Supplementary information

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| --- | --- | --- |
| *STEM evaluation studies which met the inclusion criteria, (n=119)* | | |
| Post-test only or correlational design (30,3%) | | |
| Alonso, Manrique, Martinez, and Vines (2011) | Kong, Dabney, and Tai (2014) | |
| Autenrieth, Lewis, and Butler-Purry (2017) | Kose and Arslan (2016) | |
| Bowling, Doyle, Taylor, and Antes (2015) | Laugerman, Shelley, Mickelson, and Rover (2013) | |
| Bunting and Cheville (2009) | Maltby, Brooks, Horton, and Morgan (2016) | |
| Carnes et al. (2012) | Mantri, Dutt, Gupta, and Chitkara (2008) | |
| Christensen, Knezek, and Overall (2005) | Monroe, Mailander, and Lima (2006) | |
| Constan and Spicer (2015) | Mosley, Liu, Hargrove, and Doswell (2010) | |
| Drane, Micari, and Light (2014) | Murphy, Gaughan, Hume, and Moore (2010) | |
| Finkel (2017) | Page, Lewis, Autenrieth, and Butler-Purry (2013) | |
| Franchetti (2012) | Ricks, Richardson, Stern, Taylor, and Taylor (2014) | |
| Gilliam et al. (2017) | Smaill (2010) | |
| Hernandez, Schultz, Estrada, Woodcock, and Chance (2013) | Soldner, Rowan-Kenyon, Inkelas, Garvey, and Robbins (2012) | |
| Hockings, DeAngelis, and Frey (2008) | Steinke et al. (2006) | |
| Jones, Epler, Mokri, Bryant, and Paretti (2013) | Wamser (2006) | |
| Junge, Quinones, Kakietek, Teodorescu, and Marsteller (2010) | Yelamarthi and Mawasha (2008) | |
| Kaila, Kurvinen, Lokkila, and Laakso (2016) | Yelamarthi and Mawasha (2010) | |
| Khan and Gogos (2013) | Yilmaz, Ren, Custer, and Coleman (2010) | |
| Koenig, Schen, Edwards, and Bao (2012) |  | |
| Pre/post-test design without comparable comparison groups (39,5%) | | |
| Anthony, Greene, Post, Parkhurst, and Zhan (2016) | Konur, Şeyihoǧlu, Sezen, and Tekbiyik (2011) | |
| Archer, DeWitt, and Dillon (2014) | Lam, Srivatsan, Doverspike, Vesalo, and Mawasha (2005) | |
| Bachman, Bischoff, Gallagher, Labroo, and Schaumloffel (2008) | Lenaburg, Aguirre, Goodchild, and Kuhn (2012) | |
| Ball, Huang, Cotten, and Rikard (2017) | Levy and Li (2013) | |
| Berk et al. (2014) | Madihally and Maase (2006) | |
| Bhattacharyya, Mead, and Nathaniel (2011) | Martin et al. (2011) | |
| Binns, Polly, Conrad, and Algozzine (2016) | Martinez, Lindline, Petronis, and Pilotti (2012) | |
| Bugallo, Kelly, and Ha (2015) | Mink and Fraser (2005) | |
| Chan et al. (2010) | Mohr-Schroeder et al. (2014) | |
| Chen et al. (2016) | Nadelson and Callahan (2011) | |
| Dave et al. (2010) | Nugent, Barker, Grandgenett, and Welch (2016) | |
| Doerschuk et al. (2016) | Ojha and Hill (2012) | |
| Dougherty, Oliver, and Fergusson (2014) | Patchen, Zhang, and Barnett (2017) | |
| Duran, Hoft, Lawson, Medjahed, and Orady (2014) | Peterman, Kermish-Allen, Knezek, Christensen, and Tyler-Wood (2016) | |
| Egbue, Long, and Ng (2015) | Roberts (2014) | |
| Gilmer (2006) | Sasson and Cohen (2013) | |
| Hayden, Ouyang, Scinski, Olszewski, and Bielefeldt (2011) | Stake and Mares (2005) | |
| Herman, Goldberg, Trenshaw, Somerville, and Stolk (2017) | Sterling, Matkins, Frazier, and Logerwell (2007) | |
| Hirsch, Berliner-Heyman, and Cusack (2017) | Stevens, Andrade, and Page (2016) | |
| Holmes, Redmond, Thomas, and High (2012) | Tseng, Chang, Lou, and Chen (2013) | |
| Huziak-Clark, Sondergeld, Staaden, Knaggs, and Bullerjahn (2015) | Wallace, Perry, Ferguson, and Jackson (2015) | |
| Huziak-Clark, van Staden, and Bullerjahn (2014) | Xie and Reider (2014) | |
| Kim (2011) | Yanowitz (2016) | |
| Kim (2016) |  | |
| Case study or mixed method with pre/post-design or post-only design 5,0% | | |
| Dickerson, Eckhoff, Stewart, Chappell, and Hathcock (2014) | | Scott (2012) |
| Eagan et al. (2013) | | Stolle-McAllister, Domingo, and Carrillo (2011) |
| Scogin (2016) | | Tuffley and Antonio (2013) |
| Quasi-experimental design (21,8%) | | |
| Akcay and Akcay (2015) | | McGonagle et al. (2014) |
| Baiduc, Drane, Beitel, and Flores (2017) | | Moreno, Tharp, Vogt, Newell, and Burnett (2016) |
| Bamberger (2014) | | Nugent et al. (2016) |
| Bilgin (2006) | | Prokop, Tuncer, and Kvasnicak (2007)\* |
| Boelter, Link, Perry, and Leukefeld (2015) | | Sancho, Torrente, and Fernandez-Manjon (2012) |
| Cincera, Medek, Cincera, Lupac, and Ticha (2017) | | Schultz et al. (2011)\* |
| Hall, Foutz, and Mayhew (2013) | | Smith and Monk (2005) |
| Kahveci, Southerland, and Gilmer (2006) | | Stoeger et al. (2016)\* |
| Kara and Yesilyurt (2008)\* | | Stout, Dasgupta, Hunsinger, and McManus (2011)\* |
| Kilincaslan and Simsek (2015) | | Tofel-Grehl et al. (2017) |
| Leonard et al. (2016) | | Tyler-Wood, Ellison, Lim, and Periathiruvadi (2012) |
| Lee and Erdogan (2007)\* | | Winkleby et al. (2014) |
| Malik et al. (2010) | | Zahorec, Haskova, and Bilek (2014) |
| Experimental design (3,4%) | | |
| Bekki, Smith, Bernstein, and Harrison (2013)\* | | Harackiewicz, Rozek, Hulleman, and Hyde (2012)\* |
| Gaspard et al. (2015)\* | | Ruthven et al. (2017) |

Note: Studies with \* are part of the final selection.

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