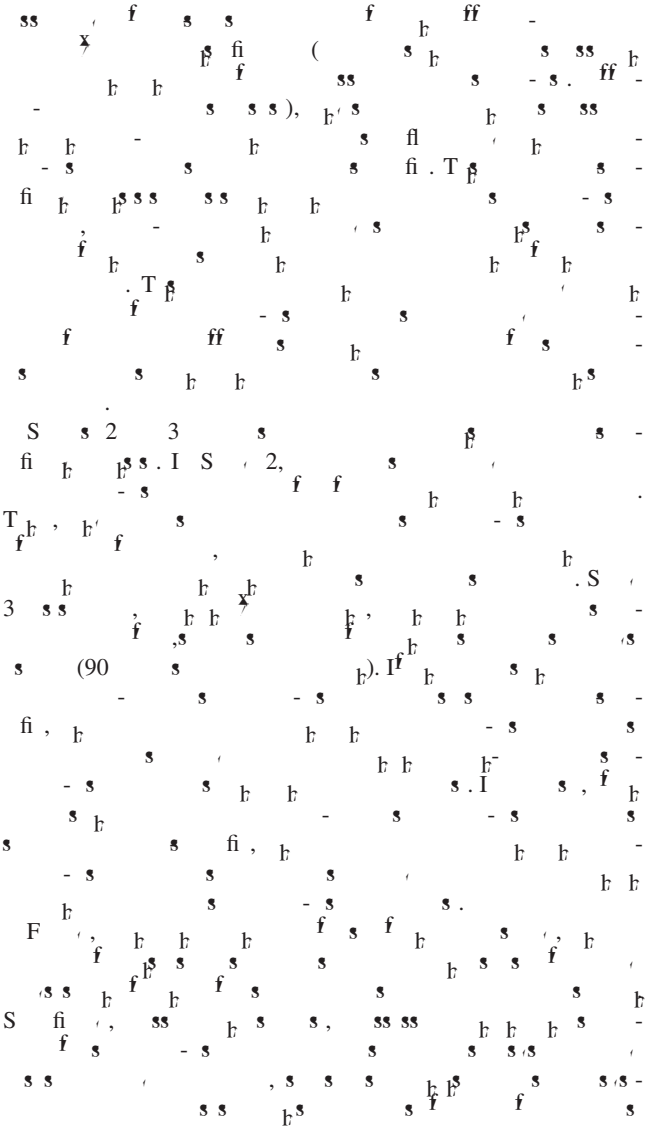
T - O -B P R B
I - O -B F D

J Q , K C , R C , R P
S S , S U

I . T . I 3 . D . I S 1, - 1.5 . . I S 2 3, ; S 3:). . T - ( ).

Keywords: , - , , , , ,

O (“ ” -) . I



f h (h h h s x ,).
F h , s s , h f
h f h . P s
f h h h 15-
h s . F , s s h h
s s f , s f h h 15-
M . A f , q s s h s s
ss , s h s . A f h -
s , h P s 1 Sss .
P s x , 1.5 s h -
P s 2. E h s , ss
, f h f f s s h M s s .
T h Ts h h s f h f -
, h s s s
, f h s ss . T h s
x , f h f s f f h ,
f s s f h . F h , h s h
h s h q h s
h x f . As h h P s 1 s ,
s s h 15- h .
O , q s s h s s ss , -
s h s . A f h s ,
s f h .

Mea e f D a g Pe f a ce

P f h s s ss ss s s -
s h q fi h s s
s h s f f s . T h s
s s F 2 F h , s s s ,
A—G, s :

- **A** = h h f h h : s s h s
f h f h h h f h h .
- = h h h f h s : s s h s
f h h h f h h -
h ss h h h s f h , s .
- = h h h f s : s s h s
h h h h f h s .
- = h h f h s s h s
h f h h f h h
f h h .
-

A c a A a e

T ss ss h h h s f s - s
s s s s , -
h s s (G f
., 2014; G f s ., 2015). F s , f h SSR, -
s h SSR f
h f h SSR h . H ,
f 1.00 . A f s

2

Study 1: Spatial Relation Ratio (SSR) Values of the Four Drawing Models; M, Standard Deviation & 95% Confidence Intervals of the M of the SRR Values for the Observation-Based and Imagination-Based Drawings; M, Standard Deviation and 95% Confidence Intervals of the Means for the Observation-Based Drawing Errors; Results of Inferential Tests Assessing for Systematic Biases in Observation-Based Drawing Errors

	S s (SSR s)								
M s	B/	C/	D/	A/E	F/E	G/E	(D-B)/	(C-B)/	(D-C)/
M 1 (n = 12)									
M V	.46	.68	.81	1.63	.25	.27	.36	.22	.13
O.D. M (SD)	0.45 (.06)	0.67 (.04)	0.83 (.02)	1.50 (.17)	0.24 (.05)	0.23 (.03)	0.38 (.05)	0.22 (.03)	0.16 (.04)
95% CI f O.D. M	.41, .48	.64, .69	.81, .84	1.40, 1.61	.21, .27	.21, .25	.35, .41	.20, .24	.14, .19
I.D. M (SD)	.41 (.07)	.64 (.06)	.81 (.04)	1.34 (.12)	.22 (.08)	.17 (.06)	.40 (.07)	.23 (.04)	.17 (.05)
95% CI f I.D. M	.36, .46	.60, .68	.79, .83	1.27, 1.42	.17, .27	.13, .21	.36, .44	.21, .25	.14, .20
M 2 (n = 11)									
M V	.47	.66	.85	1.66	.30	.38	.39	.19	.19
O.D. M (SD)	.42 (.04)	.64 (.03)	.84 (.03)	1.49 (.13)	.23 (.08)	.27 (.07)	.42 (.03)	.21 (.04)	.20 (.02)
95% CI f O.D. M	.40, .45	.62, .66	.82, .86	1.40, 1.58	.18, .29	.23, .32	.39, .44	.19, .24	.19, .22
I.D. M (SD)	.40 (.03)	.62 (.05)	.81 (.04)	1.35 (.20)	.19 (.04)	.16 (.05)	.40 (.04)	.22 (.04)	.19 (.04)
95% CI f I.D. M	.38, .43	.58, .66	.78, .83	1.22, 1.48	.16, .22	.13, .19	.38, .43	.19, .24	.16, .22
M 3 (n = 13)									
M V	.46	.66	.83	1.78	.28	.31	.37	.20	.17
O.D. M (SD)	.43 (.04)	.65 (.04)	.83 (.02)	1.58 (.16)	.27 (.05)	.26 (.06)	.40 (.04)	.22 (.04)	.18 (.03)
95% CI f O.D. M	.41, .45	.62, .67	.81, .84	1.48, 1.67	.24, .30	.22, .29	.38, .43	.20, .24	.16, .20
I.D. M (SD)	.45 (.07)	.66 (.04)	.83 (.05)	1.32 (.11)	.22 (.09)	.18 (.06)	.38 (.03)	.21 (.04)	.17 (.03)
95% CI f I.D. M	.41, .49	.63, .69	.80, .85	1.25, 1.39	.16, .27	.15, .21	.36, .40	.19, .24	.15, .18
M 4 (n = 13)									
M V	.47	.68	.85	1.54	.27	.28	.38	.21	.17
O.D. M (SD)	.44 (.04)	.65 (.03)	.85 (.04)	1.40 (.13)	.25 (.08)	.24 (.04)	.41 (.06)	.20 (.04)	.20 (.03)
95% CI f O.D. M	.42, .47	.63, .66	.83, .87	1.32, 1.48	.20, .29	.22, .26	.37, .44	.18, .23	.18, .22
I.D. M (SD)	.41 (.08)	.63 (.06)	.82 (.04)	1.36 (.14)	.23 (.07)	.18 (.06)	.41 (.05)	.22 (.05)	.19 (.04)
95% CI f I.D. M	.37, .46	.60, .67	.79, .84	1.27, 1.44	.19, .28	.14, .22	.38, .44	.19, .25	.16, .21
T (N = 49)									
O.D. E M (SD)	.94 (.10)	.97 (.05)	1.00 (.04)	.90 (.09)	.92 (.24)	.82 (.16)	1.07 (.12)	1.03 (.19)	1.13 (.21)
95% CI f O.D. E M	.92, .97	.96, .99	.99, 1.01	.88, .93	.85, .99	.77, .86	1.04, 1.11	.98, 1.09	1.07, 1.19
t, p (-)	4.06, <.001	3.84, <.001	0.40, .69	7.69, <.001	2.35, .02	8.16, <.001	4.12, <.001	1.18, .24	4.45, <.001
C h s d									

s - s s (S , 2) h - / s - s , h s s - s s (S , 3).

, y2 2

Pa c a

S x , - f s s . E h - s x f , s s f h f f s f h s / s f h s ss h fi s . T h , h , s s f h S , ss ss h s f 56 s (40 f s , 16 s ; M (SD) = 20.89 (4.76) , s).

Ma e a

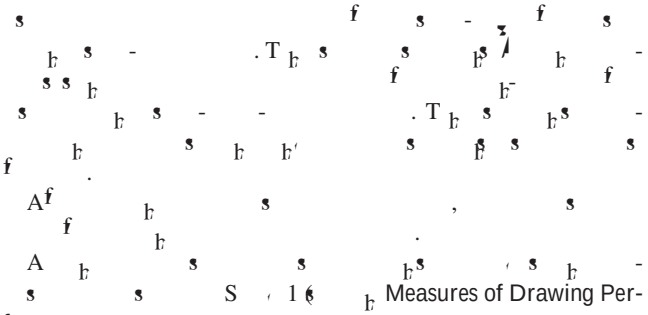
T h s f S , 2 , h s s h s S , 1. T h , x h s h , - h - h s - s

. F h s , s s , h f h f 180, f h x h - s F 1 f x). T h s , s / f h h s - s s .

P ced e

P s h f s s s . A - s fis f h - s f h s s f s s s S , 1. A f , s h s - s s (h s). P s , ss f h f f s s h s . s h f h s - s s ss h s .

P s h h - s - s T s f h s s s S , 1. T h s s f h s - s - - s T s h s f h h T s h x . P s



Measures of Drawing Performance

.423, fl , s s h s . U h s
s h h - h s -
s s s s h , s s fi -
s h .05 α f h f f SRRs : ( ) h h'
( ) s h h' ( ) h h h' ( ) s - h s ,
f h s fi s f -.135 .254,
f - - ss s h As s s h -

4

Study 2: M, Standard Deviation and 95% Confidence Intervals of the Means for the Upright and Upside-Down Observation-Based Drawing Errors; Results of Inferential Tests Assessing Systematic Biases in the Upright and Upside-Down Observation-Based Drawing Directional Errors; Results of Inferential Tests Assessing Significant Differences in Absolute Errors Between the Upright vs. Upside-Down Observation-Based Drawings

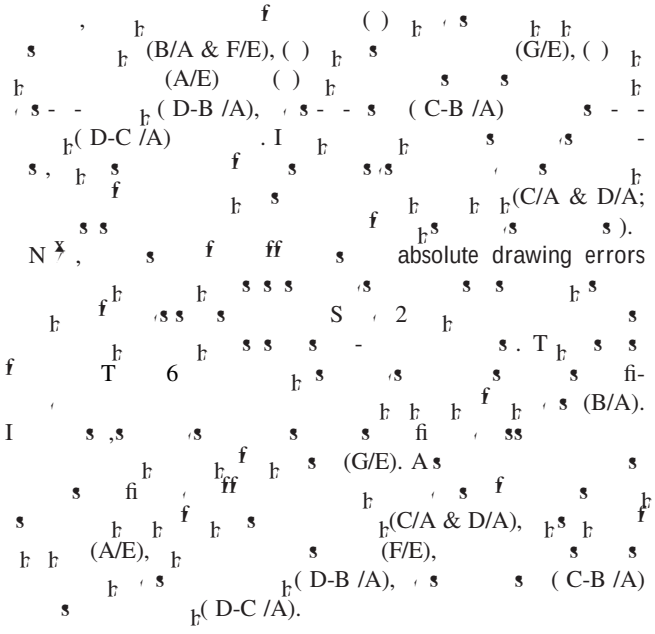
	S s								
S s s	B/A	C/A	D/A	A/E	F/E	G/E	(D-B)/A	(C-B)/A	(D-C)/A
U.O.D. D E M (SD)	.95 (.10)	.99 (.07)	1.01 (.04)	.90 (.08)	.85 (.19)	.81 (.14)	1.08 (.12)	1.08 (.15)	1.08 (.22)
95% CI f U.O.D. E M	.92, .98	.97, 1.01	1.00, 1.02	.88, .92	.80, .90	.77, .85	1.04, 1.11	1.04, 1.12	1.02, 1.14
t, p (-)	3.60, .001	1.00, .321	1.21, .233	9.78, <.001	6.09, <.001	10.11, <.001	4.70, <.001	3.98, <.001	2.76, .008
C h s									

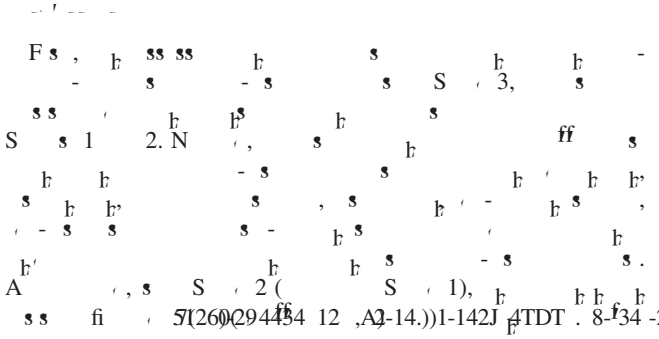
6

Study 3: M, Standard Deviation and 95% Confidence Intervals of the Means for the Upright and Sideways Observation-Based Drawing Errors; Results of Inferential Tests Assessing Systematic Biases in the Upright and Sideways Observation-Based Drawing Directional Errors; Results of Inferential Tests Assessing Significant Differences in Absolute Errors Between the Upright vs. Sideways Observation-Based Drawings

	S s								
S s s	B/A	C/A	D/A	A/E	F/E	G/E	(D-B)/A	(C-B)/A	(D-C)/A
U.O.D. D E M (SD)	.91 (.10)	.96 (.07)	.99 (.05)	.90 (.07)	.89 (.18)	.88 (.14)	1.08 (.11)	1.09 (.17)	1.07 (.17)
95% CI f U.O.D. E M	.88, .94	.95, .98	.97, 1.00	.89, .92	.84, .94	.84, .92	1.05, 1.11	1.04, 1.14	1.03, 1.12
t, p (-)	6.56, <.001	3.68, .001	2.11, .039	10.32, <.001	4.54, <.001	6.50, <.001	5.25, <.001	3.87, <.001	3.12, .003
C h s d	.89	.50	.29						

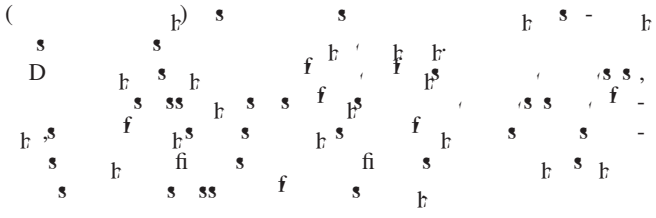
-280.3(h)-283.5(M s)-282.1(f)-2757 TJ-19.46-2.06(.98 283.5(M .2(13.5(M 71283.5(M s 3283.5(M 422

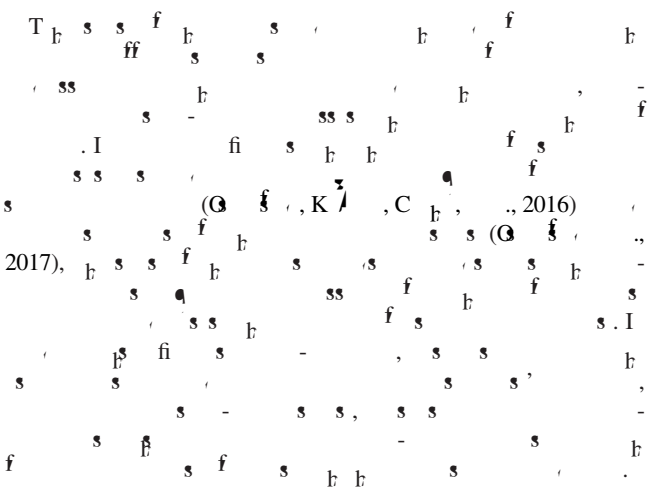




, ( ) (B/A & F/E), ( ) (G/E), ( ) (A/E) ( ) (D-B /A), (C-B /A) (D-C /A) . I (C/A & D/A; N , absolute drawing errors S 2 . T T 6 (B/A). I ,s (G/E). A (C/A & D/A), (A/E), (F/E), (D-B /A), (C-B /A) (D-C /A).

F , S 3, S 1 2. N , A , S 2 (S 1), 5/(260)(294434 12 ,A2-14.))1-142J 4TDT . 8-34 -2.9165-142409TDT .





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