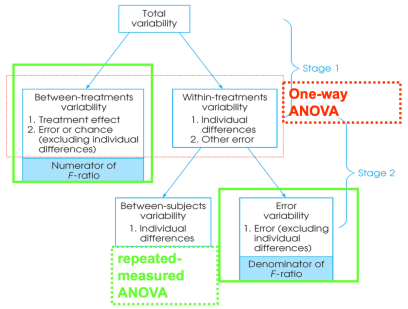
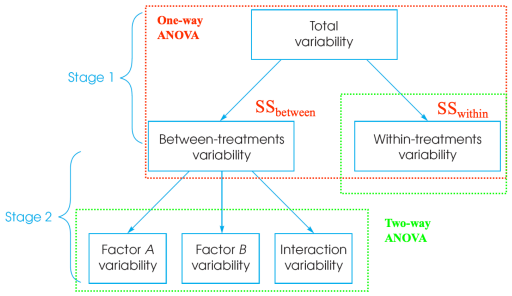
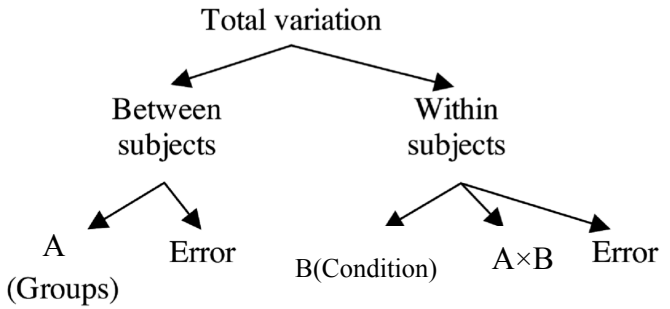
	One way ANOVA	Repeated ANOVA	Two Way ANOVA			Mixed ANOVA		
Partitioning of variability								
Factor	between	within	A	B	A×B	A(between)	B(within)	A×B
F-ratio	$\frac{MS_{between}}{MS_{within}}$	$\frac{MS_{between}}{MS_{error}}$	$\frac{MS_A}{MS_{within}}$	$\frac{MS_B}{MS_{within}}$	$\frac{MS_{A\times B}}{MS_{within}}$	$\frac{MS_A}{MS_{S/A}}$	$\frac{MS_B}{MS_{B\times S/A}}$	$\frac{MS_{A\times B}}{MS_{B\times S/A}}$
	$SS_{total} = \sum X^2 - \frac{G^2}{N}, \quad SS_{between} = \sum \frac{T^2}{n} - \frac{G^2}{N}, \quad SS_{within} = \sum SS_{each\ treatment}$							
SS-Numerator	$\sum \frac{T^2}{n} - \frac{G^2}{N}$	$\sum \frac{T^2}{n} - \frac{G^2}{N}$	$\sum \frac{T_{Row}^2}{n_{Row}} - \frac{G^2}{N}$	$\sum \frac{T_{Col}^2}{n_{Col}} - \frac{G^2}{N}$	$SS_{between} - SS_A - SS_B$	$\sum \frac{A^2}{bs} - \frac{G^2}{abs}$	$\sum \frac{B^2}{as} - \frac{G^2}{abs}$	$\frac{\sum (AB)^2}{s} - \frac{\sum A^2}{bs} - \frac{\sum B^2}{as} + \frac{G^2}{abs}$
SS-Denominator	$\sum SS_{each\ treatment}$	$\sum SS_{within} - \sum \frac{P^2}{k} - \frac{G^2}{N}$	$SS_{within} = \sum SS_{each\ treatment}$			$\sum \frac{(AS)^2}{b} - \frac{A^2}{bs}$	$\sum X^2 - \frac{\sum (AB)^2}{s} - \frac{\sum (AS)^2}{b} + \frac{\sum A^2}{bs}$	
df-Numerator	*k-1*	*k-1*	*a-1*	*b-1*	*(a-1)(b-1)*	*a-1*	*b-1*	*(a-1)(b-1)*
df-Denominator	*N-k or k(s-1)*	*(N-k)-(n-1) or (k-1)(n-1)*	*N-ab*	*N-ab*	*N-ab*	*a(s-1)*	*a(b-1)(s-1)*	*a(b-1)(s-1)*
Example	Strategies for Studying Text Passages Student | Read Once | Read and Reread | Answer Prepared Questions | Create and Answer Questions | Person Totals A 3 5 8 8 $P=24$ $n=6$ B 3 3 5 9 $P=20$ $k=4$ C 4 5 8 7 $P=24$ $N=24$ D 6 7 9 10 $P=32$ $G=168$ E 6 8 8 10 $P=32$ $\Sigma X^2=1298$ F 8 8 10 10 $P=36$ $T=30$ $T=36$ $T=48$ $T=54$ $M=5$ $M=6$ $M=8$ $M=9$ $SS=20$ $SS=20$ $SS=14$ $SS=8$		Factor B: Text Presentation Mode Paper | Computer Screen Factor A Time Control Self-regulated: 11, 8, 9, 10, 7; $M=9$, $T=45$, $SS=10$ | 4, 4, 8, 5, 4; $M=5$, $T=25$, $SS=12$; $T_{row}=70$ Fixed: 10, 7, 10, 6, 7; $M=8$, $T=40$, $SS=14$ | 10, 6, 10, 10, 9; $M=9$, $T=45$, $SS=12$; $T_{row}=85$ $T_{col}=85$ $T_{col}=70$ $N=20$ $G=155$ $\Sigma X^2=1303$			B: Month b_1: Month 1 | b_2: Month 2 | b_3: Month 3 | Case Total A: Type of Novel a_1: Science Fiction: S_1 1 3 6 $S_1=10$; S_2 1 4 8 $S_2=13$; S_3 3 3 6 $S_3=12$; S_4 5 5 7 $S_4=17$; S_5 2 4 5 $S_5=11$ $a_1b_1=12$ $a_1b_2=19$ $a_1b_3=32$ $a_1=63$ a_2: Mystery: S_6 3 1 0 $S_6=4$; S_7 4 4 2 $S_7=10$; S_8 5 3 2 $S_8=10$; S_9 4 2 0 $S_9=6$; S_{10} 4 5 3 $S_{10}=12$ $a_2b_1=20$ $a_2b_2=15$ $a_2b_3=7$ $a_2=42$ a_3: Romance: S_{11} 4 2 0 $S_{11}=6$; S_{12} 2 6 1 $S_{12}=9$; S_{13} 3 3 3 $S_{13}=9$; S_{14} 6 2 1 $S_{14}=9$; S_{15} 3 3 2 $S_{15}=8$ $a_3b_1=18$ $a_3b_2=16$ $a_3b_3=7$ $a_3=41$ $b_1=50$ $b_2=50$ $b_3=46$ Total = 146		