

## SAMPLE SIZE CALCULATION

### Formula:

$$N_{population} = \frac{2(z_{\alpha/2} + z_{1-\beta})^2}{\left(\frac{\mu_1 - \mu_2}{\sigma_{population}}\right)^2}$$

$$N_{pooled} = \frac{2(z_{\alpha/2} + z_{1-\beta})^2}{\left(\frac{\mu_1 - \mu_2}{\sigma_{pooled}}\right)^2}$$

### Given:

$$\alpha = 0.05$$
$$z_{\alpha/2} = 1.96$$

$$1 - \beta = 0.80$$
$$z_{1-\beta} = 0.84$$

### Results (average):

$$N_{population} = 9.202993$$

$$N_{pooled} = 13.694771$$

### Details (generated by software):

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**Variable: NUMBER\_OF\_TIMES\_PLANE\_BREACHED**

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Population: touchscreen (mean=1.5714284) | Sample: leapSurface (mean=3.3142858)

sample size (population): 0.8069659

sample size (pooled): 8.901906

Population: touchscreen (mean=1.5714284) | Sample: leapAirStatic (mean=2.714286)

sample size (population): 1.8766987

sample size (pooled): 12.058887

Population: touchscreen (mean=1.5714284) | Sample: leapAirPinch (mean=3.3142855)

sample size (population): 0.80696607

sample size (pooled): 3.9684606

Population: touchscreen (mean=1.5714284) | Sample: leapAirDynamic (mean=3.5285714)

sample size (population): 0.6399319

sample size (pooled): 20.470295

Population: touchscreen (mean=1.5714284) | Sample: leapAirBimodal (mean=1.2285715)

sample size (population): 20.852259

sample size (pooled): 18.37503

Population: leapAirPinch (mean=3.3142855) | Sample: leapAirStatic (mean=2.714286)

sample size (population): 60.16012

sample size (pooled): 70.426796

Population: leapAirPinch (mean=3.3142855) | Sample: leapAirBimodal (mean=1.2285715)

sample size (population): 4.9785275

sample size (pooled): 2.7040584

Average sample size (population): 12.874496

Average sample size (pooled): 19.557919

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**Variable: DISTANCE\_TRAVELED\_TOUCH\_ONLY**  
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Population: touchscreen (mean=29.520864) | Sample: leapSurface (mean=38.744167)

sample size (population): 1.8522639

sample size (pooled): 4.7693224

Population: touchscreen (mean=29.520864) | Sample: leapAirStatic (mean=35.50528)

sample size (population): 4.3997946

sample size (pooled): 9.846765

Population: touchscreen (mean=29.520864) | Sample: leapAirPinch (mean=57.925205)

sample size (population): 0.19530185

sample size (pooled): 2.4410708

Population: touchscreen (mean=29.520864) | Sample: leapAirDynamic (mean=46.434593)

sample size (population): 0.55080396

sample size (pooled): 18.650604

Population: touchscreen (mean=29.520864) | Sample: leapAirBimodal (mean=32.844707)

sample size (population): 14.262472

sample size (pooled): 37.788776

Population: leapAirPinch (mean=57.925205) | Sample: leapAirStatic (mean=35.50528)

sample size (population): 7.52283

sample size (pooled): 4.3062425

Population: leapAirPinch (mean=57.925205) | Sample: leapAirDynamic (mean=46.434593)

sample size (population): 28.639357

sample size (pooled): 54.132637

Population: leapAirPinch (mean=57.925205) | Sample: leapAirBimodal (mean=32.844707)

sample size (population): 6.0114226

sample size (pooled): 3.5441618

Average sample size (population): 7.9292803

Average sample size (pooled): 16.934948

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**Variable: DISTANCE\_TRAVELED\_TOUCH\_ONLY\_SHORTEST**  
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Population: touchscreen (mean=29.379469) | Sample: leapSurface (mean=36.864117)

sample size (population): 2.5261514

sample size (pooled): 5.0383325

Population: touchscreen (mean=29.379469) | Sample: leapAirStatic (mean=34.082874)

sample size (population): 6.397013

sample size (pooled): 13.734359

Population: touchscreen (mean=29.379469) | Sample: leapAirPinch (mean=56.22159)

sample size (population): 0.1964122

sample size (pooled): 2.5593095

Population: touchscreen (mean=29.379469) | Sample: leapAirDynamic (mean=42.57166)

sample size (population): 0.8131455

sample size (pooled): 18.476696

Population: touchscreen (mean=29.379469) | Sample: leapAirBimodal (mean=32.840015)

sample size (population): 11.817148

sample size (pooled): 34.201904

Population: leapAirPinch (mean=56.22159) | Sample: leapAirStatic (mean=34.082874)

sample size (population): 7.2358346

sample size (pooled): 4.09346

Population: leapAirPinch (mean=56.22159) | Sample: leapAirDynamic (mean=42.57166)

sample size (population): 19.034111

sample size (pooled): 26.395569

Population: leapAirPinch (mean=56.22159) | Sample: leapAirBimodal (mean=32.840015)

sample size (population): 6.487031

sample size (pooled): 3.8632796

Average sample size (population): 6.8133554

Average sample size (pooled): 13.545364

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**Variable: TIME\_DURATION\_TOUCH\_ONLY**  
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Population: touchscreen (mean=1.6933258) | Sample: leapSurface (mean=2.7025666)

sample size (population): 1.1269349

sample size (pooled): 4.3307195

Population: touchscreen (mean=1.6933258) | Sample: leapAirStatic (mean=3.7155678)

sample size (population): 0.28068694

sample size (pooled): 1.2792623

Population: touchscreen (mean=1.6933258) | Sample: leapAirPinch (mean=4.5676656)

sample size (population): 0.1389352

sample size (pooled): 1.0119132

Population: touchscreen (mean=1.6933258) | Sample: leapAirDynamic (mean=3.7717762)

sample size (population): 0.26571077

sample size (pooled): 2.9664788

Population: touchscreen (mean=1.6933258) | Sample: leapAirBimodal (mean=2.2981203)

sample size (population): 3.1381435

sample size (pooled): 3.2302196

Population: leapAirPinch (mean=4.5676656) | Sample: leapAirStatic (mean=3.7155678)

sample size (population): 21.447844

sample size (pooled): 17.13868

Population: leapAirPinch (mean=4.5676656) | Sample: leapAirDynamic (mean=3.7717762)

sample size (population): 24.584255

sample size (pooled): 31.616974

Population: leapAirPinch (mean=4.5676656) | Sample: leapAirBimodal (mean=2.2981203)

sample size (population): 3.0233245

sample size (pooled): 1.6296256

Average sample size (population): 6.750729

Average sample size (pooled): 7.900484

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**Variable: TIME\_DURATION\_TOUCH\_ONLY\_SHORTEST**  
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Population: touchscreen (mean=1.6562965) | Sample: leapSurface (mean=2.5160997)

sample size (population): 1.1645116

sample size (pooled): 4.5745664

Population: touchscreen (mean=1.6562965) | Sample: leapAirStatic (mean=3.5609848)

sample size (population): 0.23729798

sample size (pooled): 1.6031669

Population: touchscreen (mean=1.6562965) | Sample: leapAirPinch (mean=4.480059)

sample size (population): 0.10796563

sample size (pooled): 0.91765976

Population: touchscreen (mean=1.6562965) | Sample: leapAirDynamic (mean=3.3997264)

sample size (population): 0.28322586

sample size (pooled): 1.5720451

Population: touchscreen (mean=1.6562965) | Sample: leapAirBimodal (mean=2.295076)

sample size (population): 2.1097941

sample size (pooled): 2.598305

Population: leapAirPinch (mean=4.480059) | Sample: leapAirStatic (mean=3.5609848)

sample size (population): 16.305588

sample size (pooled): 14.528553

Population: leapAirPinch (mean=4.480059) | Sample: leapAirDynamic (mean=3.3997264)

sample size (population): 11.801102

sample size (pooled): 9.62585

Population: leapAirPinch (mean=4.480059) | Sample: leapAirBimodal (mean=2.295076)

sample size (population): 2.884971

sample size (pooled): 1.574398

Average sample size (population): 4.361807

Average sample size (pooled): 4.624318



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**Variable: AVERAGE\_PIXEL\_VELOCITY**  
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Population: touchscreen (mean=16.063488) | Sample: leapSurface (mean=14.460002)

sample size (population): 24.861944

sample size (pooled): 50.13222

Population: touchscreen (mean=16.063488) | Sample: leapAirStatic (mean=9.403055)

sample size (population): 1.4409887

sample size (pooled): 1.6141844

Population: touchscreen (mean=16.063488) | Sample: leapAirPinch (mean=12.412285)

sample size (population): 4.795054

sample size (pooled): 6.7060404

Population: touchscreen (mean=16.063488) | Sample: leapAirDynamic (mean=10.171748)

sample size (population): 1.8415282

sample size (pooled): 1.6780645

Population: touchscreen (mean=16.063488) | Sample: leapAirBimodal (mean=14.040971)

sample size (population): 15.627193

sample size (pooled): 14.899151

Population: leapAirPinch (mean=12.412285) | Sample: leapAirStatic (mean=9.403055)

sample size (population): 12.68583

sample size (pooled): 10.720969

Population: leapAirPinch (mean=12.412285) | Sample: leapAirDynamic (mean=10.171748)

sample size (population): 22.883657

sample size (pooled): 16.678452

Population: leapAirPinch (mean=12.412285) | Sample: leapAirBimodal (mean=14.040971)

sample size (population): 43.306675

sample size (pooled): 32.5799

Average sample size (population): 15.930359

Average sample size (pooled): 16.876123

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**Variable: AVERAGE\_REACTION\_TIME\_TO\_ERRORS**  
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Population: touchscreen (mean=0.3647123) | Sample: leapSurface (mean=0.6203111)

sample size (population): 19.979406

sample size (pooled): 24.159203

Population: touchscreen (mean=0.3647123) | Sample: leapAirStatic (mean=0.6460565)

sample size (population): 16.490137

sample size (pooled): 28.306223

Population: touchscreen (mean=0.3647123) | Sample: leapAirPinch (mean=1.2011653)

sample size (population): 1.8655937

sample size (pooled): 8.072592

Population: touchscreen (mean=0.3647123) | Sample: leapAirDynamic (mean=0.7458354)

sample size (population): 8.986066

sample size (pooled): 30.593948

Population: touchscreen (mean=0.3647123) | Sample: leapAirBimodal (mean=0.107308336)

sample size (population): 19.700155

sample size (pooled): 12.025895

Population: leapAirPinch (mean=1.2011653) | Sample: leapAirStatic (mean=0.6460565)

sample size (population): 32.422207

sample size (pooled): 21.364286

Population: leapAirPinch (mean=1.2011653) | Sample: leapAirDynamic (mean=0.7458354)

sample size (population): 48.188847

sample size (pooled): 42.38107

Population: leapAirPinch (mean=1.2011653) | Sample: leapAirBimodal (mean=0.107308336)

sample size (population): 8.3498335

sample size (pooled): 4.295402

Average sample size (population): 19.49778

Average sample size (pooled): 21.399826

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**Variable: TEXT\_ENTRY\_RATE\_WPM**

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Population: touchscreen (mean=27.644205) | Sample: leapSurface (mean=19.240625)

sample size (population): 3.6288679

sample size (pooled): 4.5846534

Population: touchscreen (mean=27.644205) | Sample: leapAirStatic (mean=13.148508)

sample size (population): 1.2196116

sample size (pooled): 0.79133296

Population: touchscreen (mean=27.644205) | Sample: leapAirPinch (mean=11.084381)

sample size (population): 0.9345195

sample size (pooled): 0.5975913

Population: touchscreen (mean=27.644205) | Sample: leapAirDynamic (mean=13.548956)

sample size (population): 1.2898948

sample size (pooled): 0.86062455

Population: touchscreen (mean=27.644205) | Sample: leapAirBimodal (mean=19.821716)

sample size (population): 4.1880307

sample size (pooled): 2.8878734

Population: leapAirPinch (mean=11.084381) | Sample: leapAirStatic (mean=13.148508)

sample size (population): 16.777157

sample size (pooled): 17.341133

Population: leapAirPinch (mean=11.084381) | Sample: leapAirDynamic (mean=13.548956)

sample size (population): 11.768122

sample size (pooled): 12.938553

Population: leapAirPinch (mean=11.084381) | Sample: leapAirBimodal (mean=19.821716)

sample size (population): 0.93633914

sample size (pooled): 1.1044884

Average sample size (population): 5.0928183

Average sample size (pooled): 5.1382813

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**Variable: TEXT\_ENTRY\_RATE\_MODIFIED\_WPM\_SHORTEST**  
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Population: touchscreen (mean=28.0543) | Sample: leapSurface (mean=20.349192)

sample size (population): 3.5640829

sample size (pooled): 5.540747

Population: touchscreen (mean=28.0543) | Sample: leapAirStatic (mean=13.571235)

sample size (population): 1.0087519

sample size (pooled): 0.72925204

Population: touchscreen (mean=28.0543) | Sample: leapAirPinch (mean=11.20699)

sample size (population): 0.7454942

sample size (pooled): 0.49619937

Population: touchscreen (mean=28.0543) | Sample: leapAirDynamic (mean=14.404539)

sample size (population): 1.135678

sample size (pooled): 0.76787025

Population: touchscreen (mean=28.0543) | Sample: leapAirBimodal (mean=19.87203)

sample size (population): 3.1605144

sample size (pooled): 2.3658497

Population: leapAirPinch (mean=11.20699) | Sample: leapAirStatic (mean=13.571235)

sample size (population): 12.537344

sample size (pooled): 14.707448

Population: leapAirPinch (mean=11.20699) | Sample: leapAirDynamic (mean=14.404539)

sample size (population): 6.8541865

sample size (pooled): 7.0722256

Population: leapAirPinch (mean=11.20699) | Sample: leapAirBimodal (mean=19.87203)

sample size (population): 0.9333601

sample size (pooled): 1.167173

Average sample size (population): 3.7424264

Average sample size (pooled): 4.1058455

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**Variable: TEXT\_ENTRY\_RATE\_MODIFIED\_WPM\_VULTURE**  
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Population: touchscreen (mean=33.364857) | Sample: leapSurface (mean=23.878973)

sample size (population): 2.4787402

sample size (pooled): 4.9170628

Population: touchscreen (mean=33.364857) | Sample: leapAirStatic (mean=16.092752)

sample size (population): 0.7476462

sample size (pooled): 0.53821313

Population: touchscreen (mean=33.364857) | Sample: leapAirPinch (mean=12.939225)

sample size (population): 0.5346081

sample size (pooled): 0.39673713

Population: touchscreen (mean=33.364857) | Sample: leapAirDynamic (mean=15.560683)

sample size (population): 0.7036278

sample size (pooled): 0.77989995

Population: touchscreen (mean=33.364857) | Sample: leapAirBimodal (mean=25.428244)

sample size (population): 3.5409203

sample size (pooled): 2.742401

Population: leapAirPinch (mean=12.939225) | Sample: leapAirStatic (mean=16.092752)

sample size (population): 10.860083

sample size (pooled): 10.361471

Population: leapAirPinch (mean=12.939225) | Sample: leapAirDynamic (mean=15.560683)

sample size (population): 15.715942

sample size (pooled): 27.604414

Population: leapAirPinch (mean=12.939225) | Sample: leapAirBimodal (mean=25.428244)

sample size (population): 0.6924201

sample size (pooled): 0.7387226

Average sample size (population): 4.4092484

Average sample size (pooled): 6.0098658

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**Variable: TEXT\_ENTRY\_RATE\_MODIFIED\_WPM\_SHORTEST\_VULTURE**  
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Population: touchscreen (mean=33.948418) | Sample: leapSurface (mean=25.32666)

sample size (population): 2.2684882

sample size (pooled): 6.531662

Population: touchscreen (mean=33.948418) | Sample: leapAirStatic (mean=16.642725)

sample size (population): 0.5630541

sample size (pooled): 0.49234545

Population: touchscreen (mean=33.948418) | Sample: leapAirPinch (mean=13.076587)

sample size (population): 0.38708562

sample size (pooled): 0.3094774

Population: touchscreen (mean=33.948418) | Sample: leapAirDynamic (mean=16.749353)

sample size (population): 0.5700573

sample size (pooled): 0.55163026



Population: touchscreen (mean=33.948418) | Sample: leapAirBimodal (mean=25.503717)

sample size (population): 2.3646107

sample size (pooled): 2.1295671

Population: leapAirPinch (mean=13.076587) | Sample: leapAirStatic (mean=16.642725)

sample size (population): 7.94269

sample size (pooled): 8.936013

Population: leapAirPinch (mean=13.076587) | Sample: leapAirDynamic (mean=16.749353)

sample size (population): 7.4881983

sample size (pooled): 9.590463

Population: leapAirPinch (mean=13.076587) | Sample: leapAirBimodal (mean=25.503717)

sample size (population): 0.6540671

sample size (pooled): 0.7644517

Average sample size (population): 2.7797813

Average sample size (pooled): 3.663201

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**Variable: ERROR\_RATE\_KSPC**  
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Population: touchscreen (mean=1.2700001) | Sample: leapSurface (mean=1.777619)

sample size (population): 1.350514

sample size (pooled): 8.524093

Population: touchscreen (mean=1.2700001) | Sample: leapAirStatic (mean=1.607619)

sample size (population): 3.0529594

sample size (pooled): 13.369462

Population: touchscreen (mean=1.2700001) | Sample: leapAirPinch (mean=1.8042859)

sample size (population): 1.2190666

sample size (pooled): 6.753671

Population: touchscreen (mean=1.2700001) | Sample: leapAirDynamic (mean=1.9633331)

sample size (population): 0.7239206

sample size (pooled): 23.650394

Population: touchscreen (mean=1.2700001) | Sample: leapAirBimodal (mean=1.0714285)

sample size (population): 8.825525

sample size (pooled): 7.0908794

Population: leapAirPinch (mean=1.8042859) | Sample: leapAirStatic (mean=1.607619)

sample size (population): 90.69344

sample size (pooled): 80.248886

Population: leapAirPinch (mean=1.8042859) | Sample: leapAirBimodal (mean=1.0714285)

sample size (population): 6.531294

sample size (pooled): 3.4622662

Average sample size (population): 16.056675

Average sample size (pooled): 20.442808

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**Variable: ERROR\_RATE\_MODIFIED\_KSPC\_SHORTEST**  
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Population: touchscreen (mean=1.2176191) | Sample: leapSurface (mean=1.5420129)

sample size (population): 3.2008698

sample size (pooled): 10.647061

Population: touchscreen (mean=1.2176191) | Sample: leapAirStatic (mean=1.4461902)

sample size (population): 6.447188

sample size (pooled): 32.534748

Population: touchscreen (mean=1.2176191) | Sample: leapAirPinch (mean=1.6728573)

sample size (population): 1.6253085

sample size (pooled): 8.682879

Population: touchscreen (mean=1.2176191) | Sample: leapAirDynamic (mean=1.559966)

sample size (population): 2.873958

sample size (pooled): 26.527672

Population: touchscreen (mean=1.2176191) | Sample: leapAirBimodal (mean=1.0619047)

sample size (population): 13.891709

sample size (pooled): 11.095741

Population: leapAirPinch (mean=1.6728573) | Sample: leapAirStatic (mean=1.4461902)

sample size (population): 63.49182

sample size (pooled): 61.551594

Population: leapAirPinch (mean=1.6728573) | Sample: leapAirBimodal (mean=1.0619047)

sample size (population): 8.739357

sample size (pooled): 4.6392536

Average sample size (population): 14.324316

Average sample size (pooled): 22.239851

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**Variable: ERROR\_RATE\_MODIFIED\_MSD\_SHORTEST**  
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Population: touchscreen (mean=1.5476191) | Sample: leapSurface (mean=6.131424)

sample size (population): 4.5055184

sample size (pooled): 18.117832

Population: touchscreen (mean=1.5476191) | Sample: leapAirStatic (mean=4.073129)

sample size (population): 14.842218

sample size (pooled): 22.171074

Population: touchscreen (mean=1.5476191) | Sample: leapAirPinch (mean=3.5816329)

sample size (population): 22.881752

sample size (pooled): 34.08103

Population: touchscreen (mean=1.5476191) | Sample: leapAirDynamic (mean=5.7636056)

sample size (population): 5.3259697

sample size (pooled): 21.118715

Population: touchscreen (mean=1.5476191) | Sample: leapAirBimodal (mean=0.35714287)

sample size (population): 66.7968

sample size (pooled): 37.631992

Population: leapAirPinch (mean=3.5816329) | Sample: leapAirDynamic (mean=5.7636056)

sample size (population): 39.347633

sample size (pooled): 88.575676

Population: leapAirPinch (mean=3.5816329) | Sample: leapAirBimodal (mean=0.35714287)

sample size (population): 18.017529

sample size (pooled): 9.5858345

Average sample size (population): 24.531061

Average sample size (pooled): 33.040306

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**Variable: ERROR\_RATE\_MODIFIED\_MSD\_BACKSPACE**

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Population: touchscreen (mean=5.2551026) | Sample: leapSurface (mean=12.185191)

sample size (population): 3.4513867

sample size (pooled): 13.789615

Population: touchscreen (mean=5.2551026) | Sample: leapAirStatic (mean=11.180794)

sample size (population): 4.7205563

sample size (pooled): 14.078802

Population: touchscreen (mean=5.2551026) | Sample: leapAirPinch (mean=14.983635)

sample size (population): 1.7513645

sample size (pooled): 4.50367

Population: touchscreen (mean=5.2551026) | Sample: leapAirDynamic (mean=11.629054)

sample size (population): 4.07994

sample size (pooled): 23.25761

Population: touchscreen (mean=5.2551026) | Sample: leapAirBimodal (mean=1.7976191)

sample size (population): 13.865993

sample size (pooled): 11.497642

Population: leapAirPinch (mean=14.983635) | Sample: leapAirStatic (mean=11.180794)

sample size (population): 47.486942

sample size (pooled): 52.196896

Population: leapAirPinch (mean=14.983635) | Sample: leapAirBimodal (mean=1.7976191)

sample size (population): 3.949693

sample size (pooled): 2.2886808

Average sample size (population): 11.3294115

Average sample size (pooled): 17.373274

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**Variable: TOTAL\_ERROR\_RATE**  
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Population: touchscreen (mean=7.493198) | Sample: leapSurface (mean=18.255587)

sample size (population): 2.7159188

sample size (pooled): 12.47609

Population: touchscreen (mean=7.493198) | Sample: leapAirStatic (mean=15.8877125)

sample size (population): 4.464193

sample size (pooled): 14.057291

Population: touchscreen (mean=7.493198) | Sample: leapAirPinch (mean=21.40366)

sample size (population): 1.6257396

sample size (pooled): 5.0221195

Population: touchscreen (mean=7.493198) | Sample: leapAirDynamic (mean=17.793009)

sample size (population): 2.9653475

sample size (pooled): 23.381123

Population: touchscreen (mean=7.493198) | Sample: leapAirBimodal (mean=2.3469388)

sample size (population): 11.878202

sample size (pooled): 9.681063

Population: leapAirPinch (mean=21.40366) | Sample: leapAirStatic (mean=15.8877125)

sample size (population): 53.53989

sample size (pooled): 54.157875

Population: leapAirPinch (mean=21.40366) | Sample: leapAirBimodal (mean=2.3469388)

sample size (population): 4.4856086

sample size (pooled): 2.5156937

Average sample size (population): 11.667844

Average sample size (pooled): 17.327322

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**Variable: TOTAL\_ERROR\_RATE\_MODIFIED\_SHORTEST**  
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Population: touchscreen (mean=7.493198) | Sample: leapSurface (mean=17.888762)

sample size (population): 2.9109719

sample size (pooled): 12.756424

Population: touchscreen (mean=7.493198) | Sample: leapAirStatic (mean=15.406112)

sample size (population): 5.0241337

sample size (pooled): 16.526346

Population: touchscreen (mean=7.493198) | Sample: leapAirPinch (mean=21.046518)

sample size (population): 1.7125477

sample size (pooled): 5.2473097

Population: touchscreen (mean=7.493198) | Sample: leapAirDynamic (mean=16.795582)

sample size (population): 3.6353445

sample size (pooled): 24.682463



Population: touchscreen (mean=7.493198) | Sample: leapAirBimodal (mean=2.3469388)

sample size (population): 11.878202

sample size (pooled): 9.681063

Population: leapAirPinch (mean=21.046518) | Sample: leapAirStatic (mean=15.406112)

sample size (population): 50.706963

sample size (pooled): 52.935284

Population: leapAirPinch (mean=21.046518) | Sample: leapAirBimodal (mean=2.3469388)

sample size (population): 4.6134386

sample size (pooled): 2.5901318

Average sample size (population): 11.497373

Average sample size (pooled): 17.774145

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**Variable: TOTAL\_ERROR\_RATE\_MODIFIED\_BACKSPACE**  
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Population: touchscreen (mean=5.2551026) | Sample: leapSurface (mean=12.185191)

sample size (population): 3.4513867

sample size (pooled): 13.789615

Population: touchscreen (mean=5.2551026) | Sample: leapAirStatic (mean=11.180794)

sample size (population): 4.7205563

sample size (pooled): 14.078802

Population: touchscreen (mean=5.2551026) | Sample: leapAirPinch (mean=14.983635)

sample size (population): 1.7513645

sample size (pooled): 4.50367

Population: touchscreen (mean=5.2551026) | Sample: leapAirDynamic (mean=11.629054)

sample size (population): 4.07994

sample size (pooled): 23.25761

Population: touchscreen (mean=5.2551026) | Sample: leapAirBimodal (mean=1.7976191)

sample size (population): 13.865993

sample size (pooled): 11.497642

Population: leapAirPinch (mean=14.983635) | Sample: leapAirStatic (mean=11.180794)

sample size (population): 47.486942

sample size (pooled): 52.196896

Population: leapAirPinch (mean=14.983635) | Sample: leapAirBimodal (mean=1.7976191)

sample size (population): 3.949693

sample size (pooled): 2.2886808

Average sample size (population): 11.3294115

Average sample size (pooled): 17.373274

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**Variable: FRECHET\_DISTANCE\_TOUCH\_ONLY**

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Population: touchscreen (mean=228.82646) | Sample: leapSurface (mean=278.0489)

sample size (population): 2.6889412

sample size (pooled): 10.959621

Population: touchscreen (mean=228.82646) | Sample: leapAirStatic (mean=310.01685)

sample size (population): 0.9883215

sample size (pooled): 4.250469

Population: touchscreen (mean=228.82646) | Sample: leapAirPinch (mean=489.6292)

sample size (population): 0.09578183

sample size (pooled): 0.7350168

Population: touchscreen (mean=228.82646) | Sample: leapAirDynamic (mean=312.15744)

sample size (population): 0.9381978

sample size (pooled): 14.979402

Population: touchscreen (mean=228.82646) | Sample: leapAirBimodal (mean=258.36456)

sample size (population): 7.466933

sample size (pooled): 46.51563

Population: leapAirPinch (mean=489.6292) | Sample: leapAirStatic (mean=310.01685)

sample size (population): 2.897465

sample size (pooled): 2.2162673

Population: leapAirPinch (mean=489.6292) | Sample: leapAirDynamic (mean=312.15744)

sample size (population): 2.9677823

sample size (pooled): 4.683014

Population: leapAirPinch (mean=489.6292) | Sample: leapAirBimodal (mean=258.36456)

sample size (population): 1.7477212

sample size (pooled): 1.5717866

Average sample size (population): 2.473893

Average sample size (pooled): 10.738901

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**Variable: FRECHET\_DISTANCE\_TOUCH\_ONLY\_MODIFIED\_SHORTEST**  
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Population: touchscreen (mean=220.38719) | Sample: leapSurface (mean=262.39178)

sample size (population): 1.6260508

sample size (pooled): 8.958514

Population: touchscreen (mean=220.38719) | Sample: leapAirStatic (mean=267.0899)

sample size (population): 1.3153564

sample size (pooled): 9.282132

Population: touchscreen (mean=220.38719) | Sample: leapAirPinch (mean=465.5955)

sample size (population): 0.04771527

sample size (pooled): 0.42921096

Population: touchscreen (mean=220.38719) | Sample: leapAirDynamic (mean=261.63043)

sample size (population): 1.6866391

sample size (pooled): 16.1578

Population: touchscreen (mean=220.38719) | Sample: leapAirBimodal (mean=256.34583)

sample size (population): 2.2188163

sample size (pooled): 30.89658

Population: leapAirPinch (mean=465.5955) | Sample: leapAirStatic (mean=267.0899)

sample size (population): 1.2370538

sample size (pooled): 1.0959136

Population: leapAirPinch (mean=465.5955) | Sample: leapAirDynamic (mean=261.63043)

sample size (population): 1.1717163

sample size (pooled): 1.2120339

Population: leapAirPinch (mean=465.5955) | Sample: leapAirBimodal (mean=256.34583)

sample size (population): 1.1132802

sample size (pooled): 1.4362824

Average sample size (population): 1.3020785

Average sample size (pooled): 8.683559

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**Variable: FRECHET\_DISTANCE\_TOUCH\_ONLY\_MODIFIED\_BACKSPACE**  
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Population: touchscreen (mean=213.73047) | Sample: leapSurface (mean=238.80981)

sample size (population): 3.9805996

sample size (pooled): 13.712451

Population: touchscreen (mean=213.73047) | Sample: leapAirStatic (mean=231.23036)

sample size (population): 8.175421

sample size (pooled): 9.769418

Population: touchscreen (mean=213.73047) | Sample: leapAirPinch (mean=418.9602)

sample size (population): 0.05944295

sample size (pooled): 1.2154881

Population: touchscreen (mean=213.73047) | Sample: leapAirDynamic (mean=235.47542)

sample size (population): 5.294977

sample size (pooled): 24.759392

Population: touchscreen (mean=213.73047) | Sample: leapAirBimodal (mean=253.69768)

sample size (population): 1.5673764

sample size (pooled): 22.480385

Population: leapAirPinch (mean=418.9602) | Sample: leapAirStatic (mean=231.23036)

sample size (population): 2.8342826

sample size (pooled): 1.4665135

Population: leapAirPinch (mean=418.9602) | Sample: leapAirDynamic (mean=235.47542)

sample size (population): 2.9669464

sample size (pooled): 1.7940311

Population: leapAirPinch (mean=418.9602) | Sample: leapAirBimodal (mean=253.69768)

sample size (population): 3.6573036

sample size (pooled): 3.0976253

Average sample size (population): 3.5670435

Average sample size (pooled): 9.786913

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**Final average sample size (population): 9.202993**

**Final average sample size (pooled): 13.694771**  
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