Educational System Guidelines

Course-Instructor Tier

Beginning Citations

These guidelines and their associated criteria have been developed by several organizations and authors in recent years. The underlying framework for these guidelines asserts that there are at least three tiers that impact student learning and development: 1) Learners, 2) Courses-Instructors, and 3) the Educational Organization in part or as a whole. They are the result of extensive educational research studies in PK-16 education, instructional design and technology, educational psychology, and discipline-specific studies (e.g., healthcare education). A beginning set of citations for each guideline and their criteria is provided below. For the citations that reference other sets of guidelines, assessments, standards, etc. (i.e., InTASC, CLASS, and Quality Matters), a larger body of evidence-based literature, which is not included here, is connected to each of these and may also be explored via their corresponding websites. These beginning lists are intended to not only provide evidence for the validity and importance of these guidelines but also resources that one can draw from to learn more about each of them.

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Abbreviations:

- AHSE - Advances in Health Sciences Education
- ALHE – Active Learning in Higher Education
- AM - Academic Medicine
- BMCME - BMC Medical Education
- CLASS - Class Assessment Scoring System (Secondary)
- EP - Educational Psychology: An International Journal of Experimental Educational Psychology
- ETRD - Educational Technology Research and Development
- InTASC - Interstate Teacher Assessment and Support Consortium
- JNE - Journal of Nursing Education
- KL – Kindle Location
- MT - Medical Teacher
- QM – Quality Matters

Beginning citations for more information, organized by Element and Criteria #:

2017

Objectives:

1) Objectives describe observable and measurable levels of proficiency that are aligned with accreditation, institutional, and/or discipline-specific standards (*Core Guideline*)
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.47 for 1,855 educational research studies that included more than 45,247 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 – Indicator 2; Standard 3 – Indicator 1; Standard 6 – Indicator 1 & 3; Standard 7 – Indicator 1; Standard 8 – Indicator 1 & 2; Quality Matters Standards 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1; Class Assessment Scoring System (CLASS) Manual (Secondary): Behavior Management; Instructional Learning Formats; Hattie, 2009, p. 121-24, 163-68;
    - *Supporting Literature & Studies*: Ambrose et al., 2010, p. 112, 147-48, 204; Barzansky et al., MT, 2015, 37:11; Bruning et al., 2011, p. 34-35, 130; Diamond, 2008, p. 16, 40, 79, 115, 150, 153-54, 264-65; Friedman & Fisher, 1998, p. 20, 161, 288; Gagnon & Cator, JNE, 2015, 54:7; García de Leonardo et al., BMCME, 2016, 16:99; Gorski et al., JNE, 2015, 54:9; Jagt - van Kampen et al., BMCME, 2015, 15:194; Moreau & Eady, MT, 2015, 37:11; Sawyer, ed., 2006, KL 8158-8194, 8217-41; Searing & Kooken, JNE, 2016, 55:4; Slavin, 2008, p. 152, 406-409; Woolfolk, 2010, p. 457-58; Zhao et al., BMCME, 2015, 15:207; Zupanc et al., BMCME, 2015, 15:216;

Assessments:

1) The course utilizes varied assessments (e.g., formative and summative, formal and informal) to establish learners' levels of proficiencies in relation to the stated course objectives as well as to guide the course's development (*Core Guideline*)
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.62 for 332 educational research studies that included more than 46,453 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 – Indicators 1 & 2; Standard 4 – Indicator 1; Standard 5 – Indicator 2; Standard 6 – Indicators 1 & 3; Standard 7 – Indicators 2 & 3; Standard 8 – Indicator 1; Standard 9 – Indicator 2; Standard 10 – Indicators 1 & 2; Quality Matters Rubric: 3.1; 3.4; Class Assessment Scoring System (CLASS) Manual (Secondary): Teacher Sensitivity; Regard for Student Perspectives; Behavior Management; Instructional Learning Formats; Quality of Feedback; Hattie, 2009, p. 181, 204-207;
    - *Supporting Literature & Studies*: Abbott, JNE, 2016, 55:2; Ambrose et al., 2010, p. 64, 87, 146, 150, 181, 205; Aronsson et al., BMCME, 2015, 15:235; Bradshaw & Lowenstein, ed., 2014, p. 491, Ch. 31; Bussard, JNE, 2015, 54:8; Chepulis & Mearns, JNE, 2015, 54:9S; Diamond, 2008, p. 16, 79, 150, 177; Fluit et al., AHSE, 2015, 20:3; Friedman & Fisher, 1998, p. 68-69, 80, 161, 289, 291-92; Goodwin & Machin, MT, 2016, 38:2; Hamrin et al., JNE, 2016, 55:4; Hendry et al., ALHE, 2016, 17:2; Ingham et al., BMCME, 2015, 15:218; Kelly et al., AHSE, 2015, 20:4; Lee & Wimmers, AHSE, 2016, 21:2; Morrison et al., 2013, p. 252-56, 320-21, Ch. 13; Nie et al., BMCME, 2015, 15:217; O'Rourke & Zerwic, JNE, 2016, 55:1; Reiser & Dempsey, ed., 2012, p. 96, 97; Sawyer, ed., 2006, KL 5512-32, 8137-58, 8217-41, 8289-8311, 8393-8414, 18929-75, 18975-96, Ch. 13; Slavin, 2008, p. 153, 208, 213, 412, 415, 418, 421, 422; Woolfolk, 2010, p. 455, 495-96, 511;

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2) Feedback to learners is: a) positive, b) related to specific objectives and criteria, c) provides suggestions for how learners can continue to progress, and d) are conducted in a "timely" manner, providing learners with feedback that can be implemented in subsequent activities (*Core Guideline*)
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.54 for 3,584 educational research studies that included more than 221,744 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC Standards: Standard 3 – Indicator 1; Standard 6 – Indicators 1, 2, & 3; Standard 7 – Indicator 2; Quality Matters Rubric: 3.1; 3.3; 3.5; 5.3; Class Assessment Scoring System (CLASS) Manual (Secondary): Positive Climate; Teacher Sensitivity; Behavior Management; Analysis & Inquiry; Quality of Feedback; Instructional Dialogue; Hattie, 2009, p. 121-24, 144-45, 170-71, 173-79;
    - *Supporting Literature & Studies*: Ambrose et al., 2010, p. 87-88, 149-50, 206; Bruning et al., 2011, p. 87-88; Clark & Mayer, 2011, p. 263-67; Diamond, 2008, p. 116, 192; Friedman & Fisher, 1998, p. 144; Gauthier et al., MT, 2015, 37:6; Johnson et al., BMCME, 2016, 16:96; Morrison et al., 2013, p. 231-32; Sawyer, ed., 2006, KL 8765-87; Slavin, 2008, p. 134, 152, 213, 303-304, 319; van de Ridder et al., AHSE, 2015, 20:3;

3) Assessments are utilized in accordance with evidence-based recommendations and, whenever possible, their reliability and validity is established (*Core Guideline*)
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.34 for 569 educational research studies that included more than 135,925 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standard 6 – Indicator 1 & 3; Standard 9 – Indicator 2; Quality Matters Standards 3.4; Hattie, 2009, p. 178-79;
    - *Supporting Literature & Studies*: Ambrose et al., 2010, p. 31, 148; Bruning et al., 2011, p. 130-31; Clark & Mayer, 2011, p. 266; Diamond, 2008, p. 40, 79, 177; Kunina-Habenicht et al., AHSE, 2015, 20:5; McGill et al., BMCME, 2015, 15:237; Nørgaard et al., BMCME, 2016, 16:60; Reiser & Dempsey, ed., 2012, p. 97; Sawyer, ed., 2006, KL 8217-41; Slavin, 2008, p. 419, 422, 444, 473-75; Woolfolk, 2010, p. 497-99, 513-14, 517-18;

4) When appropriate, self- and/or peer-assessments and reflections are utilized that are intended to lead to improved learning and development
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.56 for 805 educational research studies that included more than 3,353 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 – Indicator 2; Standard 6 – Indicator 2; Standard 7 – Indicator 2; Standard 8 – Indicator 1; Quality Matters Standards 3.5; 5.2; 6.2; Class Assessment Scoring System (CLASS) Manual (Secondary): Analysis & Inquiry; Quality of Feedback; Hattie, 2009, p. 186-87, 203-204;
    - *Supporting Literature & Studies*: Ambrose et al., 2010, p. 29, 151, 206; Bartlett Ellis et al., JNE, 2016, 55:1; Bruning et al., 2011, p. 88, 307; Clark & Mayer, 2011, p. 315; Friedman & Fisher, 1998, p. 131; Gibbs & Taylor, ALHE, 2016, 17:2; Maas et al., BMCME, 2015, 15:203; Matlin, 2005, pp. 34, 202; Schoo et al., BMCME, 2015, 15:228; Woolfolk, 2010, p. 368;

Activities, Organizations, & Resources (AORs):

2017

1) Activities and resources intentionally foster learner-learner interactions (*Core Guideline*)
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.51 for 3,246 educational research studies that included more than 85,263 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standard 3 – Indicators 1 & 2; Standard 5 – Indicator 2; Standard 6 – Indicator 2; Standard 8 – Indicators 1 & 2; Quality Matters Rubric: 1.9; 5.2; 5.4; Class Assessment Scoring System (CLASS) Manual (Secondary): Positive Climate; Regard for Student Perspectives; Content Understanding; Quality of Feedback; Instructional Dialogue; Student Engagement; Hattie, 2009, p. 94-95, 104-105, 186-87, 210-14;
    - *Supporting Literature & Studies*: Bradshaw & Lowenstein, ed., 2014, Ch. 17, 19, 21; Bruning et al., 2011, p. 234, 306; Clark & Mayer, 2011, p. 184, Ch. 13; Diamond, 2008, p. 79, 194; Friedman & Fisher, 1998, p. 92, 144; Myers et al., JNE, 2015, 54:11; Sawyer, ed., 2006, KL 13079-102, Ch. 23, 24; Slavin, 2008, p. 247, 338; Woolfolk, 2010, p. 50, 314, 369;
    - Citations also include active teaching and learning strategies that require learner-learner interactions: (for a more comprehensive list of strategies, along with Hattie's effect sizes, see the active teaching & learning strategies guideline in the Teaching & Learning Theories section)
        - Peer teaching and tutoring, collaborative learning, etc.
            - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.54 for 2,909 educational research studies that included more than 44,378 people. Hattie, 2009, p. 186-87, 203-204, 212-14.
            - Burgess et al., BMCME, 2016, 16:85; Chua et al., BMCME, 2015, 15:233; Diamond, 2008, p. 79, 116-17, 193; Donovan & McCumber, JNE, 2015, 54:9; Dumas et al., JNE, 2015, 54:9; Ford, JNE, 2015, 54:9S; Friedman & Fisher, 1998, p. 92; Kan et al., MT, 2015, 37:9; Knowlton & Jones, JNE, 2015, 54:8; Lorio et al., JNE, 2016, 55:2; Manyama et al., BMCME, 2016, 16:95; Moore et al., AHSE, 2016, 21:1; Morrison et al., 2013, p. 211-14; Sawyer, ed., 2006, KL 843-66, 2631-56, 4810-51, 5209-34, 5381-5405; Ch. 12; Slavin, 2008, p. 273; Valente Ferreira et al., BMCME, 2015, 15:236); Wong et al., JNE, 2016, 55:3;
        - Classroom discussions, debate, etc.
            - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.46 for 211 educational research studies. Hattie, 2009, p. 182-83.
            - Boyd et al., JNE, 2015, 54:10; Bradshaw & Lowenstein, ed., 2014, Ch. 11; Bruning et al., 2011, p. 212; Leslie, JNE, 2016, 55:3; Sawyer, ed., 2006, Ch. 12, 26;
        - Role playing
            - Beaird, JNE, 2015, 54:7; Bradshaw & Lowenstein, ed., 2014, Ch. 13; Fossen & Stoeckel, JNE, 2016, 55:4; Hart & Chilcote, JNE, 2016, 55:3; Leslie, JNE, 2016, 55:4; Sittikariyakul et al., AHSE, 2015, 20:3;
        - Games, game-based learning
            - Bradshaw & Lowenstein, ed., 2014, Ch. 12; Clark & Mayer, 2011, Ch. 16; Kaylor, JNE, 2016, 55:2; Laine et al., ETRD, 2016, 64:3; Pitt et al., MT, 2015, 37:11;

2) Activities and resources help learners to progress in higher order thinking to improve learning and development (*Core Guideline*)

2017

- *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.50 for 5,665 educational research studies that included more than 456,819 people.
- *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 – Indicator 2; Standard 4 – Indicator 2; Standard 5 – Indicators 1 & 2; Standard 6 – Indicators 1 & 2; Standard 8 – Indicators 1 & 2; Quality Matters Rubric: 2.5; 5.2; Class Assessment Scoring System (CLASS) Manual (Secondary): Regard for Student Perspective; Content Understanding; Analysis & Inquiry; Quality of Feedback; Instructional Dialogue; Hattie, 2009, p. 101-102, 147-49, 155-56, 158-59, 188-93, 203-204, 208-14;
- *Supporting Literature & Studies*: Ambrose et al., 2010, p. 62, 117; Aronsson et al., BMCME, 2015, 15:235; Boyer et al., JNE, 2015, 54:11; Bradshaw & Lowenstein, ed., 2014, p. 338, Ch. 3, 5, 7; Bruning et al., 2011, Ch. 8, p. 233, 307; Bussard, JNE, 2015, 54:8; Diamond, 2008, p. 117, 192; Chamberland et al., AHSE, 2015, 20:4; Clark & Mayer, 2011, p. 17, 242-44, Ch. 15; Kulasegaram et al., AHSE, 2015, 20:4; Kunina-Habenicht et al., AHSE, 2015, 20:5; O'Rourke & Zerwic, JNE, 2016, 55:1; Raterink, JNE, 2016, 55:2; Sawyer, ed., 2006, KL 522-45, 590-605, 1430-1554, 4538-4609, 9538-58; Slavin, 2008, p. 255; Woolfolk, 2010, p. 367, 459, Ch. 8;

3) Course intentionally integrates relevant and interactive technologies to improve learning and development
   - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.33 for 7,724 educational research studies that included more than 8,069,961 people.
   - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standard 3 – Indicator 2; Standard 5 – Indicator 2; Standard 6 – Indicator 2; Standard 7 – Indicators 1 & 2; Standard 8 – Indicators 1 & 2; Quality Matters Rubric: 1.5; 1.7; 6.1; 6.2; 6.3; 6.4; 8.2; 8.5; Class Assessment Scoring System (CLASS) Manual (Secondary): Regard for Student Perspectives; Hattie, 2009, p. 179-81, 207-208, 220-33;
   - *Supporting Literature & Studies*: Alqahtani et al., BMCME, 2015, 15:199; Bradshaw & Lowenstein, ed., 2014, p. 12, 18, 19, 21; Bellack & Thibault, JNE, 2016, 55:1; Bruning et al., 2011, p. 308; Chen et al., JNE, 2015, 54:7; Clark & Mayer, 2011, p. 31; Diamond, 2008, Ch. 18; Duke et al., MT, 2015, 37:6; Hortsch, MT, 2015, 37:6; Irwin & Coutts, JNE, 2015, 54:10; Keegan et al., JNE, 2016, 55:1; Khandelwal et al., MT, 2015, 37:6; Morrison et al., 2013, Ch. 10; Park & Park, JNE, 2015, 54:11; Peacock & Grande, MT, 2016, 38:2; Reiser & Dempsey, ed., 2012, p. 201, Ch. 31; Sawyer, ed., 2006, KL 771-96, 5089-5103, 13622-38, Ch. 25, 30; Schlegel et al., MT, 2015, 37:8; Vaccani et al., MT, 2016, 38:1; Woolfolk, 2010, p. 336-40; Zitzelsberger et al., JNE, 2015, 54:6;

4) The course helps learners to adapt relevant KSAs* to address real-world issues in authentic contexts
   - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.34 for 1,072 educational research studies that included more than 60,762 people.
   - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standard 5 – Indicators 1 & 2; Standard 8 – Indicator 2; Class Assessment Scoring System (CLASS) Manual (Secondary): Regard for Student Perspectives; Content Understanding; Hattie, 2009, p. 208-12, 230-31;
   - *Supporting Literature & Studies*: Ambrose et al., 2010, p. 23, 83, 117-18, 119; Bradshaw & Lowenstein, ed., 2014, Ch. 14, 15, 16, 17; Bruning et al., 2011, p. 88, 104; Clark & Mayer, 2011, p. 21, 240-42, 262-63, 360-61; Diamond, 2008, p. 192, 196; Friedman & Fisher, 1998, p. 131; Grilo-Diogo et al., BMCME, 2015, 15:226; Laine et al., ETRD, 2016, 64:3; Matlin, 2005, pp. 174, 370; Sawyer, ed., 2006, KL 590-605, 5319-58, 8765-87, 13591-611, Ch. 20; Slavin, 2008, p. 217; Woolfolk, 2010, p. 259, 314, 316;

2017

- This area also includes citations for the following active teaching strategies: (for a more comprehensive list of strategies, along with Hattie's effect sizes, see the active teaching & learning strategies guideline in the Teaching & Learning Theories section)
    - Real-world simulations, clinical simulations, etc.
        - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.33 for 361 educational research studies. Hattie, 2009, p. 230-31.
        - Bradshaw & Lowenstein, ed., 2014, Ch. 14-17; Eggenberger et al., JNE, 2015, 54:10; Garnett et al., JNE, 2015, 54:9; Gude et al., BMCME, 2015, 15:225; Jeffries, JNE, 2015, 54:11; Jorm et al., BMCME, 2016, 16:83; Landeen et al., JNE, 2015, 54:9; Makransky et al., BMCME, 2016, 16:98; Rue & Doolen, JNE, 2015, 54:11; Zimmermann et al., BMCME, 2015, 15:189
    - Real-world projects, project-based learning, service-learning, community-based pedagogies, CQI projects, etc.
        - Amalba et al., BMCME, 2016, 16:79; Barnes, JNE, 2016, 55:1; Bradshaw & Lowenstein, ed., 2014, Ch. 28; Bruning et al., 2011, p. 233; Chuang et al., BMCME, 2015, 15:232; DeBonis, JNE, 2016, 55:1; Fitzwater & Tong, JNE, 2015, 54:12; Knecht & Fischer, JNE, 2015, 54:7; Matlin, 2005, p. 370; Sawyer, ed., 2006, KL 8808-30, Ch. 19; Zandee et al., JNE, 2015, 54:7;
    - Workplace experiences, clinicals, immersion experiences, etc.
        - Bradshaw & Lowenstein, ed., 2014, Ch. 23, 24, 26, 27; Braniff et al., MT, 2016, 38:1; Gilliland, JNE, 2015, 54:6; McGettigan & McKendree, BMCME, 2015, 15:185; Park et al., MT, 2015, 37:7;Piquette et al., AHSE, 2015, 20:4; Ritten et al., JNE, 2015, 54:7; Teunissen, AHSE, 2015, 20:4; von Pressentin et al., BMCME, 2016, 16:82;

5) The course has learners engage in activities in ways that consistently scaffolds their increasing competencies for key KSAs* (*Core Guideline*)
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.40 for 2,535 educational research studies that included more than 152,748 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 – Indicators 1 & 2; Standard 3 – Indicator 2; Standard 4 – Indicator 2; Standard 5 – Indicator 2; Standard 7 – Indicator 1; Standard 8 – Indicators 1 & 2; Quality Matters Rubric: 1.1; 1.2; 2.2; 3.4; 4.2; 4.6; 5.1; 8.1; Class Assessment Scoring System (CLASS) Manual (Secondary): Teacher Sensitivity; Productivity; Instructional Learning Formats; Content Understanding; Analysis and Inquiry; Quality of Feedback; Instructional Dialogue; Hattie, 2009, p. 125-26, 167-72, 178-79, 184-86, 208, 231-32;
    - *Supporting Literature & Studies*: Albanese & Case, AHSE, 2016, 21:2; Ambrose et al., 2010, p. 38, 59-62, 114-16, 146-47; Blissett et al., AHSE, 2015, 20:4; Bradshaw & Lowenstein, ed., 2014, p. 225; Bruning et al., 2011, p. 34-35, 63, 87-88, 106, 178, 211-12, 234, 357; Burkhardt et al., JNE, 2015, 54:12; Chan et al., AHSE, 2015, 20:4; Chen et al., MT, 2015, 37:12; Clark & Mayer, 2011, p. 13, 37, 39, 97, 106-107, 117, 134, 140-41, 153, 226-30, 238, 256-57, 317, 329-33, 344-45, Ch. 10, 12; Diamond, 2008, p. 17, 115, 150, 194; El Hussein et al., JNE, 2016, 55:1; Elias et al., JNE, 2015, 54:10; Friedman & Fisher, 1998, p. 6, 53, 68, 80, 101, 115, 144, 191, 199, 288-89; Keegan et al., JNE, 2016, 55:1; Kiernan & Vallerand, JNE, 2016, 55:4; Kok et al., AHSE, 2016, 21:1; Kostiuk, JNE, 2015, 54:10; Matlin, 2005, pp. 177, 181-84; Morrison et al., 2013, p. 72-74, 124, 162, 166, 169-72, 191-92; Sawyer, ed., 2006, KL 909-30, 1430-59, 1506-31, 2744-91, 5234-57, 5448-5471, 8194-8217, 9480-87, 9538-58, 12835-59, 13379-401, 13450-79, 18192-219; Slavin, 2008, p. 152-53, 173-74, 203-207; Woolfolk, 2010, p. 50, 255-56, 316, 354, 429, 433, 454;

6) *Mission-Centered Focus*: The class environment is one that is experienced by learners to be safe, inclusive, and caring

2017

- *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.36 for 825 educational research studies that included more than 130,282 people.
- *Evidence-Based Assessments & Meta-analyses*: InTASC, Standard 3 - Indicator 1; Quality Matters Standards 1.9, 5.4; CLASS Manual, Positive Climate, Negative Climate, Behavior Management, Teacher Sensitivity; Hattie, 2009, p. 49-50, 78-79, 102-104, 183-84;
- *Supporting Literature & Studies*: Bradshaw & Lowenstein, ed., 2014, p. 100; Clark & Mayer, 2011, p. 189-90; Duke et al., MT, 2015, 37:6; Diamond, 2008, p. 203; Sawyer, ed., 2006, KL 17615-681, 18192-217; Young et al., AHSE, 2016, 21:1;

Teaching & Learning Theories:

1) Instructor is able to articulate: a) specific and holistic learning theories and teaching strategies that they might utilize; and b) when and how these theories and strategies might apply (*Core Guideline*)
    - General teaching and learning theories:
        - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.61 for 6,751 educational research studies that included more than 1,538,369 people.
        - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 – Indicators 1 & 2; Standard 3 – Indicator 2; Standard 4 – Indicator 1; Standard 9 – Indicator 2; Quality Matters Standards 1.2, 2.5; Hattie, 2009, p. 109-10, 112-15, 119-121, 199-203;
        - *Supporting Literature & Studies*: Ambrose et al., 2010, p. 15, 19-20; Balmer et al., AHSE, 2015, 20:4; Bradshaw & Lowenstein, ed., 2014, p. 26, Ch. 1; Bruning et al., 2011, p. 86; Chen et al., MT, 2016, 38:1; Clark & Mayer, 2011, p. 24, 35, 121, 160-61, 282; Curtin et al., JNE, 2015, 54:9S; Diamond, 2008, p. 40, 191-92; Elander & Cronje, ETRD, 2016, 64:3; Haji et al., AHSE, 2015, 20:5; Jacobs et al., MT, 2015, 37:8; Joseph et al., JNE, 2016, 55:2; McLellan et al., AHSE, 2015, 20:5; Morrison et al., 2013, p. 144-45, 350, 353-62; Preusche & Lamm, AHSE, 2016, 21:2; Roberts & Kumar, BMCME, 2015, 15:211; Sandars et al., MT, 2015, 37:11; Sawyer, ed., 2006, KL 522-45, 648-70, 885-905, 1176-1203, 5164-89, 10224-48, 20030-55; Slavin, 2008, p. 215; Wijma et al., BMCME, 2016, 16:75; Woolfolk, 2010, p. 49, 455, 462-72;
    - Holistic teaching and learning theories:
        - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.48 for 2,671 educational research studies that included more than 71,338 people.
        - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2, Indicator 1; CLASS Manual, Instructional Learning Formats; Hattie, 2009, p. 152-53, 187-88, 207-208, 212-14, 229-30;
        - *Supporting Literature & Studies*: Al-Eraky, MT, 2015, 37:11; Bradshaw & Lowenstein, ed., 2014, Ch. 18; Bruning et al., 2011, p. 255; Clark & Mayer, 2011, Ch. 4, 5, 6; Delaney et al., AHSE, 2015, 20:5; Diamond, 2008, p. 193; Holmes et al., AHSE, 2015, 20:5; Lucieer et al., AHSE, 2016, 21:1; Matlin, 2005, pp. 184; Mikkonen et al., AHSE, 2015, 20:3; Morrison et al., 2013, p. 172-74; Paek et al., ETRD, 2016, 64:3; Rougas et al., MT, 2015, 37:10; Sagasser et al., AHSE, 2015, 20:3; Sawyer, ed., 2006, KL 628-48, 5381-5405; Slavin, 2008, p. 178-79; St Clair-Thompson et al., EP, 2016; Woolfolk, 2010, p. 98-100, 190, 254;

2017

2) Course utilizes active teaching and learning strategies. In particular, the following are highlighted in the literature: peer teaching/tutoring; elaboration and self-reflections; real-world projects and activities; metacognitive and study strategies; problem-based learning; workplace experiences; inquiry-based pedagogies; role-playing; modeling followed by learner practice; class discussions; concept mapping; game-based strategies (*Core Guideline*)
    - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.47 for 8,731 educational research studies that included more than 6,403,329 people.
    - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 – Indicator 2; Standard 3 – Indicator 2; Standard 5 – Indicator 2; Standard 7 – Indicator 1; Standard 8 - Indicators 1 & 2; Quality Matters Rubric: 5.2, 6.2; Class Assessment Scoring System (CLASS) Manual (Secondary): Regard for Student Perspective; Instructional Learning Formats; Content Understanding; Analysis and Inquiry; Instructional Dialogue; Student Engagement; Hattie, 2009, p. 49, 88-89, 143-44, 147-49, 154-57, 168-69, 172-73, 182-93, 203-214, 228-31, 234-35;
    - *Supporting Literature & Studies*: Bradshaw & Lowenstein, ed., 2014, p. 130; Clark & Mayer, 2011, p. 17, 43, 253-54; Diamond, 2008, p. 79, 115, 193, 263; Gonsalvez et al., BMCME, 2015, 15:231; Sawyer, ed., 2006, KL 5209-34;
    - Citations for specific active teaching and learning strategies highlighted in the literature:
        - Elaboration, self-explanations, self-questioning, reflections, etc.
            - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.64 for 113 educational research studies that included more than 3,098 people. Hattie, 2009, p. 192-93.
            - Ambrose et al., 2010, p. 37, 210; Bruning et al., 2011, p. 86, 105, 332; Chamberland et al., AHSE, 2015, 20:4; Clark & Mayer, 2011, p. 230-33, 242, 355; Curtin et al., JNE, 2015, 54:9S; Harvey, JNE, 2015, 54:11; Matlin, 2005, pp. 173-74; Morgan et al., MT, 2015, 37:10; Morrison et al., 2013, p. 143, 194; Raterink, JNE, 2016, 55:2; Sawyer, ed., 2006, KL 545-66, 692-715, 909-53, 2791-2857, 5358-81, 8194-8217, 8765-87, 10454-74, 12859-83; Shapiro et al., BMCME, 2016, 16:93; Slavin, 2008, p. 189; Sukhato et al., BMCME, 2016, 16:102; Wheeler et al., JNE, 2016, 55:3; Woolfolk, 2010, p. 316;
        - Metacognitive strategies, study strategies, etc.
            - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.60 for 731 educational research studies that included more than 34,339 people. Hattie, 2009, p. 188-92.
            - Ambrose et al., 2010, p. 88, 210-11; Bruning et al., 2011, p. 86-87; Clark & Mayer, 2011, p. 318, 356, 363; Diamond, 2008, p. 194; Friedman & Fisher, 1998, p. 101, 131; Matlin, 2005, pp. 185; Sawyer, ed., 2006, KL 522-45, 930-53, 1459-85; Slavin, 2008, p. 153; Woolfolk, 2010, p. 123, 270-71;
        - Direct instruction, modeling followed by learner practice, worked examples, etc.
            - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.59 for 366 educational research studies that included more than 45,942 people. Hattie, 2009, p. 172-73, 204-207.
            - Ambrose et al., 2010, p. 214; Bruning et al., 2011, p. 87, 177-78; Clark & Mayer, 2011, Ch. 11, p. 357-59; Friedman & Fisher, 1998, p. 80; Morrison et al., 2013, p. 147-49, 198; Sawyer, ed., 2006, Ch. 4, 5; Slavin, 2008, p. 147-48, 207;
        - Peer teaching and tutoring, collaborative learning, etc.
            - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.54 for 2,909 educational research studies that included more than 44,378 people. Hattie, 2009, p. 186-87, 203-204, 212-14.

2017

- Burgess et al., BMCME, 2016, 16:85; Chua et al., BMCME, 2015, 15:233; Diamond, 2008, p. 79, 116-17, 193; Donovan & McCumber, JNE, 2015, 54:9; Dumas et al., JNE, 2015, 54:9; Ford, JNE, 2015, 54:9S; Friedman & Fisher, 1998, p. 92; Kan et al., MT, 2015, 37:9; Knowlton & Jones, JNE, 2015, 54:8; Lorio et al., JNE, 2016, 55:2; Manyama et al., BMCME, 2016, 16:95; Moore et al., AHSE, 2016, 21:1; Morrison et al., 2013, p. 211-14; Sawyer, ed., 2006, KL 843-66, 2631-56, 4810-51, 5209-34, 5381-5405; Ch. 12; Slavin, 2008, p. 273; Valente Ferreira et al., BMCME, 2015, 15:236); Wong et al., JNE, 2016, 55:3;

- Concept mapping, advance organizers, etc.
  - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.46 for 864 educational research studies that included more than 12,376 people. Hattie, 2009, p. 167-69.
  - Ambrose et al., 2010, p. 30, 59; Booker & Peterson, JNE, 2016, 55:3; Bradshaw & Lowenstein, ed., 2014, Ch. 25; Hendrix et al., JNE, 2015, 54:11; Orique & McCarthy, JNE, 2015, 54:8;
- Class discussions, debate, questioning, etc.
  - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.46 for 211 educational research studies. Hattie, 2009, p. 182-83.
  - Boyd et al., JNE, 2015, 54:10; Bradshaw & Lowenstein, ed., 2014, Ch. 11; Bruning et al., 2011, p. 212; Leslie, JNE, 2016, 55:3; Sawyer, ed., 2006, Ch. 12, 26;
- Problem-based learning, Problem-solving learning, etc.
  - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.35 for 506 educational research studies that included more than 53,325 people. Hattie, 2009, p. 210-12.
  - Bradshaw & Lowenstein, ed., 2014, Ch. 10; Bruning et al., 2011, p. 331; Clark & Mayer 2011, p. 351-52; Friedman & Fisher, 1998, p. 218; Hung & Lin, BMCME, 2015, 15:212; Orique & McCarthy, JNE, 2015, 54:8; Reiser & Dempsey, ed., 2012, p. 199-200, Ch. 7; Wood et al., MT, 2015, 37:8; Woolfolk, 2010, p. 278-88;
- Real-world simulations, clinical simulations, etc.
  - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.33 for 361 educational research studies. Hattie, 2009, p. 230-31.
  - Bradshaw & Lowenstein, ed., 2014, Ch. 14-17; Eggenberger et al., JNE, 2015, 54:10; Garnett et al., JNE, 2015, 54:9; Gude et al., BMCME, 2015, 15:225; Jeffries, JNE, 2015, 54:11; Jorm et al., BMCME, 2016, 16:83; Landeen et al., JNE, 2015, 54:9; Makransky et al., BMCME, 2016, 16:98; Rue & Doolen, JNE, 2015, 54:11; Zimmermann et al., BMCME, 2015, 15:189
- Inquiry-based, discovery learning, research projects, etc.
  - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.31 for 205 educational research studies that included more than 7,437 people. Hattie, 2009, p. 208-210.
  - Ambrose et al., 2010, p. 37; Andrews et al., MT, 2015, 37:7; Bradshaw & Lowenstein, ed., 2014, p. 361; Kharraza et al., MT, 2016, 38:S1; LeDuc et al., JNE, 2015, 54:9S; Sawyer, ed., 2006, Ch. 11, 21; Smith et al., JNE, 2016, 55:3; Woolfolk, 2010, p. 316-21;
- Real-world projects, project-based learning, service-learning, community-based pedagogies, CQI projects, etc.

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- Amalba et al., BMCME, 2016, 16:79; Barnes, JNE, 2016, 55:1; Bradshaw & Lowenstein, ed., 2014, Ch. 28; Bruning et al., 2011, p. 233; Chuang et al., BMCME, 2015, 15:232; DeBonis, JNE, 2016, 55:1; Fitzwater & Tong, JNE, 2015, 54:12; Knecht & Fischer, JNE, 2015, 54:7; Matlin, 2005, p. 370; Sawyer, ed., 2006, KL 8808-30, Ch. 19; Zandee et al., JNE, 2015, 54:7;

▪ Workplace experiences, clinicals, immersion experiences, etc.
- Bradshaw & Lowenstein, ed., 2014, Ch. 23, 24, 26, 27; Braniff et al., MT, 2016, 38:1; Gilliland, JNE, 2015, 54:6; McGettigan & McKendree, BMCME, 2015, 15:185; Park et al., MT, 2015, 37:7;Piquette et al., AHSE, 2015, 20:4; Ritten et al., JNE, 2015, 54:7; Teunissen, AHSE, 2015, 20:4; von Pressentin et al., BMCME, 2016, 16:82;

▪ Role playing
- Beaird, JNE, 2015, 54:7; Bradshaw & Lowenstein, ed., 2014, Ch. 13; Fossen & Stoeckel, JNE, 2016, 55:4; Hart & Chilcote, JNE, 2016, 55:3; Leslie, JNE, 2016, 55:4; Sittikariyakul et al., AHSE, 2015, 20:3;

▪ Games, game-based learning, etc.
- Bradshaw & Lowenstein, ed., 2014, Ch. 12; Clark & Mayer, 2011, Ch. 16; Kaylor, JNE, 2016, 55:2; Laine et al., ETRD, 2016, 64:3; Pitt et al., MT, 2015, 37:11;

3) Instructor is able to demonstrate the processes/methods by which they develop their course and there is alignment among course elements (*Core Guideline*)
- *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.69 for 1,100 educational research studies that included more than 54,307 people.
- *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 - Indicator 1, Standard 6 - Indicator 1, Standard 7 - Indicators 1, 2, & 3, Standard 8 - Indicator 1, Standard 9 - Indicator 1 & 2; CLASS Manual, Concept Understanding, Instructional Learning Formats, Regard for Student Perspectives; Quality Matters Standards 2.1, 2.2, 3.1, 4.1, 5.1, 6.1; Hattie, 2009, p. 94-95, 109-10, 112-13, 119-121, 181;
- *Supporting Literature & Studies*: Ambrose et al., 2010, p. 85, 89; Bradshaw & Lowenstein, ed., 2014, p. 11; Bruning et al., 2011, p. 130; Castanelli et al., MT, 2015, 37:12; Chen et al., JNE, 2015, 54:7; Clark & Mayer, 2011, Ch. 3, p. 137; Close et al., JNE, 2015, 54:12; Darabi et al., AHSE, 2015, 20:5; Diamond, 2008, p. 40-41, 79, 196; Eychmüller et al., BMCME, 2015, 15:213; Friedman & Fisher, 1998, p. 161-62, 289-90; Gagnon & Cator, JNE, 2015, 54:7; Garnett et al., JNE, 2015, 54:9; Gooi & Sommerfeld, MT, 2015, 37:10; Gorski et al., JNE, 2015, 54:9; Herr et al., JNE, 2015, 54:6; Holden et al., BMCME, 2015, 15:210; Hsih et al., MT, 2015, 37:11; Kool et al., BMCME, 2016, 16:100; Lypson et al., BMCME, 2016, 16:65; Morrison et al., 2013, Ch. 3, p. 2-3, 5; Nasser et al., BMCME, 2016, 16:59; Nicola et al., MT, 2015, 37:7; Sawyer, ed., 2006, KL 8194-8217; Slavin, 2008, p. 152-53, 221; Stringfellow et al., MT, 2015, 37:8; Taylor et al., MT, 2015, 37:8; Tibebu Tiruneh et al., ETRD, 2016, 64:3; Wijnen-Meijer et al., BMCME, 2015, 15:229; Woods, JNE, 2015, 54:11; Woolfolk, 2010, p. 368, 456-62; Zimmermann et al., BMCME, 2015, 15:189;

Learner-Background Considerations:

1) Course is adapted to learners' relevant prior knowledge, interests, skills, and capabilities and ADA considerations are addressed (*Core Guideline*)

2017

- *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.54 for 7,123 educational research studies that included more than 1,713,214 people.
- *Evidence-Based Assessments & Meta-analyses*: InTASC Standards: Standards 1 & 2 – Indictors 1 & 2; Standard 4 – Indicators 1 & 2; Standard 6 – Indicator 3; Standard 7 – Indicators 1 & 2; Standard 8 – Indicator 1; Quality Matters Rubric: 1.6, 1.7, 2.3, 7.2, 8.3; Class Assessment Scoring System (CLASS) Manual (Secondary): Teacher Sensitivity; Regard for Student Perspectives; Content Understanding; Analysis & Inquiry; Quality of Feedback; Instructional Dialogue; Hattie, 2009, pp. 41-51, 89-91, 99-101, 171-72, 193-98;
- *Supporting Literature & Studies*: Ambrose et al., 2010, p. 13, 15-18, 27, 29-30, 31-34, 85-87, 114-15, 145, 182, 204-205, 211-13; Bok et al., MT, 2016, 38:1; Bruning et al., 2011, p. 34-35, 62-63, 86-87; Clark & Mayer, 2011, p. 23, 172, 291, 308, 322-27; Diamond, 2008, p. 40, 98, 115, 117, 193, 262-63, 264; Friedman & Fisher, 1998, p. 6, 20, 68, 80, 92, 131, 144, 161, 191, 289, 291; Harley et al., ETRD, 2016, 64:3; Khandelwal et al., MT, 2015, 37:6; Kool et al., BMCME, 2016, 16:100; Lin & Huang, ALHE, 2016, 17:2; Matlin, 2005, pp. 178-81, 370; Morris & Chikwa, ALHE, 2016, 17:2; Morrison et al., 2013, p. 11, 55-56, 112-13, 138-39; Reiser & Dempsey, ed., 2012, Ch. 9, 17; Sawyer, ed., 2006, KL 545-66, 1578-1600, 2112-55, 5164-5209, 5448-92, 8263-89, 8765-87, 9480-87, 13978-14002, 17594-615, Ch. 7, 16, 29; Slavin, 2008, p. 116-18, 152, 205, 409, Ch. 10, 12; Tagher & Robinson, JNE, 2016, 55:3; Woolfolk, 2010, p. 49, 253, 455, 384, 477, Ch. 7;

2) Instructor is able to appropriately modify the course in light of learners' diverse cultural locations (e.g., SES, ethnicity, gender, age, etc.)
   - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.37 for 2,355 educational research studies that included more than 10,654,625 people.
   - *Evidence-Based Assessments & Meta-analyses*: InTASC Standards: Standards 1 & 2 - Indicators 1 & 2, Standard 3 - Indicator 1, Standard 4 – Indicator 2, Standard 7 - Indicator 3, Standard 8 - Indicator 1, Standard 9 - Indicator 3, Standard 10 – Indicator 1; Quality Matters Rubric: 2.3; Class Assessment Scoring System (CLASS) Manual (Secondary): Regard for Student Perspective; Hattie, 2009, pp. 52-53, 57, 61-70, 124-25;
   - *Supporting Literature & Studies*: Batley et al., BMCME, 2016, 16:36; Bradshaw & Lowenstein, ed., 2014, p. 24-25, 27, Ch. 6; Bruning et al., 2011, p. 156-57, 212, 356, 357; Diamond, 2008, p. 347-48; Hallam et al., BMCME, 2016, 16:80; Matlin, 2005, pp. 453; Morrison et al., 2013, p. 56-57; Reiser & Dempsey, ed., 2012, p. 352-53, Ch. 17; Sawyer, ed., 2006, 1273-1319, Ch. 29; Slavin, 2008, p. 285, Ch. 4; Woolfolk, 2010, p. 51, 188, 262, 387-89, 455, Ch. 5;

3) *Mission-Centered Focus*: In pursuit of learning objectives, the course engages learners in diverse cultural experiences with under-represented and marginalized communities that proactively reduce biases and increase justice for these populations (*Core Guideline*)
   - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.44 for 2,844 educational research studies that included more than 196,355 people.
   - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 - Indicator 2, Standard 3 - Indicator 1; Standard 5, Indicators 1 & 2; Standard 6 - Indicator 3, Standard 7 – Indicators 1 & 3, Standard 8 - Indicator 1, Standard 9 - Indicator 3; Standard 10, Indicator 1; CLASS Manual, Teacher Sensitivity; Concept Understanding; Hattie, 2009, pp. 58-60, 63-64, 95-96, 149-51;
   - *Supporting Literature & Studies*: Alnassar et al., BMCME, 2016, 16:97; Ambrose et al., 2010, p. 182; Amoako-Sakyi & Amonoo-Kuofi, BMCME, 2015, 15:221; Aponte et al., JNE, 2015, 54:6; Barnes, JNE, 2016, 55:1; Blanchet Garneau, JNE, 2016, 55:3; Bradshaw & Lowenstein, ed., 2014, p.

2017

467-69, Ch. 2; Bruning et al., 2011, p. 212; Clark & Mayer, 2011, p. 82, 127, 200, 261; Cowan et al., JNE, 2015, 54:9S; Diamond, 2008, pp. 193, 279-80, Ch. 21; Chuang et al., BMCME, 2015, 15:232; Knecht & Fischer, JNE, 2015, 54:7; Mahmouda et al., MT, 2016, 38:S1; Martins et al., MT, 2015, 37:11; Morrison et al., 2013, p. 166; Murray, JNE, 2015, 54:12; Murray, JNE, 2015, 54:9S; Peltzer et al., JNE, 2016, 55:3; Oline-Hole et al., BMCME, 2016, 16:71; Read et al., JNE, 2016, 55:3; Ritten et al., JNE, 2015, 54:7; Sawyer, ed., 2006, KL 1407-30, 9345-67, 18125-73; Slavin, 2008, p. 102-103, 111-12; Stroup & Kuk, JNE, 2015, 54:9S; Van Schalkwyk et al., MT, 2015, 37:6; Woolfolk, 2010, p. 190, 335-36; Zaidi et al., AHSE, 2016, 21:2;

Professional Development, Leadership, & Evidence-Based Practice:

1) Instructor engages in and supports professional development opportunities related to improving their educational competencies (*Core Guideline*)
   - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.65 for 1,084 educational research studies that included more than 47,000 people.
   - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standard 4 - Indicators 1 & 2, Standard 6 – Indicator 1, Standard 7 – Indicator 1, Standard 9 – Indicators 1 & 3, Standard 10 – Indicator 1; Hattie, 2009, pp. 109-113, 119-21;

2) Instructor actively participates in leadership roles and responsibilities that improve the institution's education and culture
   - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.36 for 491 educational research studies that included more than 1,133,657 people.
   - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standard 3 - Indicator 1, Standard 5 – Indicator 1, Standard 6 – Indicators 1 & 3, Standard 7 – Indicators 2 & 3, Standard 9 – Indicators 1, 2, & 3, Standard 10 – Indicators 1 & 2; Hattie, 2009, pp. 83-85;

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3) Instructor conducts evidence-based and/or scholarly projects that improve the quality of education (*Core Guideline*)
   - *Overall Effect Size*: Hattie's (2009) Meta-Meta-Analysis Results: Effect size of 0.56 for 1,142 educational research studies that included more than 139,760 people.
   - *Evidence-Based Assessments & Meta-analyses*: InTASC, Standards 1 & 2 - Indicators 1 & 2, Standard 3 – Indicator 1, Standard 4 – Indicator 1, Standard 5 – Indicator 2, Standard 6 – Indicators 1, 2, & 3, Standard 7 – Indicators 1, 2, & 3, Standard 8 – Indicator 1, Standard 9 – Indicators 1, 2 & 3, Standard 10 – Indicators 1 & 2; Class Assessment Scoring System (CLASS) Manual (Secondary): Teacher Sensitivity, Instructional Learning Formats, Content Understanding, Analysis & Inquiry, Quality of Feedback, Instructional Dialogue; Quality Matters Rubric: 1.9; Hattie, 2009, pp. 112-13, 115-18, 178-79, 181;

2017