Assumptions

Assumption #1: You have one dependent variable that is measured at the continuous level.

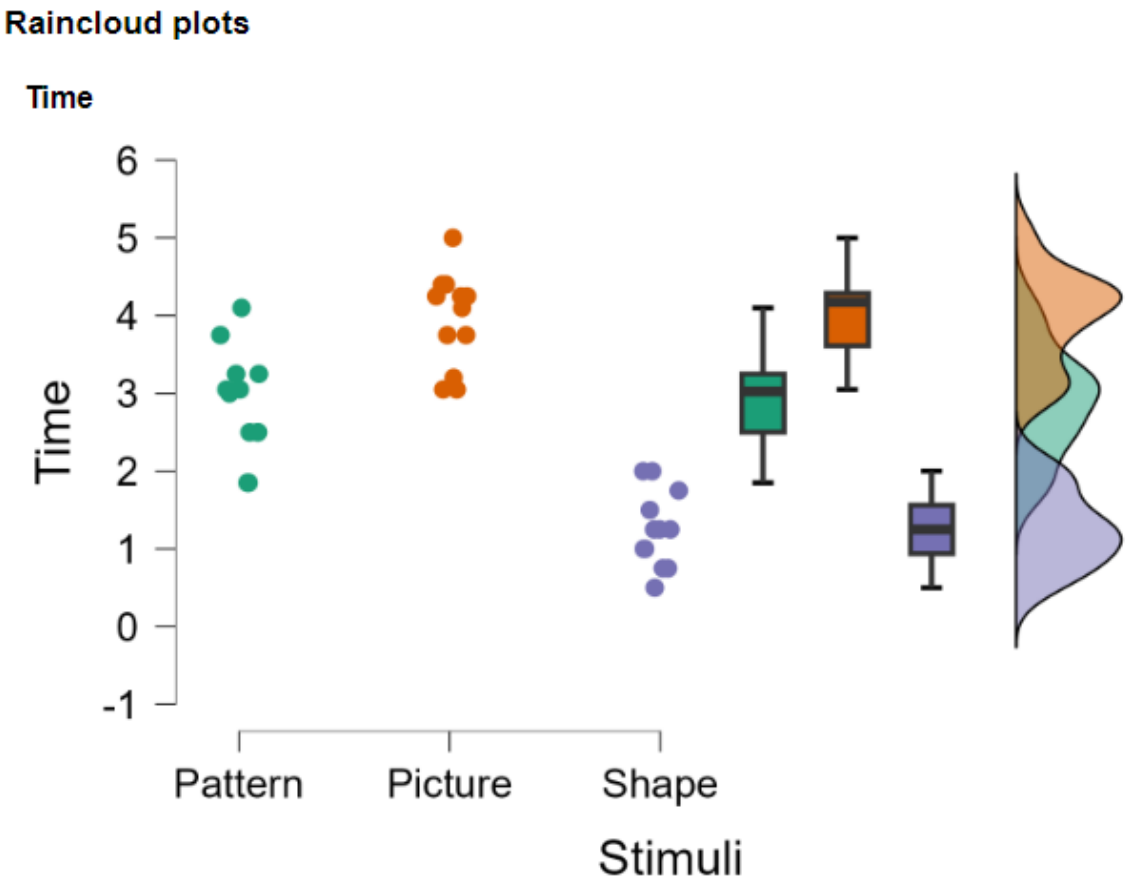
Time is the dependent variable

Assumption #2: You have one independent variable that consists of three or more categorical, independent groups.

Stimuli (Shape, Pattern, Picture) is the independent variable

Assumption #3: You should have independence of observations, which means that there is no relationship between the observations in each group of the independent variable or among the groups themselves.

Assumption #4: There should be no significant outliers in the three or more groups of your independent variable in terms of the dependent variable.



There was no significant outliers as assessed by the visual inspection of boxplots

Assumption #5: Your dependent variable should be approximately normally distributed for each

group of the independent variable.

Descriptive Statistics

	Time		
	Pattern	Picture	Shape
Valid	12	12	12
Missing	0	0	0
Mode	2.500	4.250	1.250
Median	3.025	4.175	1.250
Mean	2.888	3.954	1.250
Std. Deviation	0.684	0.608	0.489
Skewness	0.041	−0.254	0.263
Std. Error of Skewness	0.637	0.637	0.637
Kurtosis	−0.335	−0.611	−0.856
Std. Error of Kurtosis	1.232	1.232	1.232
Shapiro-Wilk	0.950	0.915	0.944
P-value of Shapiro-Wilk	0.638	0.248	0.548
Minimum	1.850	3.050	0.500
Maximum	4.100	5.000	2.000
Sum	34.650	47.450	15.000

Based on the Shapiro-Wilk test and the measures of skewness and kurtosis, there is no strong evidence to reject the assumption of normality for each group. However, it's important to note that normality tests may have limited power with small sample sizes, and visual inspection of histograms or Q-Q plots could provide additional insights into the distribution of the data.

In summary, the assumption of normality appears to be reasonable based on the Shapiro-Wilk test and descriptive statistics, but further exploration and consideration of the study design are always advisable.

Assumption #6. You have homogeneity of variances (i.e., the variance of the dependent variable

is equal in each group of your independent variable).

Assumption Checks

Test for Equality of Variances (Levene's)

F	df1	df2	p
0.774	2.000	33.000	0.469

ANOVA

ANOVA - Time

Cases	Sum of Squares	df	Mean Square	F	p	η²
Stimuli	44.527	2	22.263	62.089	< .001	0.790
Residuals	11.833	33	0.359			

Note. Type III Sum of Squares

Descriptives

Descriptives - Time

Stimuli	N	Mean	SD	SE	Coefficient of variation
Pattern	12	2.888	0.684	0.197	0.237
Picture	12	3.954	0.608	0.175	0.154
Shape	12	1.250	0.489	0.141	0.391

Test for Equality of Variances (Levene's)

F	df1	df2	p
0.774	2.000	33.000	0.469

Based on Levene's test, there is no significant evidence to suggest that the variances of the dependent variable differ significantly across the groups (StimuliType) at the 0.05 significance level.

This aligns with the earlier Levene's test result you provided, and it supports the assumption of homogeneity of variances for the one-way ANOVA. Meeting the assumption of homogeneity of variances enhances the validity and reliability of the results obtained from the ANOVA analysis.

Post Hoc Tests

Standard

Post Hoc Comparisons - Stimuli

			95% CI for Mean Difference				
		Mean Difference	Lower	Upper	SE	t	p_{tukey}
Pattern	Picture	−1.067	−1.667	−0.467	0.244	−4.363	< .001
	Shape	1.638	1.038	2.237	0.244	6.698	< .001
Picture	Shape	2.704	2.104	3.304	0.244	11.062	< .001

Note. P-value and confidence intervals adjusted for comparing a family of 3 estimates (confidence intervals corrected using the tukey method).