

Accuracy Value	Timing
INACTIVE	< -300ms
ALMOST	-300ms
GOOD	-210ms
GREAT	-150ms
PERFECT	-90ms
MARVELOUS	-30ms
PERFECT	40ms
GREAT	120ms
GOOD	200ms
ALMOST	280ms
MISS	400ms

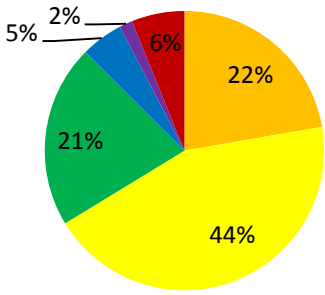


Rhythm Game	Layout	Notes	Hitbox	Movement	Style
Dance Dance Revolution	4/6 columns	4/6 arrows	Box at top	Notes scroll up	Falling Notes
In The Groove	4 columns	4 arrows	Box at bottom	Notes scroll up	Falling Notes
Pump It Up NX	5 columns	4 arrows + middle stomp	Box at bottom	Notes scroll up	Falling Notes
Dance Maniax	4 columns	4 motion sensors	Bar at top	Notes scroll up	Falling Notes
Beatmania IIDX	6/8 columns	5/7 bars + 1 scratch	Bar at bottom	Notes fall down	Falling Notes
Pop 'N Music	9 columns	9 buttons	Bar at bottom	Notes fall down	Falling Notes
DJMax	4/5/6/8 columns	4/5/6/8 bars	Bar at bottom	Notes fall down	Falling Notes
GuitarFreaks	3 columns	3 tabs	Bar at bottom	Notes fall down	Falling Notes
Drummania	6 columns	5 drum + 1 foot pedal	Bar at bottom	Notes fall down	Falling Notes
Keyboardmania	24 columns	24 keys	Bar at bottom	Notes fall down	Falling Notes
Guitar Hero	5 columns	5 tabs	Bar at bottom	Notes approach from distance	Spreading Notes
DJ Hero	3 columns	3 buttons on scratch	Bar at bottom	Notes approach from distance	Spreading Notes
Rockband	5 columns	5 tabs or 4 drum + 1 foot pedal	Bar at bottom	Notes approach from distance	Spreading Notes
Taiko no Tatsujin	1 row	2 drum parts	Box on side	Notes stream to single point	Streaming Notes
The iDOLM@STER	1 row	6 buttons	Box on side	Notes stream to single point	Streaming Notes
Hatsune Miku: Project DIVA	Fullscreen	8 buttons	Sequence of hitboxes	Notes focus to corresponding hitbox	Focusing Notes
Gitaroo Man Lives!	Fullscreen	4 buttons	Box in centre	Notes focus to single point	Focusing Notes
DJMax Technika	3/4 rows	3/4 buttons	Moving bar	Hitbox slides across rows	Sliding Hitbox
Parappa The Rapper	1 row	4 buttons	Cursor	Cursor slides across row	Sliding Cursor
Audition Online	1 row	4 arrows	Cursor	Cursor slides across row	Sliding Cursor
osu! Tatakae! Ouendan	Fullscreen	Anywhere buttons	Shrinking rings	Rings shrink around buttons	Appearing
jubeat	Grid	16 buttons	Collapsing box	Box solid fills grid	Grid

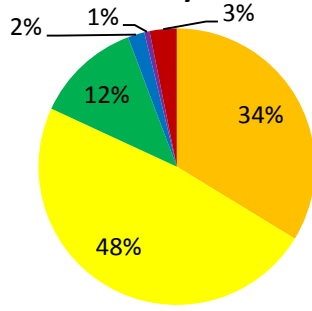
Moving Notes, Fixed Hitboxes		Moving Hitbox, Fixed Notes	
Diagram	Description	Diagram	Description
	<p>Mode #1: Falling Notes</p> <p>Moving notes fall toward fixed hitboxes from top to bottom</p>		<p>Mode #5: Sliding Hitbox</p> <p>Moving hitbox fall toward fixed notes appearing from top to bottom</p>
	<p>Mode #2: Spreading Notes</p> <p>Moving notes slide toward fixed hitboxes from centre to corners</p>		<p>Mode #6: Expanding Hitbox</p> <p>Expanding hitbox grow toward fixed notes from centre to corners</p>
	<p>Mode #3: Focusing Notes</p> <p>Moving notes slide toward fixed hitboxes from corners to centre</p>		<p>Mode #7: Collapsing Hitbox</p> <p>Collapsing hitbox shrink toward fixed notes from corners to centre</p>
	<p>Mode #4: Grid</p> <p>Expanding notes grow in fixed hitboxes at grid points</p>		<p>Mode #8: Appearing</p> <p>Collapsing hitboxes shrink around fixed notes appearing at grid points</p>

Rating Category	Tablets			Phones			All		
	Count	Sum	Average	Count	Sum	Average	Count	Sum	Average
#1: Falling Notes									
Unique	47	114	2.43	113	427	3.78	160	541	3.38
Overall	49	114	2.33	112	448	4.00	161	562	3.49
Intuitive	45	188	4.18	112	457	4.08	157	645	4.11
Fun	51	192	3.76	117	486	4.15	168	678	4.04
Challenge	42	155	3.69	106	399	3.76	148	554	3.74
#2: Spreading Notes									
Unique	33	131	3.97	45	182	4.04	78	313	4.01
Overall	39	156	4.00	48	181	3.77	87	337	3.87
Intuitive	32	126	3.94	44	175	3.98	76	301	3.96
Fun	36	135	3.75	49	189	3.86	85	324	3.81
Challenge	31	119	3.84	43	173	4.02	74	292	3.95
#3: Focusing Notes									
Unique	34	129	3.79	35	129	3.69	69	258	3.74
Overall	37	131	3.54	38	129	3.39	75	260	3.47
Intuitive	33	124	3.76	35	122	3.49	68	246	3.62
Fun	36	123	3.42	37	129	3.49	73	252	3.45
Challenge	33	125	3.79	33	128	3.88	66	253	3.83
#4: Grid									
Unique	48	185	3.85	75	299	3.99	123	484	3.93
Overall	47	187	3.98	85	353	4.15	132	540	4.09
Intuitive	48	183	3.81	70	269	3.84	118	452	3.83
Fun	50	207	4.14	79	325	4.11	129	532	4.12
Challenge	45	192	4.27	70	290	4.14	115	482	4.19
#5: Sliding Hitbox									
Unique	29	119	4.10	31	128	4.13	60	247	4.12
Overall	30	114	3.80	33	136	4.12	63	250	3.97
Intuitive	28	98	3.50	32	115	3.59	60	213	3.55
Fun	29	118	4.07	33	131	3.97	62	249	4.02
Challenge	28	123	4.39	32	134	4.19	60	257	4.28
#6: Expanding Hitbox									
Unique	26	118	4.54	28	107	3.82	54	225	4.17
Overall	27	92	3.41	27	108	4.00	54	200	3.70
Intuitive	25	71	2.84	22	73	3.32	47	144	3.06
Fun	25	84	3.36	24	96	4.00	49	180	3.67
Challenge	25	114	4.56	22	90	4.09	47	204	4.34
#7: Collapsing Hitbox									
Unique	22	92	4.18	28	108	3.86	50	200	4.00
Overall	22	71	3.23	27	94	3.48	49	165	3.37
Intuitive	23	61	2.65	26	96	3.69	49	157	3.20
Fun	23	70	3.04	27	91	3.37	50	161	3.22
Challenge	23	98	4.26	26	116	4.46	49	214	4.37
#8: Appearing									
Unique	43	173	4.02	44	148	3.36	87	321	3.69
Overall	40	168	4.20	45	174	3.87	85	342	4.02
Intuitive	40	165	4.13	43	156	3.63	83	321	3.87
Fun	42	182	4.33	44	165	3.75	86	347	4.03
Challenge	40	157	3.93	41	160	3.90	81	317	3.91

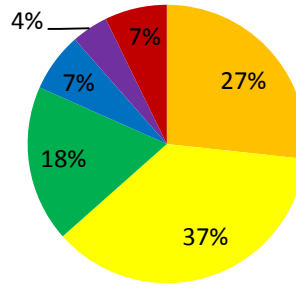
#1 Accuracy - Tablet



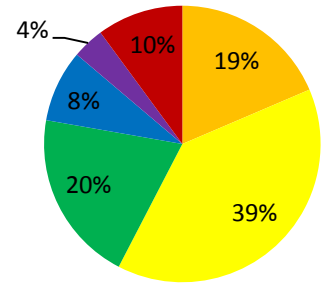
#1 Accuracy - Phone



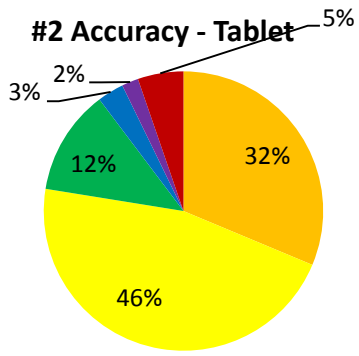
#5 Accuracy - Tablet



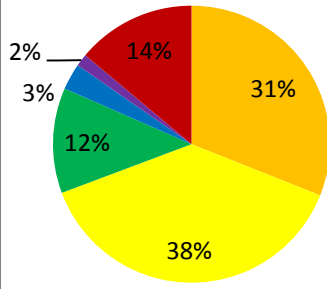
#5 Accuracy - Phone



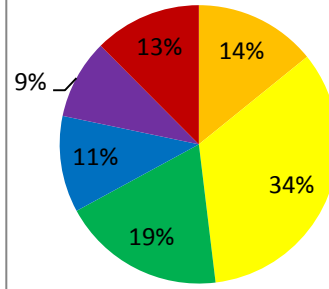
#2 Accuracy - Tablet



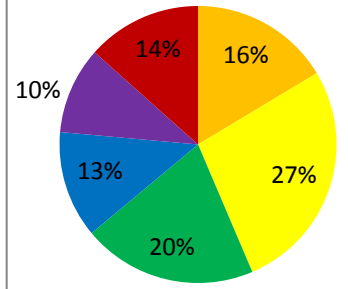
#2 Accuracy - Phone



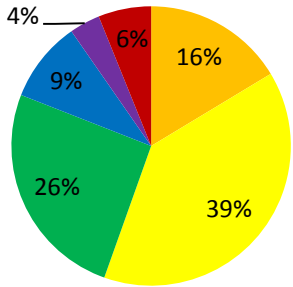
#6 Accuracy - Tablet



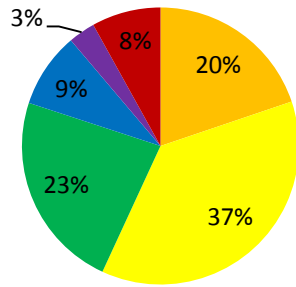
#6 Accuracy - Phone



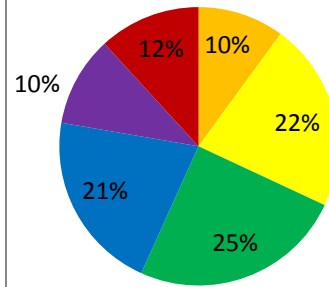
#3 Accuracy - Tablet



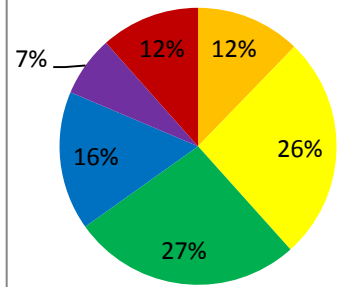
#3 Accuracy - Phone



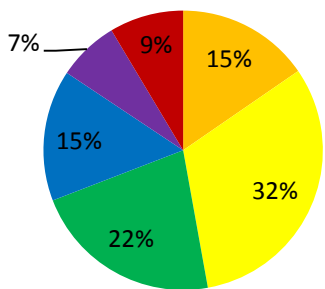
#7 Accuracy - Tablet



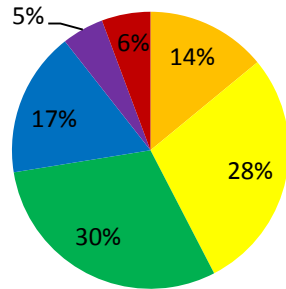
#7 Accuracy - Phone



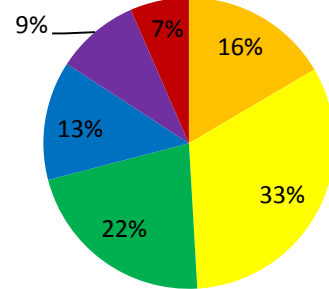
#4 Accuracy - Tablet



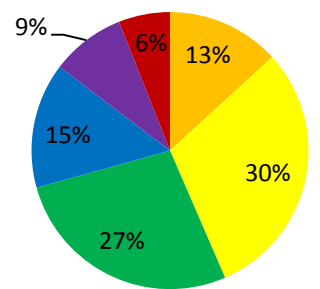
#4 Accuracy - Phone



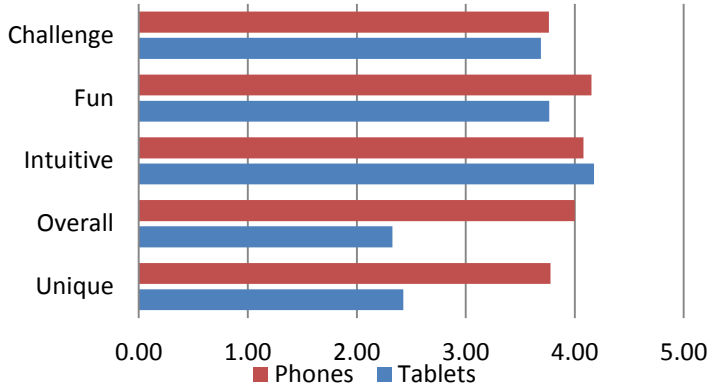
#8 Accuracy - Tablet



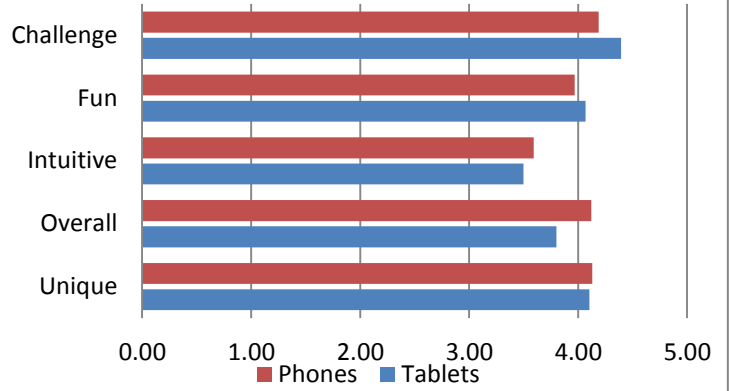
#8 Accuracy - Phone



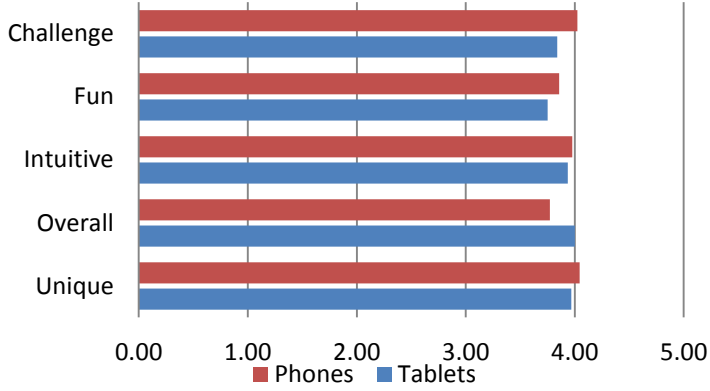
#1 Feedback Ratings



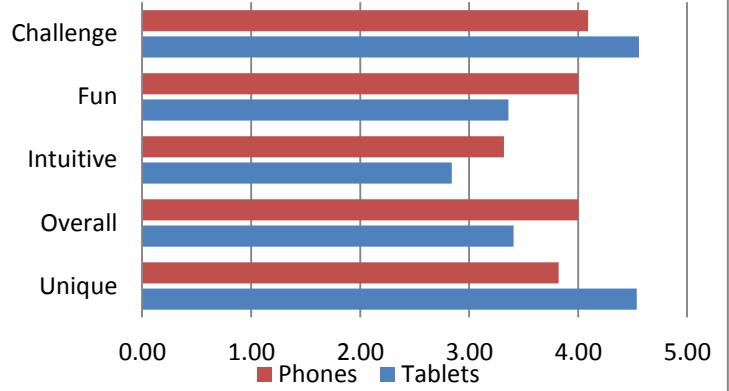
#5 Feedback Ratings



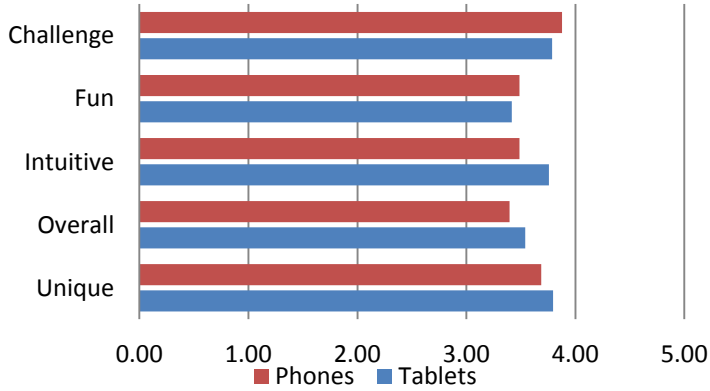
#2 Feedback Ratings



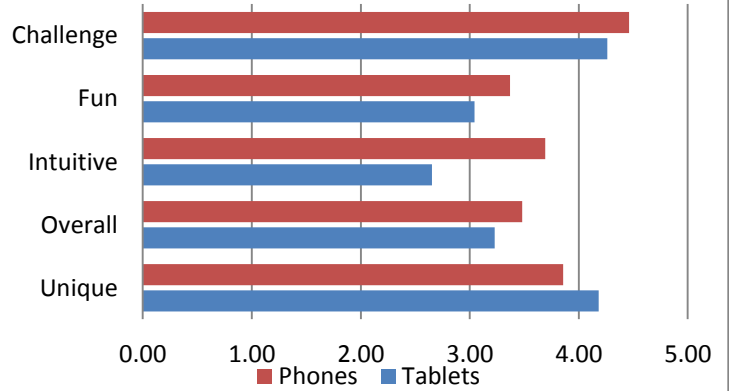
#6 Feedback Ratings



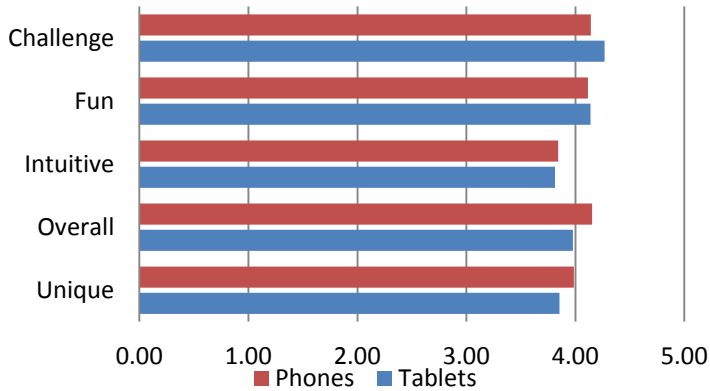
#3 Feedback Ratings



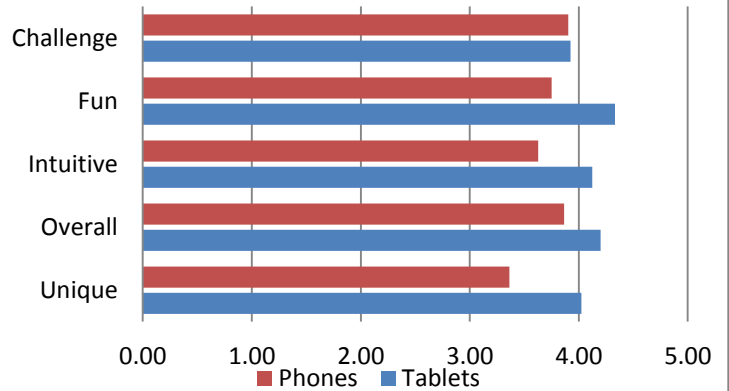
#7 Feedback Ratings



#4 Feedback Ratings



#8 Feedback Ratings



Accuracy Category	Tablets			Phones			All		
	Count	Sum	Average	Count	Sum	Average	Count	Sum	Average
#1: Falling Notes									
MARVELOUS	45	2043	45.40	140	9612	68.66	185	11655	63.00
PERFECT	45	4038	89.73	140	13735	98.11	185	17773	96.07
GREAT	45	1943	43.18	140	3526	25.19	185	5469	29.56
GOOD	45	448	9.96	144	571	3.97	189	1019	5.39
ALMOST	46	143	3.11	144	185	1.28	190	328	1.73
MISS	46	574	12.48	145	932	6.43	191	1506	7.88
#2: Spreading Notes									
MARVELOUS	33	2093	63.42	47	2989	63.60	80	5082	63.53
PERFECT	33	3093	93.73	46	3607	78.41	79	6700	84.81
GREAT	34	839	24.68	48	1209	25.19	82	2048	24.98
GOOD	34	211	6.21	48	304	6.33	82	515	6.28
ALMOST	34	133	3.91	48	141	2.94	82	274	3.34
MISS	34	364	10.71	48	1368	28.50	82	1732	21.12
#3: Focusing Notes									
MARVELOUS	29	969	33.41	42	1696	40.38	71	2665	37.54
PERFECT	29	2315	79.83	42	3176	75.62	71	5491	77.34
GREAT	29	1510	52.07	42	1983	47.21	71	3493	49.20
GOOD	29	556	19.17	42	751	17.88	71	1307	18.41
ALMOST	29	210	7.24	43	275	6.40	72	485	6.74
MISS	30	375	12.50	43	707	16.44	73	1082	14.82
#4: Grid									
MARVELOUS	45	1418	31.51	118	3397	28.79	163	4815	29.54
PERFECT	45	2925	65.00	118	6864	58.17	163	9789	60.06
GREAT	45	2025	45.00	120	7396	61.63	165	9421	57.10
GOOD	45	1399	31.09	124	4312	34.77	169	5711	33.79
ALMOST	45	652	14.49	124	1246	10.05	169	1898	11.23
MISS	50	877	17.54	124	1448	11.68	174	2325	13.36
#5: Sliding Hitbox									
MARVELOUS	28	1522	54.36	41	1560	38.05	69	3082	44.67
PERFECT	28	2093	74.75	40	3199	79.98	68	5292	77.82
GREAT	28	1037	37.04	40	1651	41.28	68	2688	39.53
GOOD	28	391	13.96	40	691	17.28	68	1082	15.91
ALMOST	28	242	8.64	41	313	7.63	69	555	8.04
MISS	29	427	14.72	41	847	20.66	70	1274	18.20
#6: Expanding Hitbox									
MARVELOUS	23	665	28.91	31	1026	33.10	54	1691	31.31
PERFECT	23	1591	69.17	32	1758	54.94	55	3349	60.89
GREAT	23	891	38.74	33	1357	41.12	56	2248	40.14
GOOD	23	526	22.87	33	832	25.21	56	1358	24.25
ALMOST	23	434	18.87	35	718	20.51	58	1152	19.86
MISS	23	585	25.43	34	921	27.09	57	1506	26.42
#7: Collapsing Hitbox									
MARVELOUS	21	423	20.14	30	749	24.97	51	1172	22.98
PERFECT	21	923	43.95	32	1707	53.34	53	2630	49.62
GREAT	21	1045	49.76	32	1749	54.66	53	2794	52.72
GOOD	22	925	42.05	32	1060	33.13	54	1985	36.76
ALMOST	22	463	21.05	33	475	14.39	55	938	17.05
MISS	22	521	23.68	34	803	23.62	56	1324	23.64
#8: Appearing									
MARVELOUS	37	1248	33.73	48	1304	27.17	85	2552	30.02
PERFECT	37	2457	66.41	48	2987	62.23	85	5444	64.05
GREAT	37	1650	44.59	50	2795	55.90	87	4445	51.09
GOOD	37	999	27.00	50	1504	30.08	87	2503	28.77
ALMOST	37	700	18.92	50	892	17.84	87	1592	18.30
MISS	37	494	13.35	51	629	12.33	88	1123	12.76

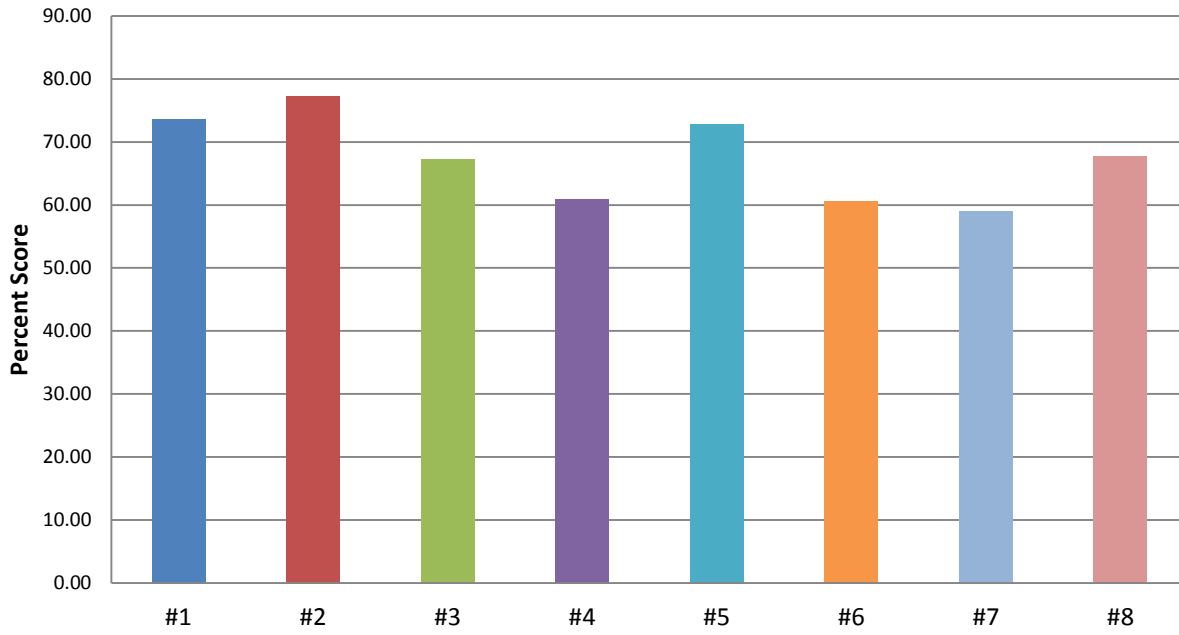
Completion Rate Design	Tablets			Phones			All		
	Started	Completed	Percent	Started	Completed	Percent	Started	Completed	Percent
#1: Falling Notes	71	44	61.97	206	140	67.96	277	184	66.43
#2: Spreading Notes	44	32	72.73	84	44	52.38	128	76	59.38
#3: Focusing Notes	46	29	63.04	55	39	70.91	101	68	67.33
#4: Grid	57	43	75.44	150	117	78.00	207	160	77.29
#5: Sliding Hitbox	38	28	73.68	71	40	56.34	109	68	62.39
#6: Expanding Hitbox	34	22	64.71	48	30	62.50	82	52	63.41
#7: Collapsing Hitbox	31	21	67.74	54	31	57.41	85	52	61.18
#8: Appearing	43	36	83.72	76	46	60.53	119	82	68.91

Feedback Rate Design	Tablets			Phones			All		
	Completed	Feedback	Percent	Completed	Feedback	Percent	Completed	Feedback	Percent
#1: Falling Notes	44	45	102.27	140	114	81.43	184	159	86.41
#2: Spreading Notes	32	30	93.75	44	43	97.73	76	73	96.05
#3: Focusing Notes	29	32	110.34	39	34	87.18	68	66	97.06
#4: Grid	43	45	104.65	117	71	60.68	160	116	72.50
#5: Sliding Hitbox	28	26	92.86	40	31	77.50	68	57	83.82
#6: Expanding Hitbox	22	24	109.09	30	23	76.67	52	47	90.38
#7: Collapsing Hitbox	21	21	100.00	31	27	87.10	52	48	92.31
#8: Appearing	36	38	105.56	46	42	91.30	82	80	97.56

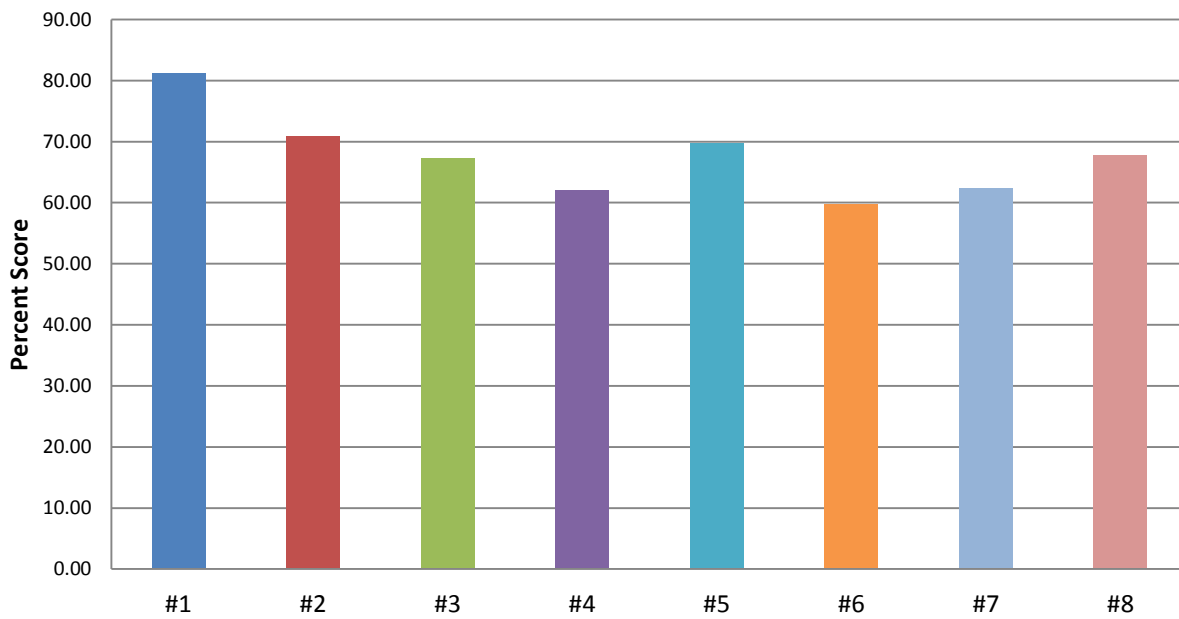
Combo Max Design	Tablets			Phones			All		
	Count	Sum	Average	Count	Sum	Average	Count	Sum	Average
#1: Falling Notes	47	3981	84.70	153	17052	111.45	200	21033	105.17
#2: Spreading Notes	34	3127	91.97	48	2467	51.40	82	5594	68.22
#3: Focusing Notes	31	1516	48.90	43	2031	47.23	74	3547	47.93
#4: Grid	52	2075	39.90	131	4605	35.15	183	6680	36.50
#5: Sliding Hitbox	29	2189	75.48	42	1758	41.86	71	3947	55.59
#6: Expanding Hitbox	23	864	37.57	35	1060	30.29	58	1924	33.17
#7: Collapsing Hitbox	22	468	21.27	35	937	26.77	57	1405	24.65
#8: Appearing	37	1651	44.62	54	1965	36.39	91	3616	39.74

Percent Score Design	Tablets			Phones			All		
	Count	Sum	Average	Count	Sum	Average	Count	Sum	Average
#1: Falling Notes	44	3235	73.52	142	11511	81.06	186	14746	79.28
#2: Spreading Notes	32	2472	77.25	46	3263	70.93	78	5735	73.53
#3: Focusing Notes	29	1951	67.28	39	2625	67.31	68	4576	67.29
#4: Grid	44	2677	60.84	117	7249	61.96	161	9926	61.65
#5: Sliding Hitbox	28	2038	72.79	41	2861	69.78	69	4899	71.00
#6: Expanding Hitbox	22	1331	60.50	31	1853	59.77	53	3184	60.08
#7: Collapsing Hitbox	21	1238	58.95	31	1931	62.29	52	3169	60.94
#8: Appearing	36	2438	67.72	46	3113	67.67	82	5551	67.70

Percent Score Averages - Tablets

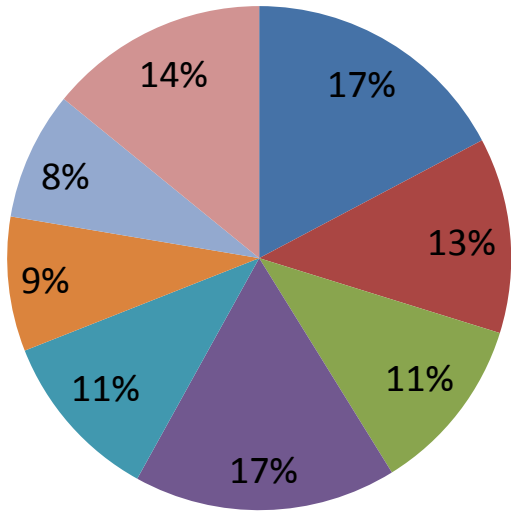


Percent Score Averages - Phones



Mode Frequency - Tablets

■ 1 ■ 2 ■ 3 ■ 4 ■ 5 ■ 6 ■ 7 ■ 8



Mode Frequency - Phones

■ 1 ■ 2 ■ 3 ■ 4 ■ 5 ■ 6 ■ 7 ■ 8

