Table 3. Summary of Data Analysis for Student Academic Outcomes of Reviewed Articles

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| Author, Year | Sample Size | Student Academic Outcome Measured | Statistics | *SD* | *p*-value | ES |
| Belfi, 2015 | *N* = 101C = noneE = 101 | Blended Pre-test (1)Flipped- Independent (2 vs 4) | % improvement26% vs 17%d\* = 0.20 |  | p = .0855p = .0091 |  |
|  |  | Flipped – Lecture (2 vs 6) | 26% vs 10%*d*\* = 0.05 |  | *p* = .0060*p* = .4051 |  |
|  |  | Independent-Lecture (4 vs 6) | 17% vs 10%*d*\* = 0.15 |  | *p* = .2730*p* = .1731  |  |
| Bösner et al., 2015 | *N* = 17C = noneE = 17 | % Gain in knowledge/skills from pre- to post-test | 33% difference |  | *p* < .01 |  |
| Boysen-Osborn et al., 2016 | *N* = 354C = 259 E = 95 | Overall test median scores (C vs E)Fill-inMultiple choice Rhythm test | 93.5% vs 95.1%94.1% vs 96.6% 88% vs 90%100% vs 100% |  | *p* = .0001*p* = .0001*p* = .0002*p = NS* |  |
| Evans, et al., 2016 | *N* = 279C = 178E = 101 | Final ExamC vs E (2012)C vs E (2011) | Difference of means.65 .47 |  | *p* = *NS**p = NS* |  |
| Everly, 2013 | *N* = 139C = 44E = 95 | Standardized Exam (ATI) | C vs E72% vs 76%*z* = -2.084 |  | *p* < .05*p* < .05 | .5 |
|  |  | Final Exam |  |  | *p* = .371 | .2 |
| Ferreri & O’Connor, 2013 | *N* = 449C = 146E1 = 152E2 = 151 | Grade distribution between control and 2 years of experimental (E1, E2) | C vs E 1E1 vs E2C vs E2 |  | *p* = .033*p* < .002*p* < .001 |  |
| Galway et al., 2014 | *N* = 33C = 22E = 11 | Exam |  *M* = 86.4*M* = 88.8 |  | *p* = .72 |  |
| Geist et al., 2015 | *N* = 86C = 40E = 46 | Test 1Test 2 Test 3Final Exam  | *F* [1, 86] = 9.50, *η* = .52F [1, 86] = 14.38, η = .15F [1, 86] = 43.59, η = .34F [1, 86] = 1.95, η = .02 |  | *p* = .000p = .000p = .000p = .167 |  |
| Gillispie, 2016 | *N* = 70C = 30E = 40 | Exams OB OB GYN GYNStandardized exam (OSCE)  OB OB GYN GYN |  C vs ERotation 2 52% 59% Rotation 3 64% 67% Rotation 2 58% 68%Rotation 3 75% 65% Rotation 2 74% 82%Rotation 3 70% 82%Rotation 2 71% 84% Rotation 3 67% 81% |  | *p* = .03*p* = .247*p* = .0017*p* =.00011*p* = .0198*p* = .0076*p* = .006*p* = .0052 |  |
| Harrington et al., 2015 | *N* = 82C = 41E = 41 | Course gradeExam 1Exam 2Exam 3Difference between groups | C = *M* = 86.4E = *M* = 86.2C = *M* = 60.2E = *M* = 60.1C = *M* = 57.6E = *M* = 55.9C = *M* = 82.7E = *M* = 83.1lambda = .882 | 3.34.23.63.44.04.74.05.4 | *p* = .092 | .04.04.04.09 |
|  |  | Knowledge & application scoresMean course grade difference | lambda = .851*F* =.002 |  | *p* = .057*p* = .961 |  |
| Heitz et al., 2015 | *N* = 56C = 20E = 36 | Exams | *M* = 13.89*M* = 14.4*t* = -0.69 *df* =55 |  | *p* = .494 95% *CI* (-0.98 to 0.48) |  |
| Kiviniemi, 2014 | *N* = 66C = 28 | Exam 1 C E | *M* = 13.25*M* = 13.61 | 1.350.69 | *p* < .05 | .35 |
|  | E = 38 | Exam 2 C E | *M* = 13.61*M* = 14.10 | 0.990.89 | *p* < .001 | .51 |
|  |  | Exam 3 C E | *M* = 13.76*M* = 13.54 | 0.960.53 | *p* = .35 | -.29 |
|  |  | Final Course Grade C E | *M* = 91.76*M* = 93.92 | 4.952.45 | *p* < .001 | .57 |
| Koo et al., 2016 | *N* = 179C = 90E = 89 | Final gradeFinal grade distribution | *M* = 83.4 *M* = 88.2  | 7.97.3 | *p* < .001*p* = .005 |  |
| Leibert et al, 2016 | *N* = 181C = 92E = 89 | NBME standardized test | *M* = 75.74*M* = 74.75  | 8.13 8.16  | *p* < .28 |  |
| Marshall et al., 2014 | *N* = 277C = 136 | Standardized test (IRAT) Osteoarthritis | *M* = 85.9 | 19.1 | *p* < .001 |  |
|  | E = 141 |  | *M* = 76.6 | 22.5 |  |  |
|  |  |  Gout | *M* = 70.5*M* = 70.9 | 20.620.8 | *p = NS* |  |
|  |  | Exam Osteoarthritis | *M* = 85.6 | 10.0 | *p* = .072 |  |
|  |  |  | *M* = 86.9 |  9.2 |  |  |
|  |  |  Gout | *M* = 84.9 | 11.1 | *p* = .062 |  |
|  |  |  | M = 82.7 | 11.3 |  |  |
| Mattis, 2014 | *N* = 48C = 22E = 26 | Exam Complexity | *M* = 0.58*M* = 0.85, *d* = 1.20*F*(1, 2) = 0.15 | 0.300.16 | *p* = .001*p* = 0.01 |  |
| McLaughlin et al., 2014\*  | *N* = 315C = 153E = 162 | Final exam | *M* = 160.06*M* = 165.48 | 14.6513.34 | *p* = .001 |  |
| Missildine et al., 2013 | *N* = 106C = 53E = 53 | Exam Scores  | *M* = 79.79*M = 81.89**F*(2.586) = 10.69, ω² = 0.032 | 4.515.02 | *p* < .001*p* < .001 |  |
| Morton, 2016 | *N* = 205C = 101E = 104 | Anatomy Exam (Bloom’s taxonomy) KnowledgeApplicationAnalysis | *U* = 5002.00*U* = 4990.00 *U* = 4243.00, *r* = 0.19 |  | *p* = .72*p* = .70*p* = .03 |  |
| O’Connor et al., 2016 | *N* = 175C = 103E = 72 | Post-test (30 items)ANOVA | E > C by 5.36%  |  | *p* = .013 |  |
| Pierce & Fox, 2012 | *N* = 71E = 71 | Final exam | *M* = 77.7*M* = 81.6 | 4.74.4 | *p* = .024 |  |
| Rui et al., 2017 | *N* = 181C = 91E = 90 | EKG interpretation test/grade | *M* = 8.03M = 8.72 *t* = 4.549 | 1.011.01 | *p* = .000 |  |
| Tune et al., 2013 | *N* = 27C = 14E = 13 | Exam score Cardio  Resp  Renal  Final  | C vs E (table approximations)68% vs 82%70% vs 83%66% vs 76%68% vs 80% |  | *p* = .05*p* = .04*p* = .06*p* = .03 |  |
| Whillier & Lystad, 2015 | *N* = 58C = 30E = 28 | Final grade  | *M* = 55.28*M* = 58.61 | 13.38  9.05 | *p* = .259 |  |

Note: \*d is the difference in the mean % correct; NS = not significant; ES = effect size, C = control; E = experimental