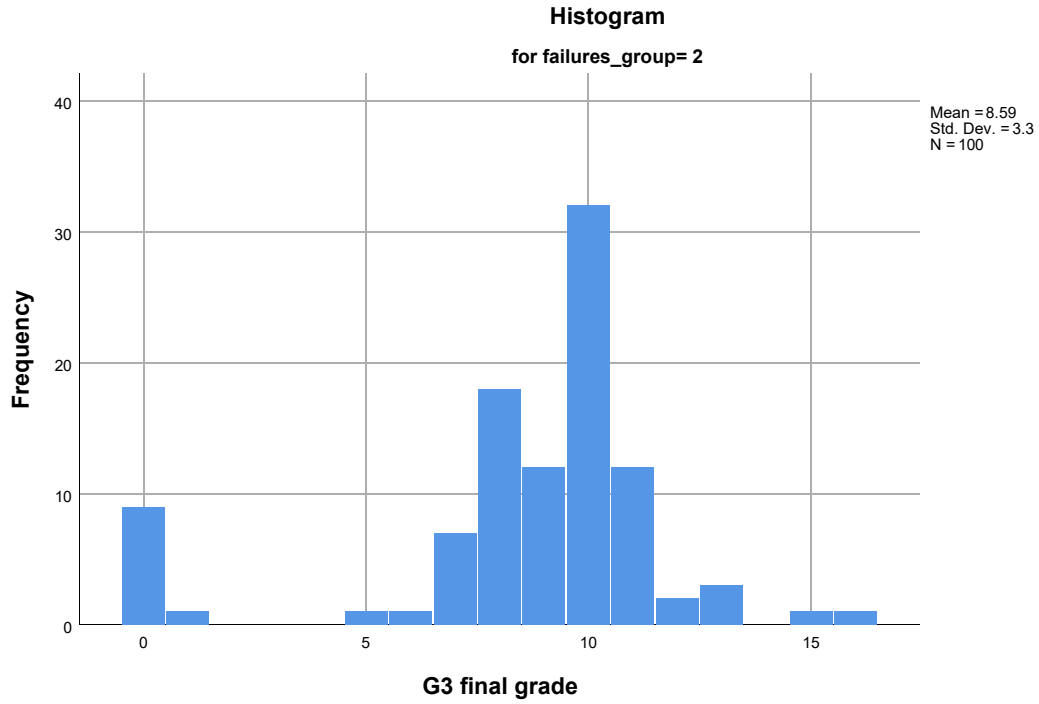
	Previous failures group	Shapiro-...
		Sig.
G3 final grade	1	.000
	2	.000

a. Lilliefors Significance Correction

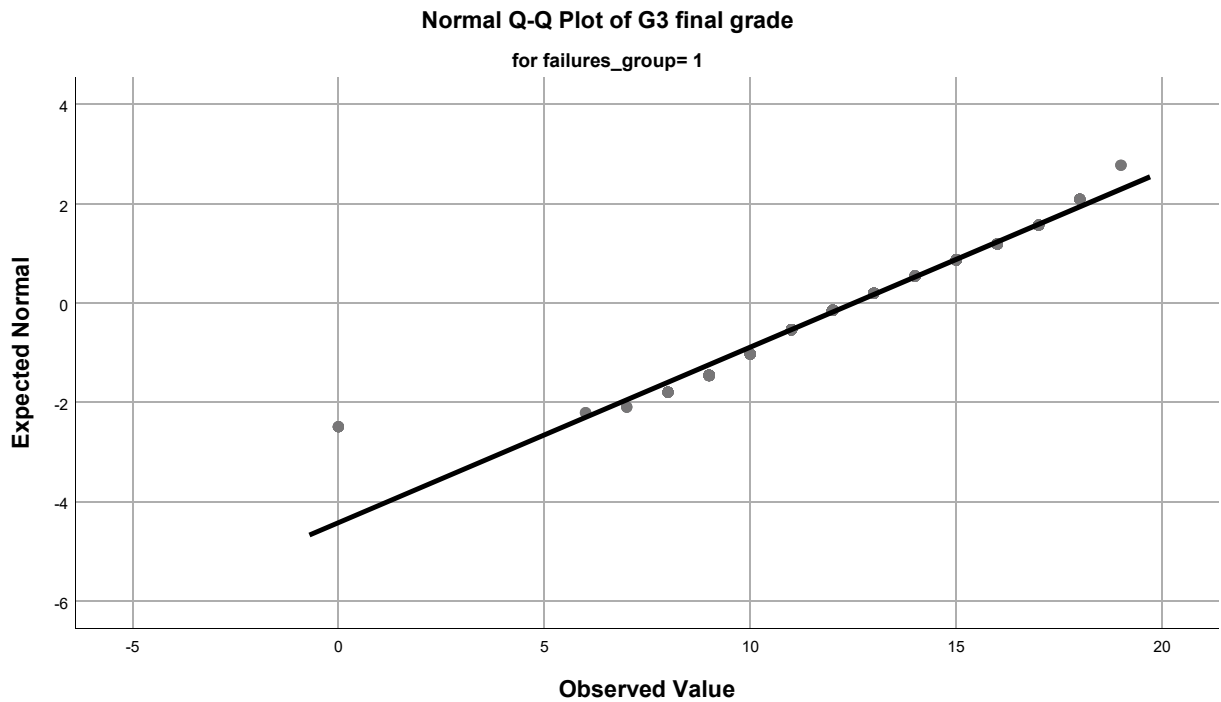
G3 final grade

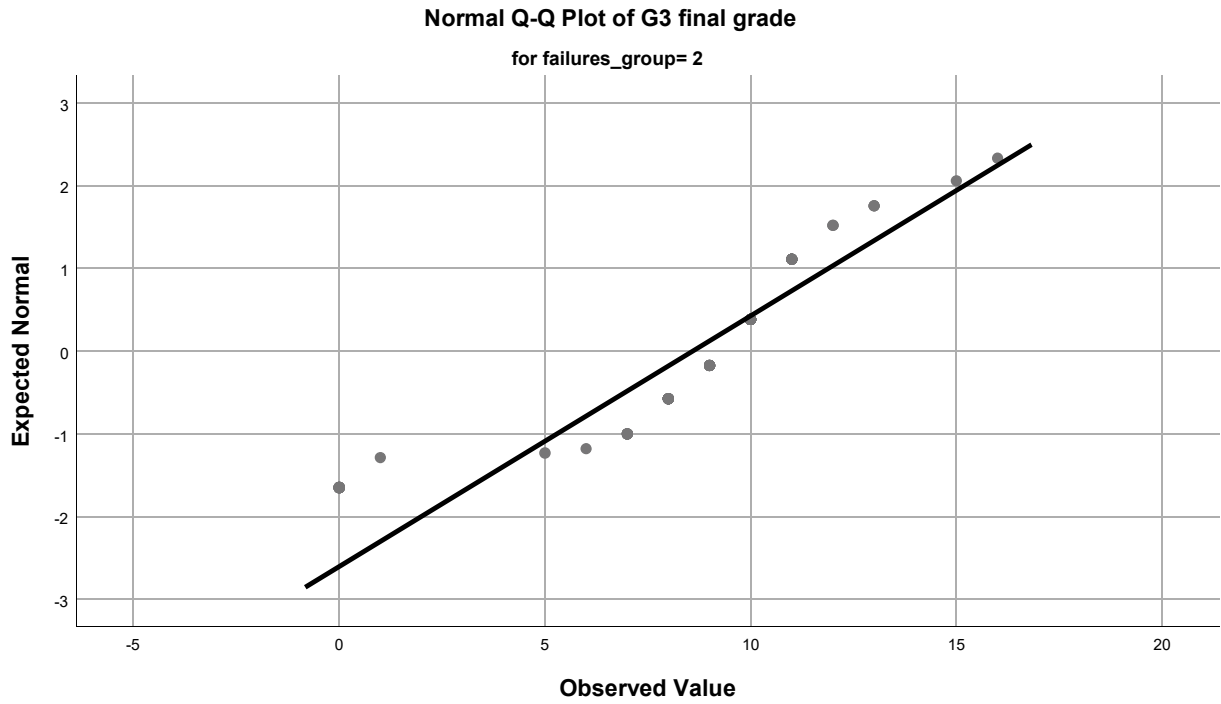
Histograms



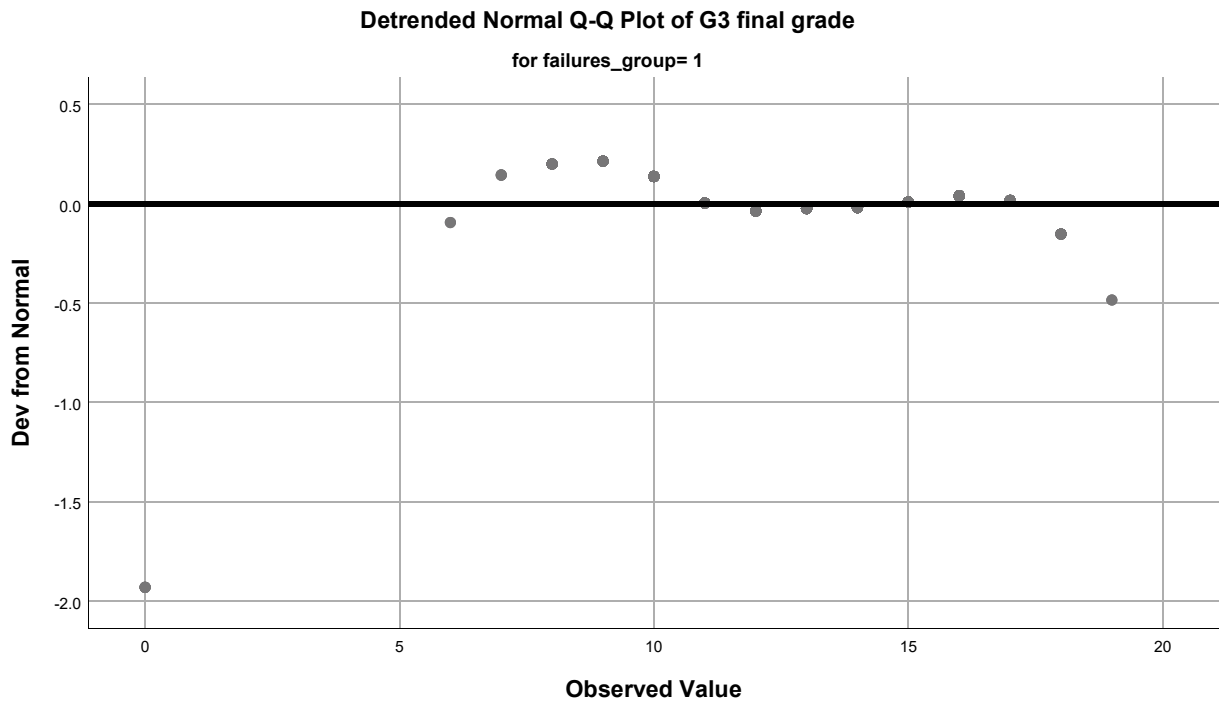


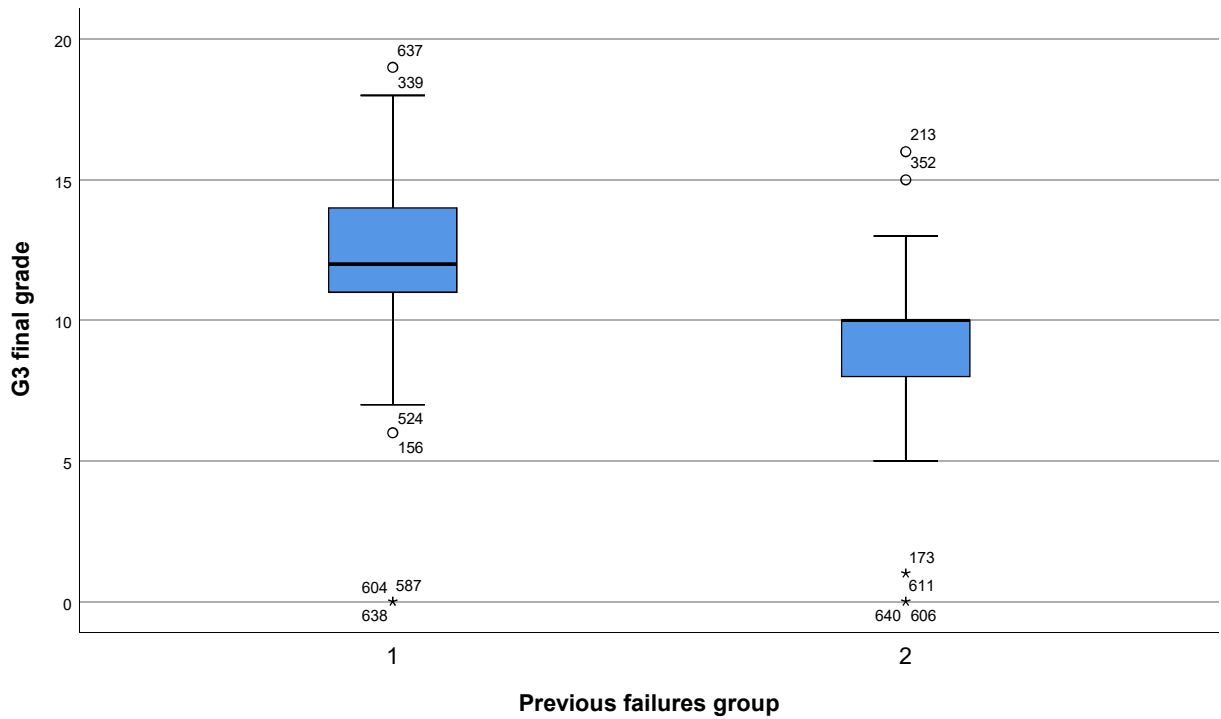
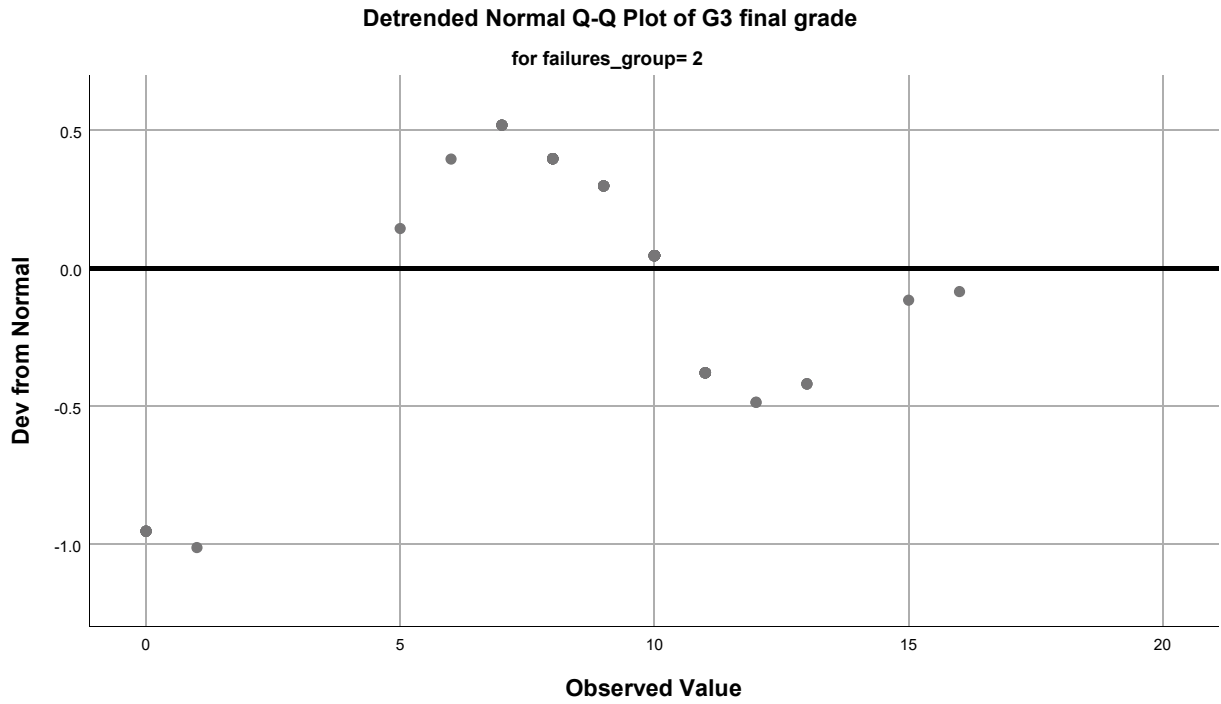
Normal Q-Q Plots





Detrended Normal Q-Q Plots





```

EXAMINE VARIABLES=g3 BY absences_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES

```

/CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.

Explore

Absences group

Case Processing Summary

	Absences group	Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
G3 final grade	1	244	100.0%	0	0.0%	244	100.0%
	2	234	100.0%	0	0.0%	234	100.0%
	3	150	100.0%	0	0.0%	150	100.0%
	4	21	100.0%	0	0.0%	21	100.0%

Descriptives

Absences group		Statistic	Std. Error		
G3 final grade	1	Mean	12.04	.261	
		95% Confidence Interval for Mean	Lower Bound	11.53	
			Upper Bound	12.55	
		5% Trimmed Mean	12.38		
		Median	13.00		
		Variance	16.583		
		Std. Deviation	4.072		
		Minimum	0		
		Maximum	19		
		Range	19		
		Interquartile Range	5		
		Skewness	-1.394	.156	
		Kurtosis	2.559	.310	
		2	Mean	12.06	.166
95% Confidence Interval for Mean	Lower Bound		11.73		
	Upper Bound		12.38		
5% Trimmed Mean	12.02				
Median	12.00				
Variance	6.456				
Std. Deviation	2.541				

Descriptives

Absences group		Statistic	Std. Error	
3	Minimum	6		
	Maximum	19		
	Range	13		
	Interquartile Range	4		
	Skewness	.241	.159	
	Kurtosis	-.336	.317	
	Mean	11.61	.218	
	95% Confidence Interval for Mean	Lower Bound	11.18	
		Upper Bound	12.04	
	5% Trimmed Mean	11.56		
	Median	11.00		
	Variance	7.138		
	Std. Deviation	2.672		
	Minimum	5		
Maximum	18			
Range	13			
Interquartile Range	4			
Skewness	.313	.198		
Kurtosis	-.427	.394		
4	Mean	10.76	.525	
	95% Confidence Interval for Mean	Lower Bound	9.67	
		Upper Bound	11.86	
	5% Trimmed Mean	10.74		
	Median	10.00		
	Variance	5.790		
	Std. Deviation	2.406		
	Minimum	6		
	Maximum	16		
	Range	10		
	Interquartile Range	3		
	Skewness	.238	.501	
	Kurtosis	-.022	.972	

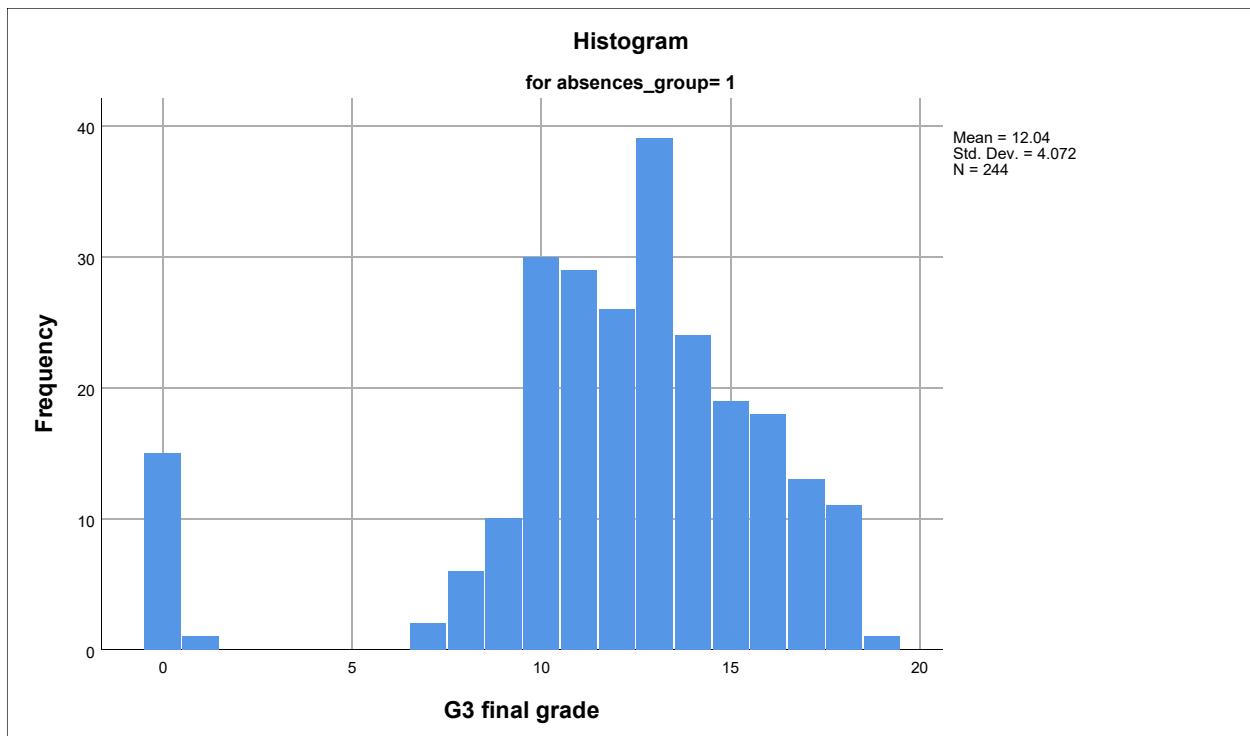
Tests of Normality

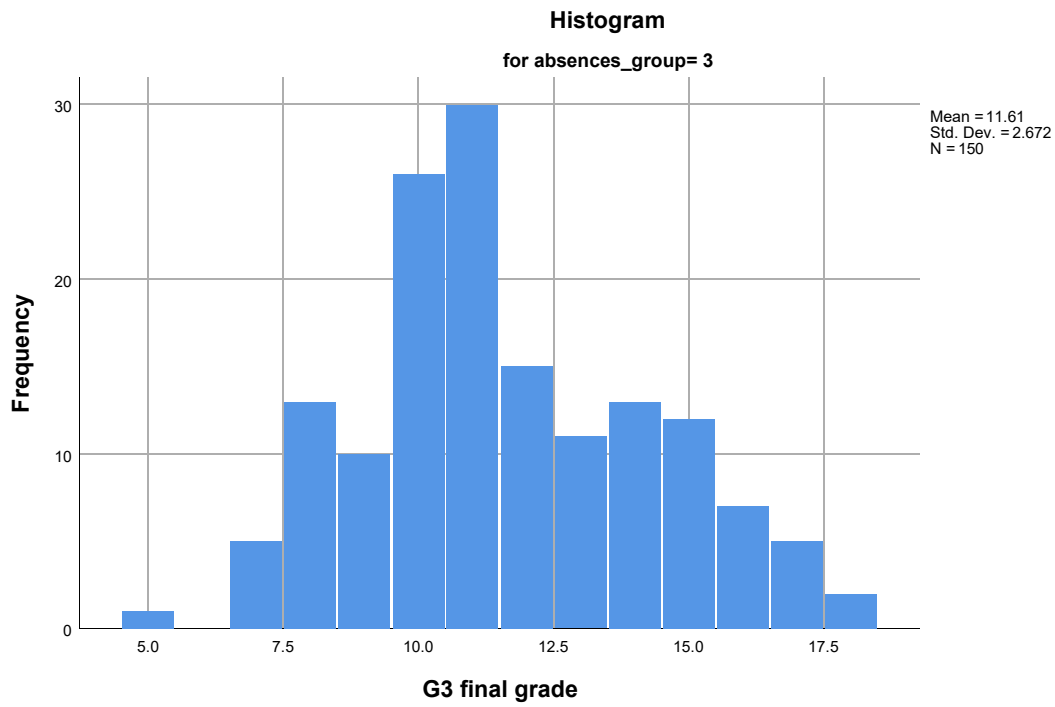
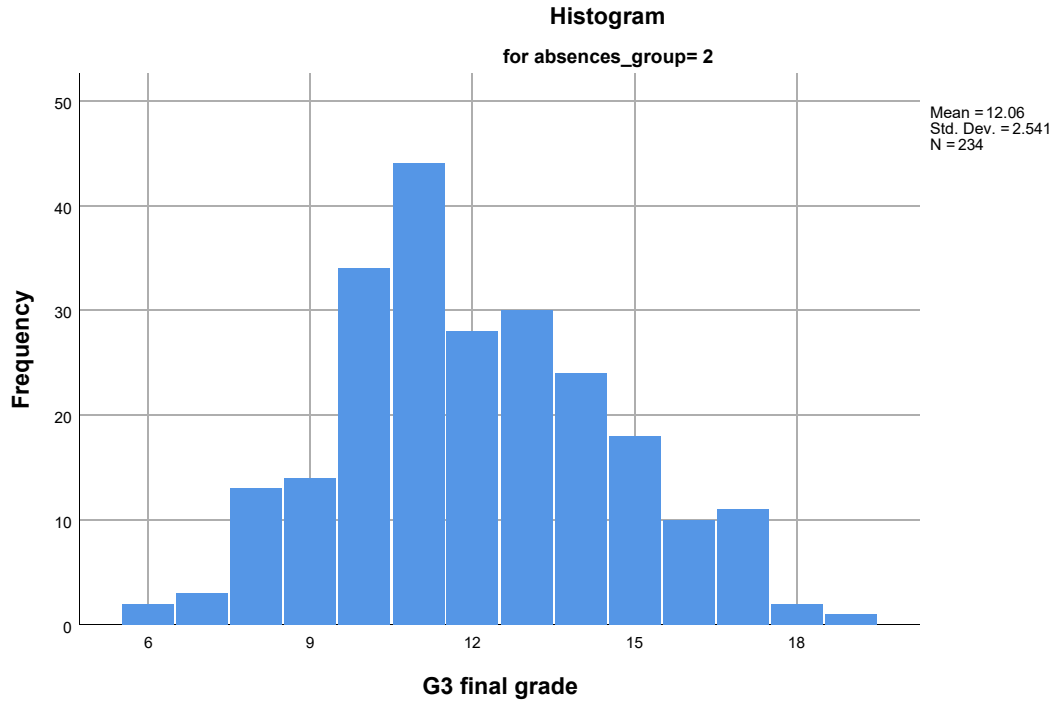
	Absences group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
G3 final grade	1	.169	244	.000	.861	244	.000
	2	.131	234	.000	.977	234	.001
	3	.157	150	.000	.968	150	.001
	4	.196	21	.035	.964	21	.597

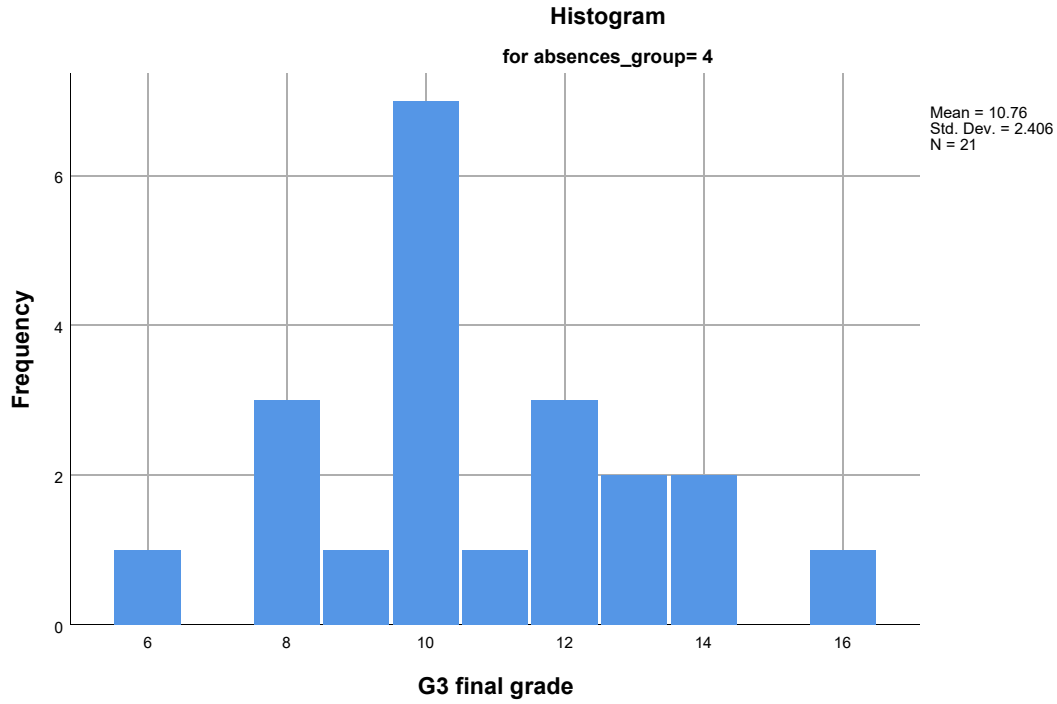
a. Lilliefors Significance Correction

G3 final grade

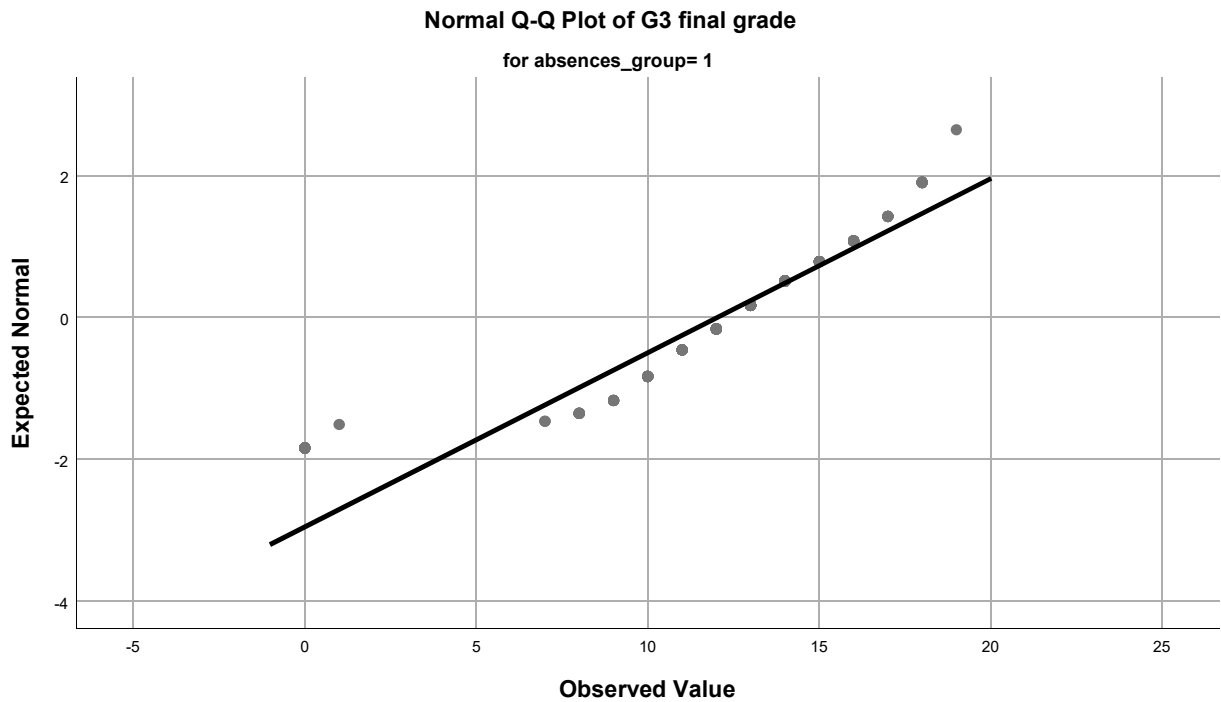
Histograms



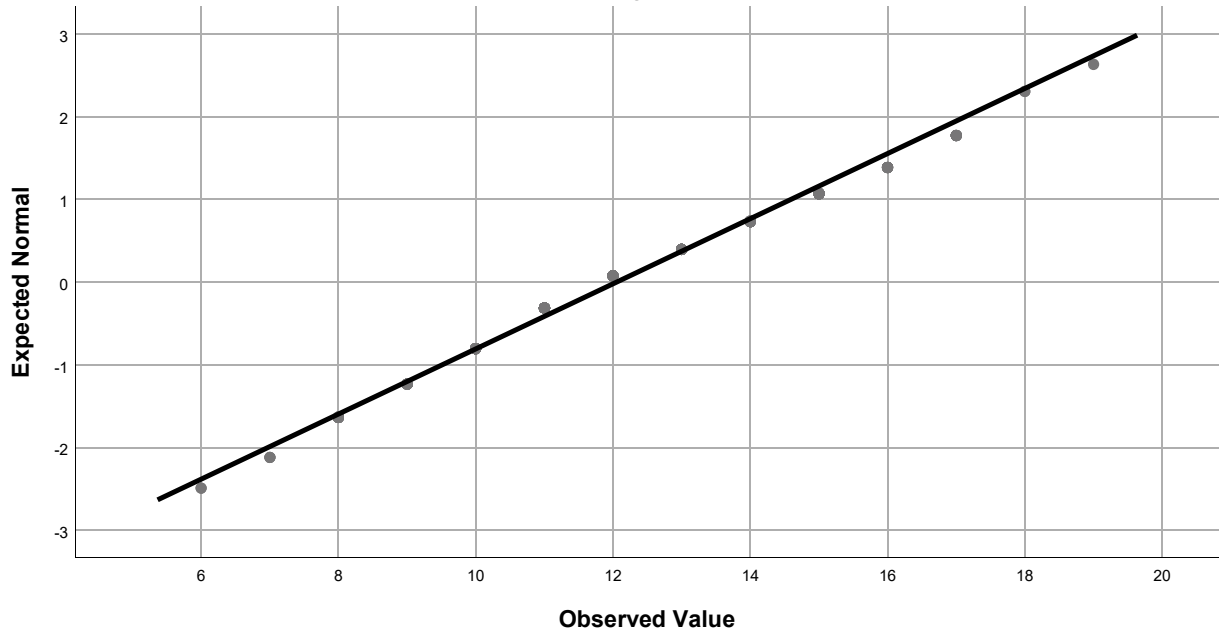




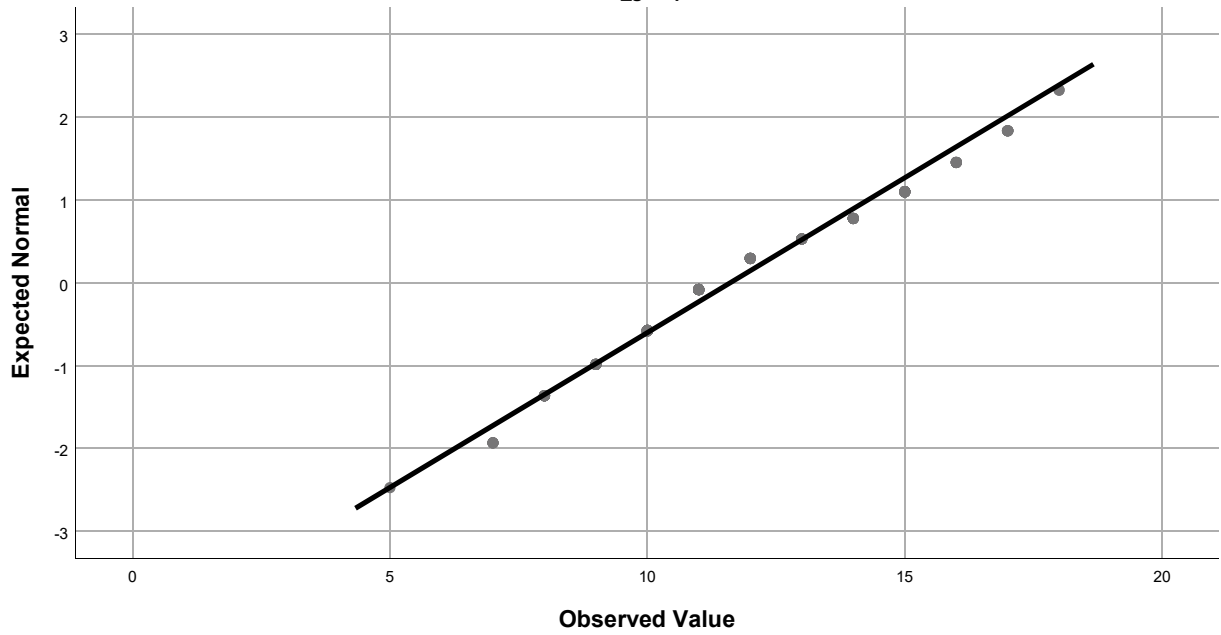
Normal Q-Q Plots

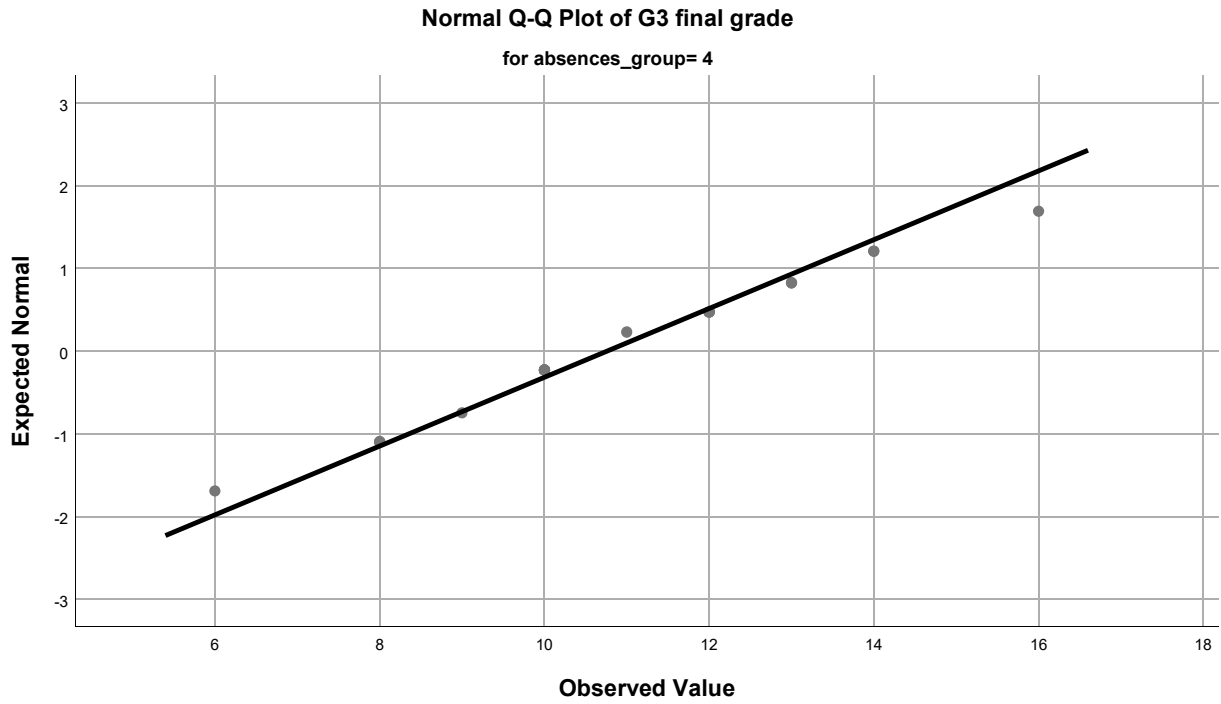


Normal Q-Q Plot of G3 final grade
for absences_group= 2

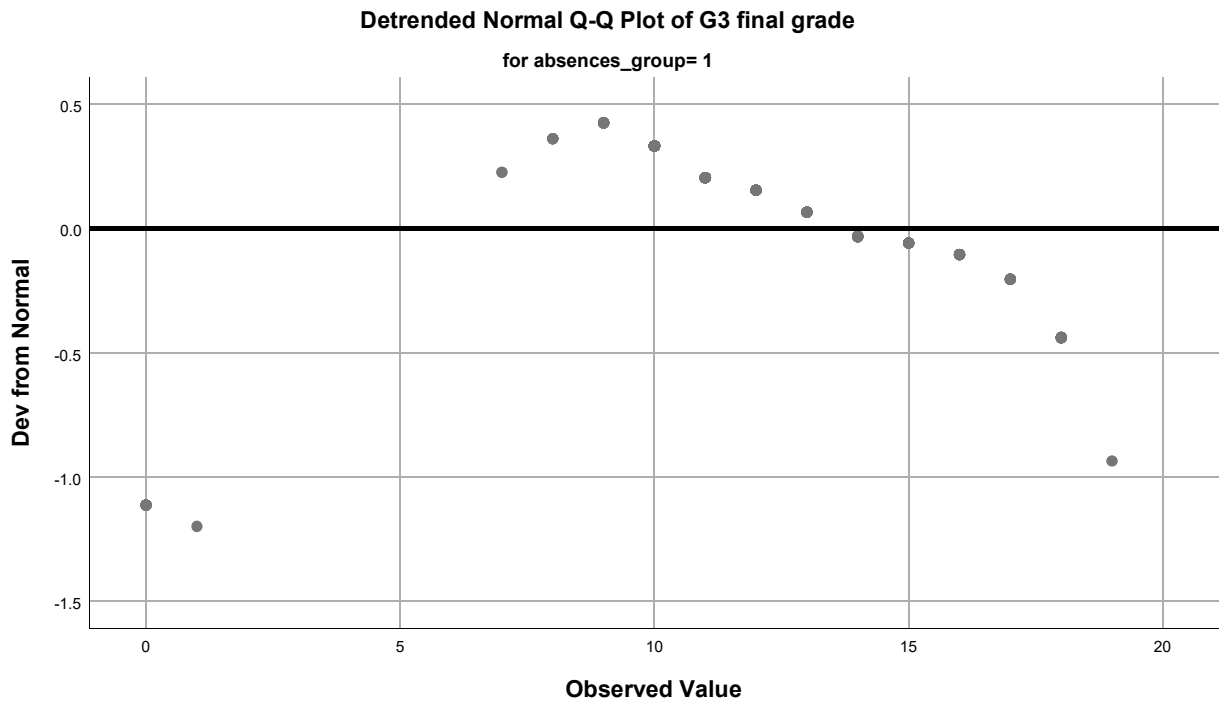


Normal Q-Q Plot of G3 final grade
for absences_group= 3



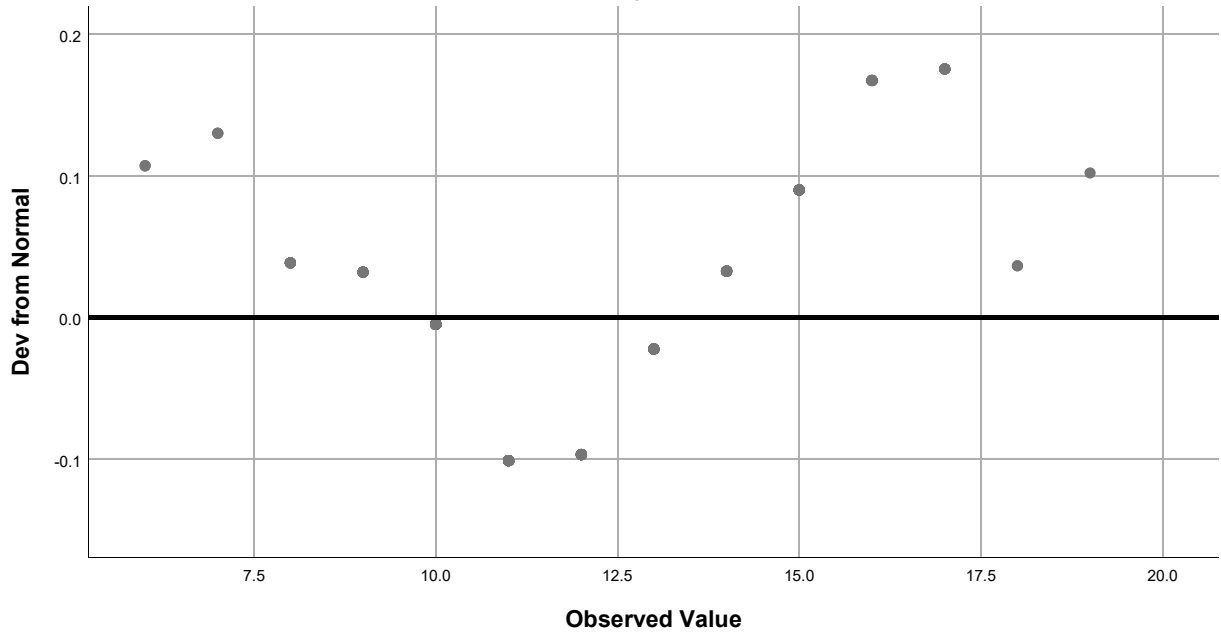


Detrended Normal Q-Q Plots



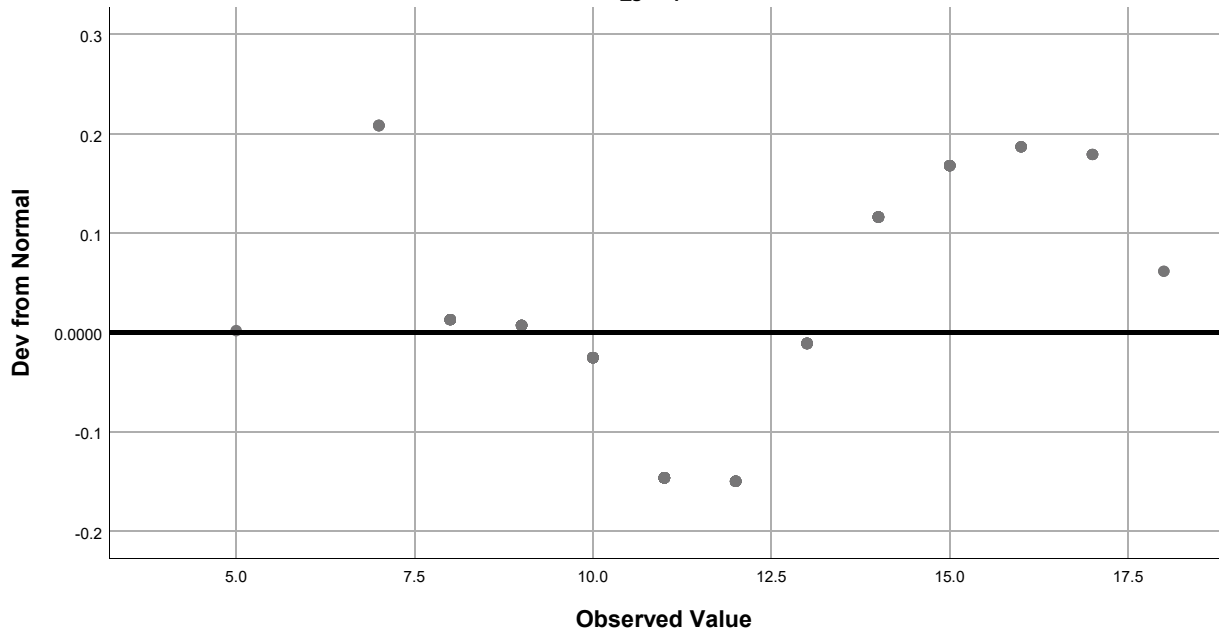
Detrended Normal Q-Q Plot of G3 final grade

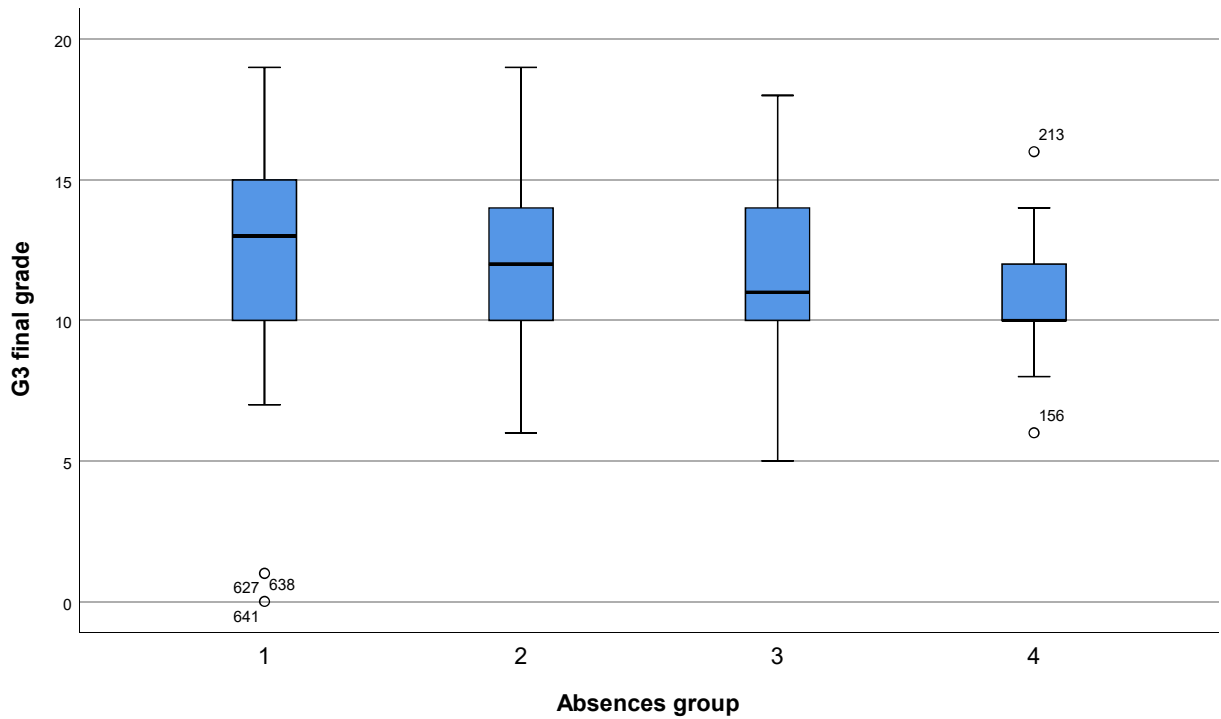
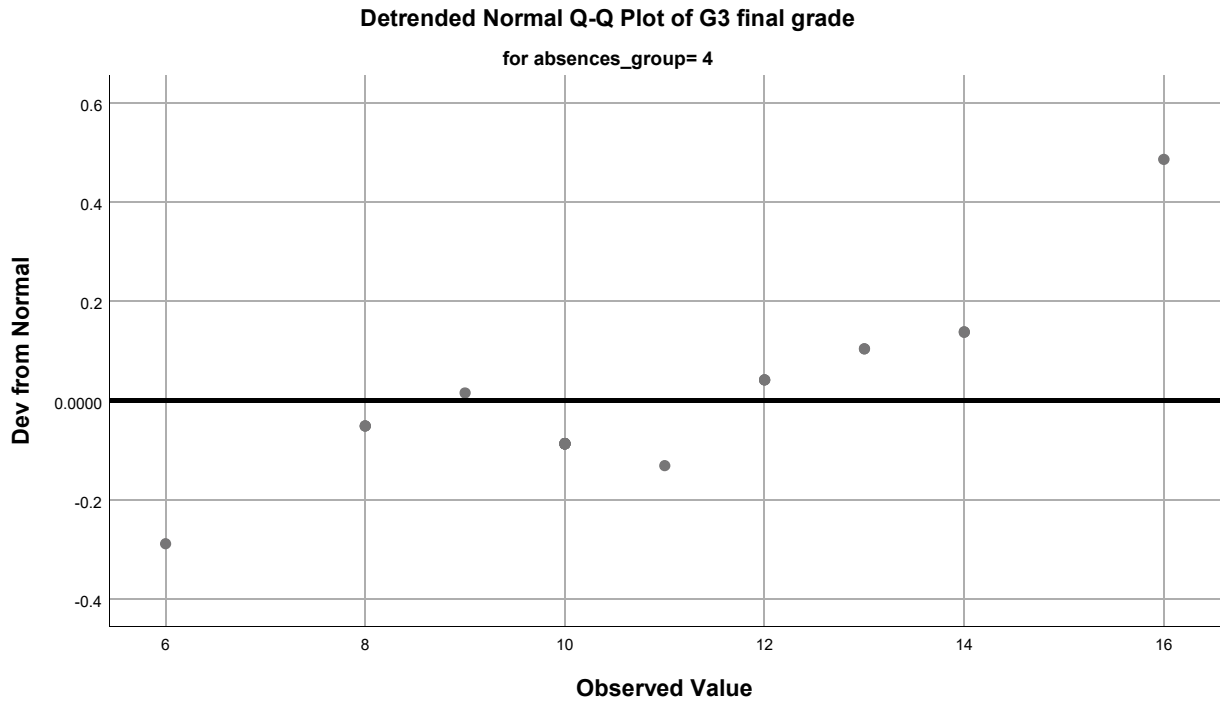
for absences_group= 2



Detrended Normal Q-Q Plot of G3 final grade

for absences_group= 3





```
EXAMINE VARIABLES=g3 BY schoolsup_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
```

/CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.

Explore

School support group

Case Processing Summary

		Cases				
		Valid		Missing		Total
School support group		N	Percent	N	Percent	N
G3 final grade	1	581	100.0%	0	0.0%	581
	2	68	100.0%	0	0.0%	68

Case Processing Summary

		Cases	
		Total	Percent
School support group			
G3 final grade	1	100.0%	
	2	100.0%	

Descriptives

School support group		Statistic	Std. Error		
G3 final grade	1	Mean	11.98	.138	
		95% Confidence Interval for Mean	Lower Bound	11.71	
			Upper Bound	12.25	
		5% Trimmed Mean	12.15		
		Median	12.00		
		Variance	10.996		
		Std. Deviation	3.316		
		Minimum	0		
		Maximum	19		
		Range	19		
		Interquartile Range	4		
		Skewness	-.926	.101	
		Kurtosis	2.500	.202	
	2	Mean	11.28	.279	
		95% Confidence Interval for Mean	Lower Bound	10.72	
			Upper Bound	11.84	
		5% Trimmed Mean	11.34		
		Median	11.00		
		Variance	5.309		
		Std. Deviation	2.304		
Minimum		0			
Maximum		18			
Range		18			
Interquartile Range	3				
Skewness	-1.356	.291			
Kurtosis	8.243	.574			

Tests of Normality

School support group		Kolmogorov-Smirnov ^a			Shapiro-Wilk	
		Statistic	df	Sig.	Statistic	df
G3 final grade	1	.117	581	.000	.928	581
	2	.172	68	.000	.860	68

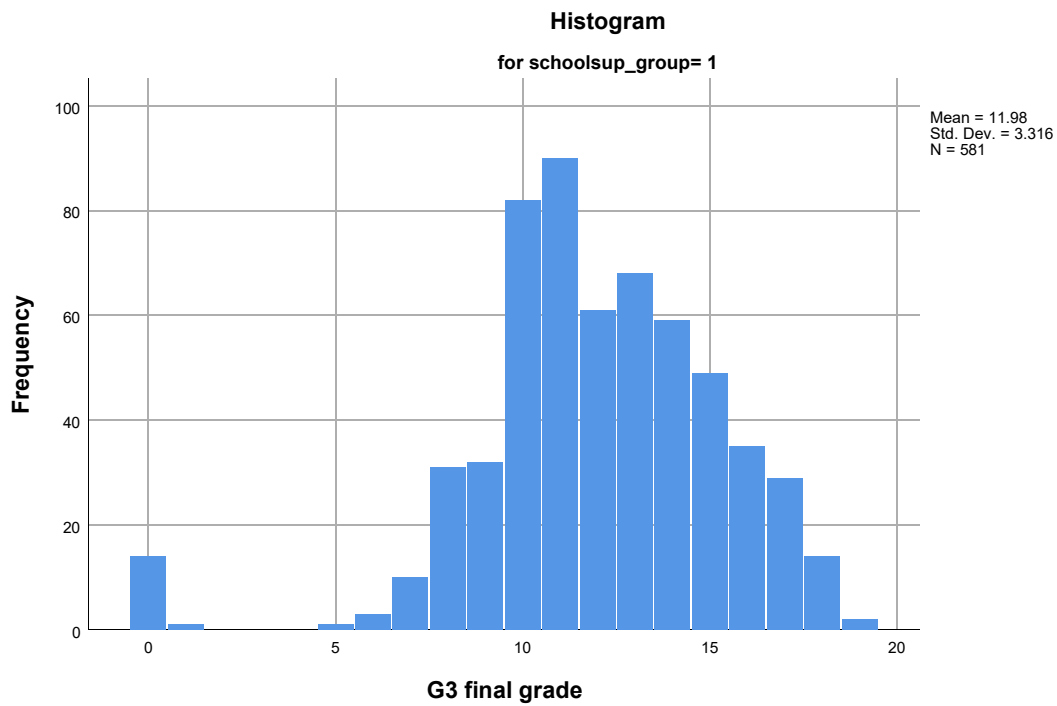
Tests of Normality

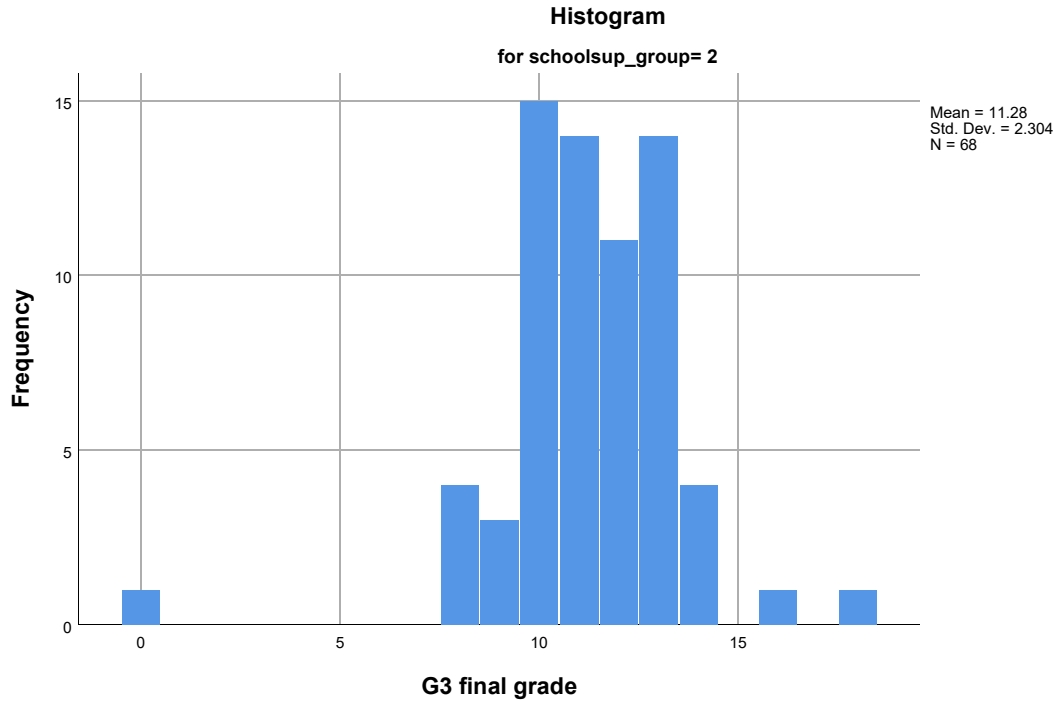
	Shapiro-...	
	School support group	Sig.
G3 final grade	1	.000
	2	.000

a. Lilliefors Significance Correction

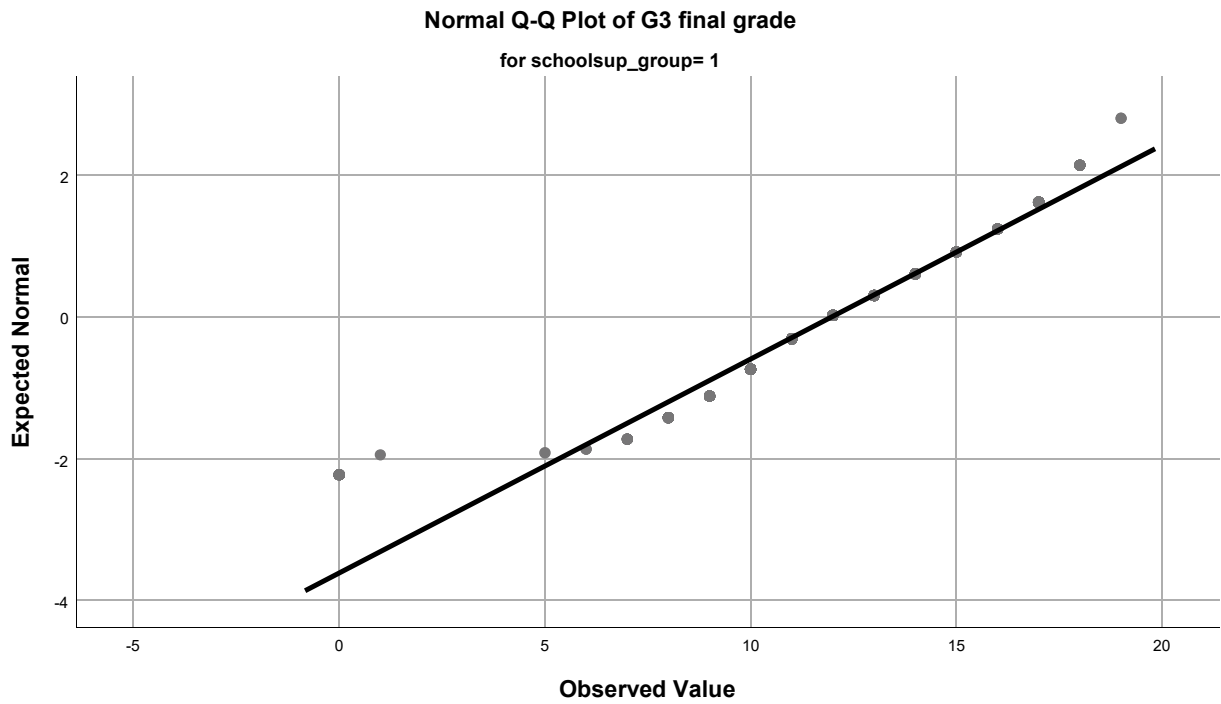
G3 final grade

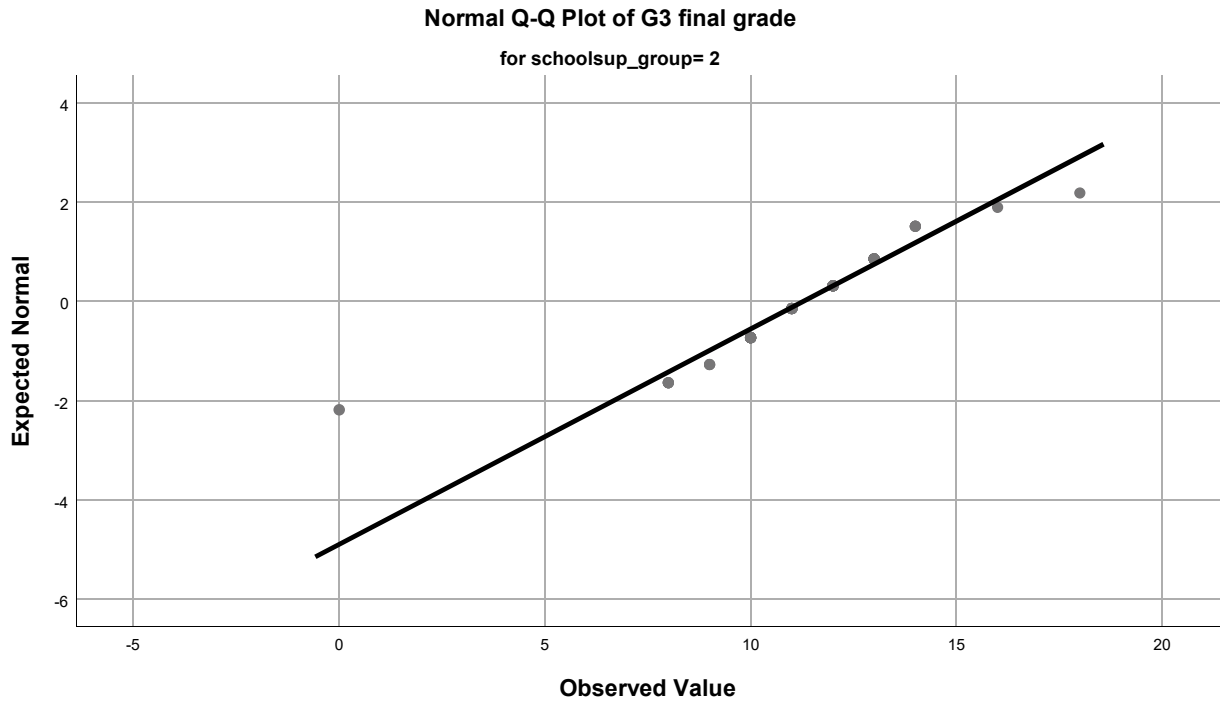
Histograms



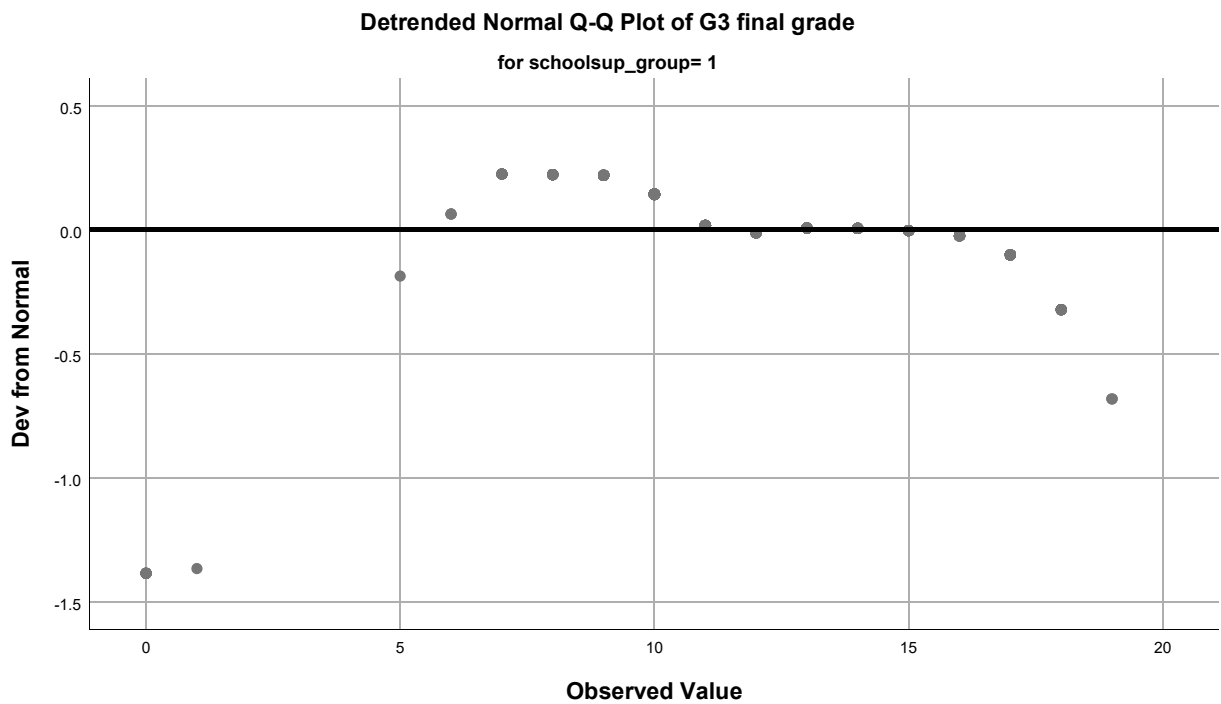


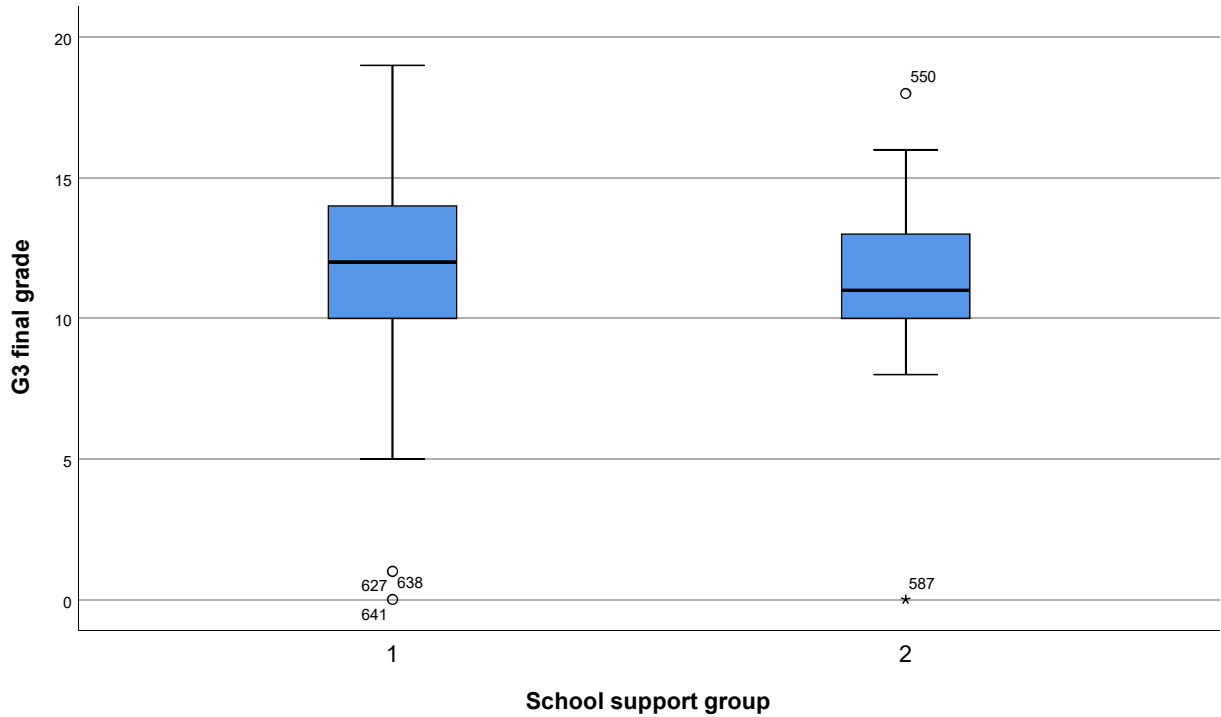
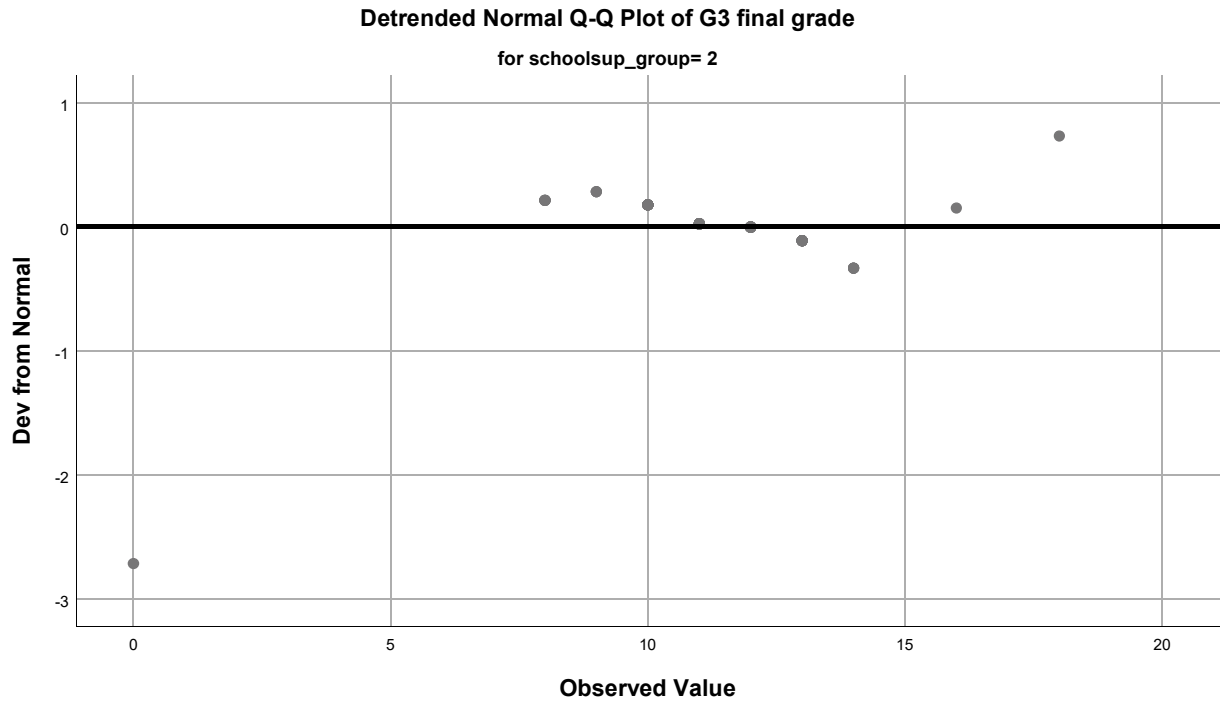
Normal Q-Q Plots





Detrended Normal Q-Q Plots





```
EXAMINE VARIABLES=g3 BY romantic_group
/PLOT BOXPLOT HISTOGRAM NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
```

/CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.

Explore

Romantic relationship group

Case Processing Summary

	Romantic relationship group	Cases				
		Valid		Missing		Total
		N	Percent	N	Percent	N
G3 final grade	1	410	100.0%	0	0.0%	410
	2	239	100.0%	0	0.0%	239

Case Processing Summary

	Romantic relationship group	Cases
		Total Percent
G3 final grade	1	100.0%
	2	100.0%

Descriptives

Romantic relationship group		Statistic	Std. Error		
G3 final grade	1	Mean	12.13	.148	
		95% Confidence Interval for Mean	Lower Bound	11.84	
			Upper Bound	12.42	
		5% Trimmed Mean	12.20		
		Median	12.00		
		Variance	9.022		
		Std. Deviation	3.004		
		Minimum	0		
		Maximum	19		
		Range	19		
	Interquartile Range	4			
	Skewness	-.658	.121		
	Kurtosis	2.519	.240		
	2	Mean	11.52	.230	
		95% Confidence Interval for Mean	Lower Bound	11.07	
			Upper Bound	11.98	
		5% Trimmed Mean	11.79		
		Median	12.00		
		Variance	12.679		
		Std. Deviation	3.561		
Minimum		0			
Maximum		18			
Range		18			
Interquartile Range	4				
Skewness	-1.091	.157			
Kurtosis	2.418	.314			

Tests of Normality

	Romantic relationship group	Kolmogorov-Smirnov ^a			Shapiro-Wilk	
		Statistic	df	Sig.	Statistic	df
G3 final grade	1	.107	410	.000	.942	410
	2	.142	239	.000	.907	239

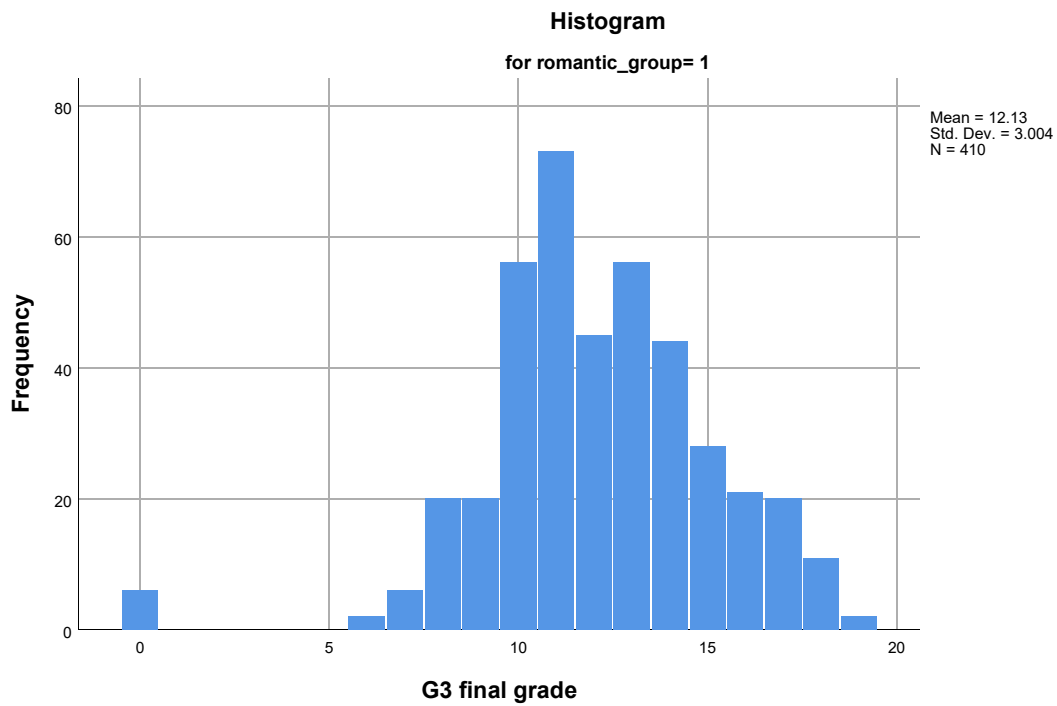
Tests of Normality

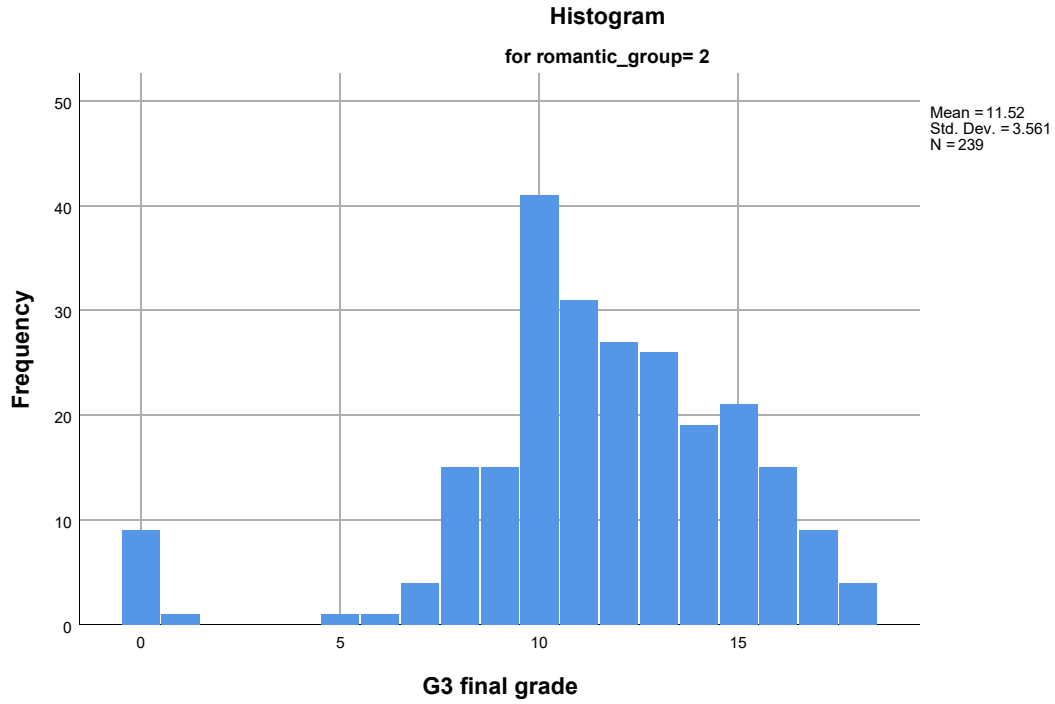
	Romantic relationship group	Shapiro-...
		Sig.
G3 final grade	1	.000
	2	.000

a. Lilliefors Significance Correction

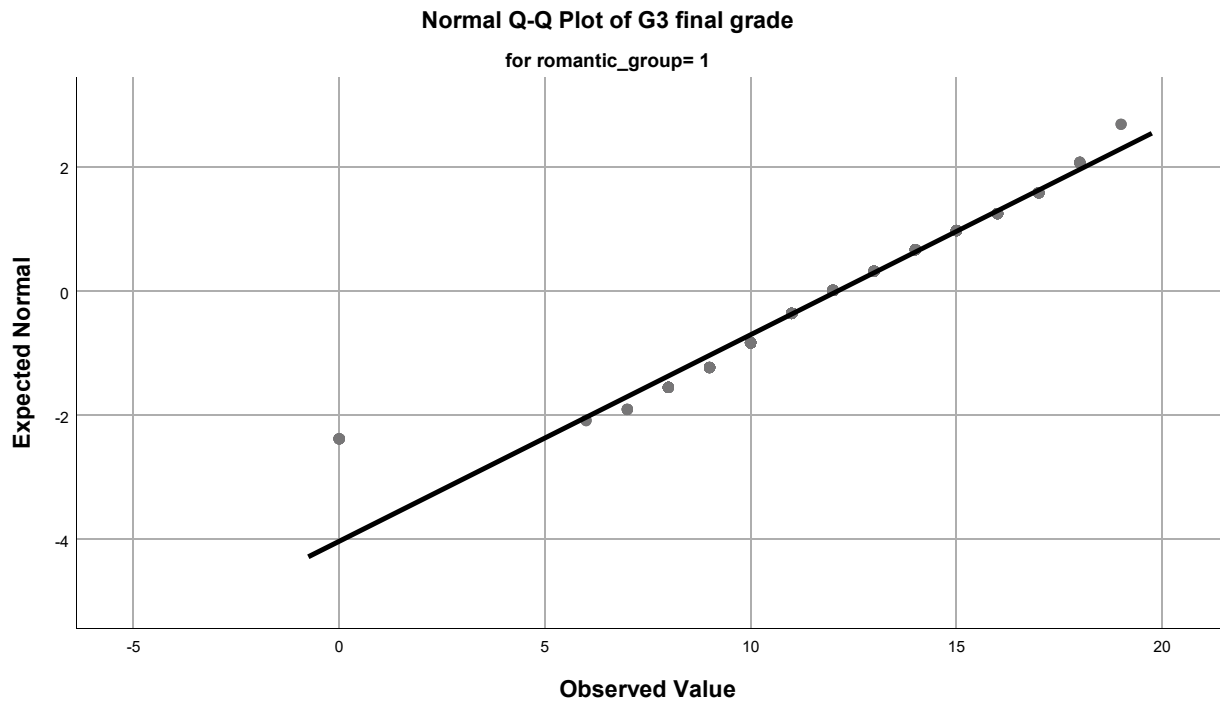
G3 final grade

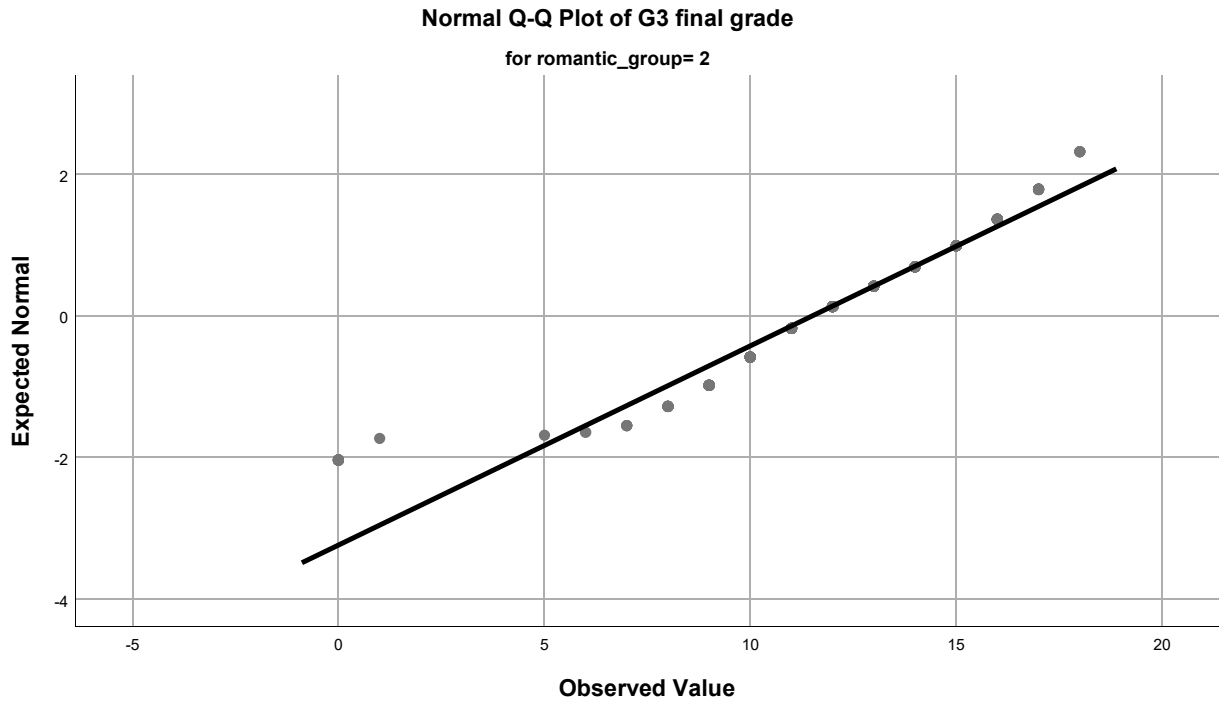
Histograms



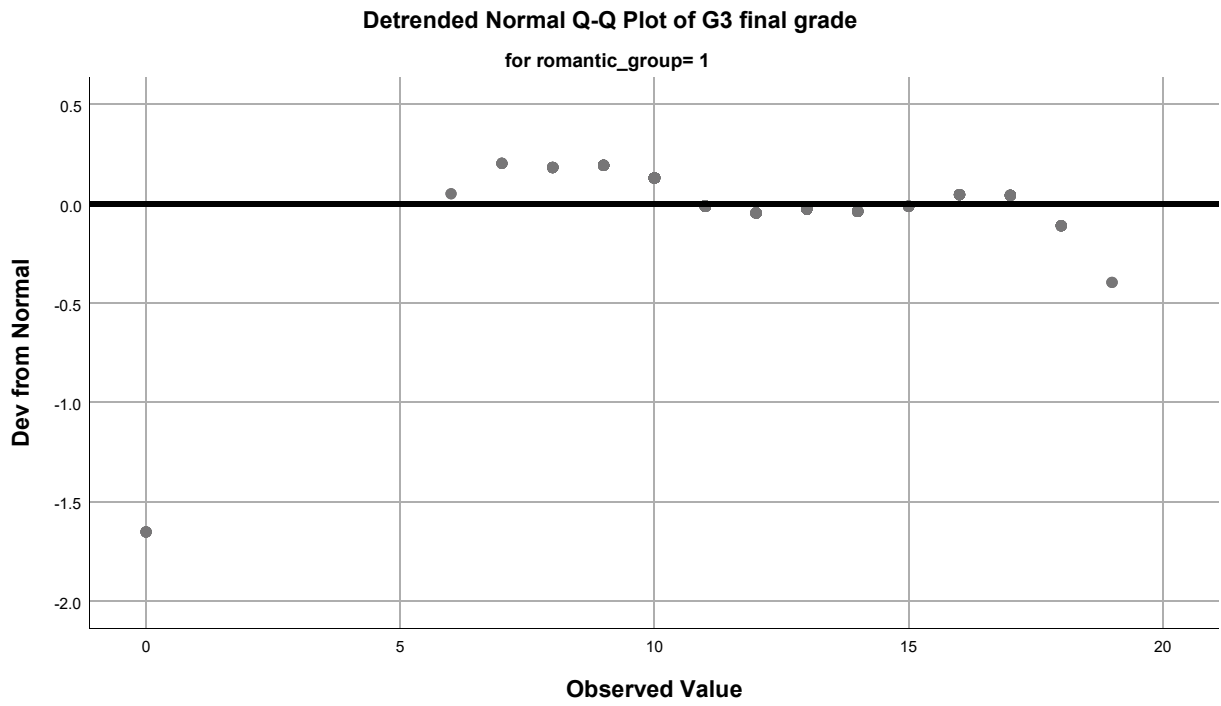


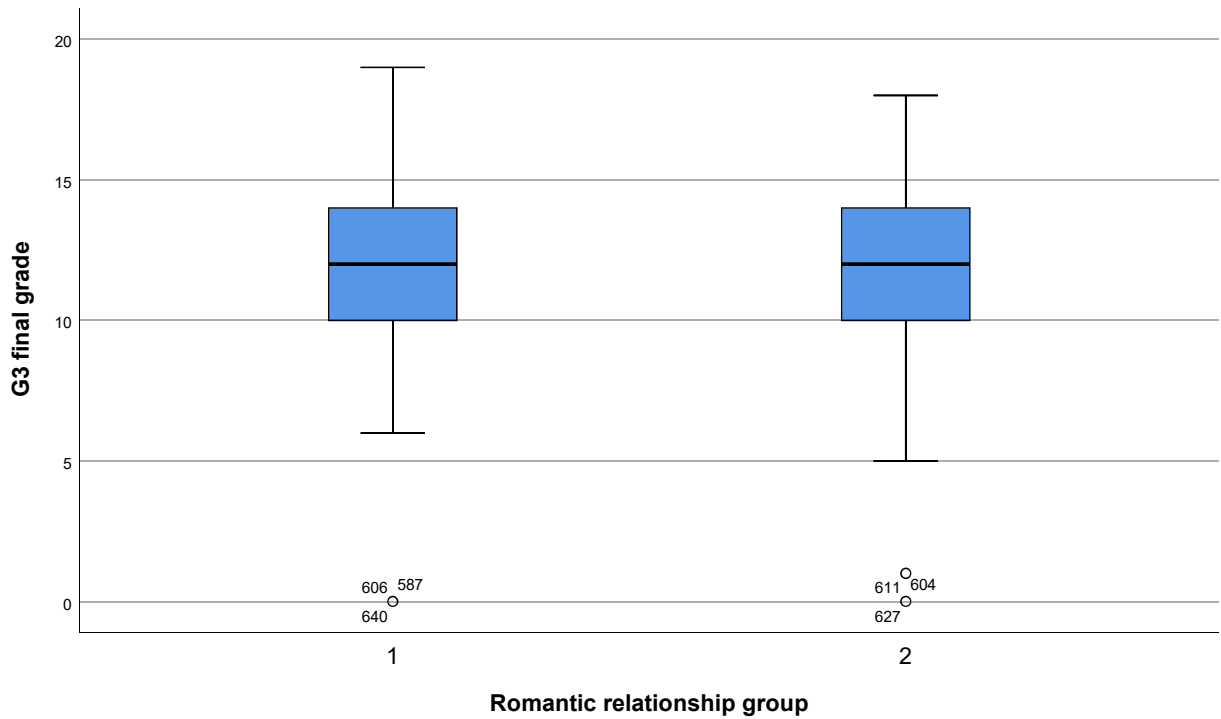
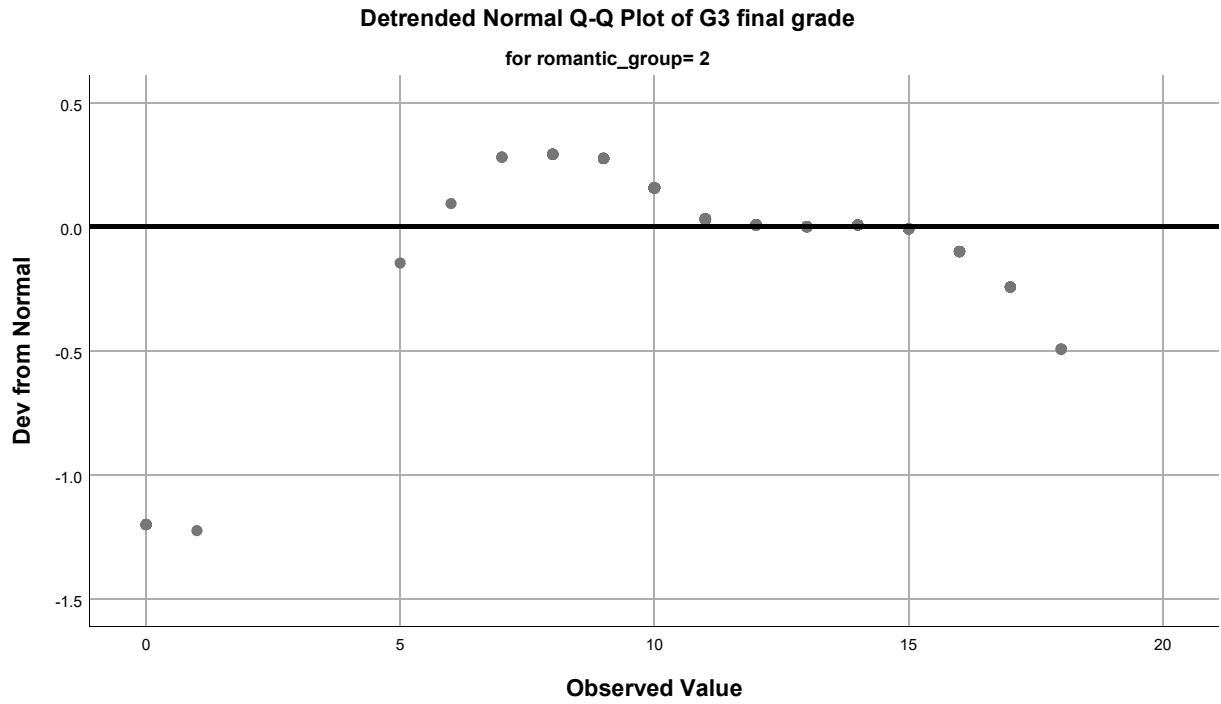
Normal Q-Q Plots





Detrended Normal Q-Q Plots





```

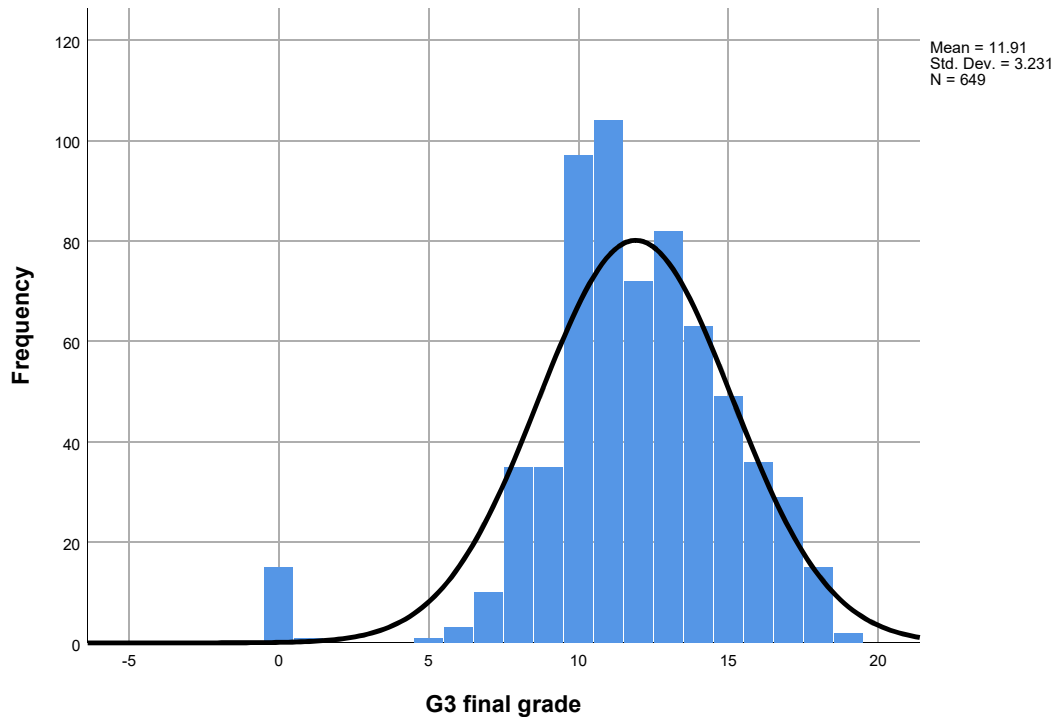
* =====.
* 9. Extra chart commands for clearer visual output.
* =====.

```

GRAPH

```
/HISTOGRAM(NORMAL)=g3.
```

Graph



GRAPH

```
/BOXPLOT=VARIABLE(g3) BY school_group.
```

Graph

>Error # 17804 in column 4. Text: BOXPLOT

>Unrecognized subcommand was found. Recognized subcommands are: TITLE,

>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and

>TEMPLATE. Skipping to a "/.

>Execution of this command stops.

GRAPH

```
/BOXPLOT=VARIABLE(g3) BY sex_group.
```

Graph

>Error # 17804 in column 4. Text: BOXPLOT

>Unrecognized subcommand was found. Recognized subcommands are: TITLE,

```
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
d
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
GRAPH
  /BOXPLOT=VARIABLE(g3) BY age_group.
```

Graph

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
d
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
GRAPH
  /BOXPLOT=VARIABLE(g3) BY studytime_group.
```

Graph

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
d
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
GRAPH
  /BOXPLOT=VARIABLE(g3) BY failures_group.
```

Graph

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
d
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
GRAPH
  /BOXPLOT=VARIABLE(g3) BY absences_group.
```

Graph

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
GRAPH
  /BOXPLOT=VARIABLE(g3) BY schoolsup_group.
```

Graph

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
GRAPH
  /BOXPLOT=VARIABLE(g3) BY romantic_group.
```

Graph

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
* =====.
* 10. Export SPSS output to one upload-friendly PDF.
* =====.
* After running, upload this PDF here:
* D:\low kda score priority basis posts\first post\Lilliefors Test\SPSS\lilliefors_spss_output_report.pdf
* =====.
```

```
OUTPUT EXPORT
  /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRINTSETTING
  /PDF DOCUMENTFILE='D:\low kda score priority basis posts\first post\Lilliefors Test\SPSS\lilliefors_spss_output_report.pdf'
  /EMBEDBOOKMARKS YES
```

/EMBEDFONTS YES.

Output Export

Warnings

The name EMBEDBOOKMARKS is not a recognized subcommand.

Execution of this command stops.

* =====.
* 11. Save SPSS dataset after grouped variables are created.
* =====.

SAVE OUTFILE='D:\low kda score priority basis posts\first post\Lilliefors Test
\SPSS\lilliefors_spss_dataset_with_groups.sav'
/COMPRESSED.

* =====.
* END OF SPSS SYNTAX.
* =====.