

## **A Best Evidence in Medical Education systematic review to determine the most effective teaching methods that develop reflection in medical students: BEME guide No. 51**

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| Table 2 – Quantitative studies grouped by study type (starting with the highest level of evidence) |   |  |   |  |                  |  |
|--|---|--|---|--|------------------|--|
| Author/<br>Year/<br>Study design   | Context<br># participants                                     | Intervention   | Outcomes  | Risk of bias/<br>Strength<br>of findings/<br>Overall<br>rating | Kirk-<br>patrick | Main Findings<br><br>Re: teaching<br>reflection                                    |
| Aronson et al 2012<br><br>Randomised Control<br>Trial  | USA<br>Clerkship<br><br>N=149                                 | Reflective learning<br>guide (LEaP) and<br>feedback  | Difference in reflective scores (using<br>RAR) +/-reflective learning guide<br>and +/- feedback   | 9/11<br><br>3/5<br><br>Good                                    | 2b               | Reflective guide and<br>feedback improves<br>reflective writing                    |
| Aronson et al 2011<br><br>Non-randomised<br>control trial  | USA<br>Obs/gyne<br>Clerkship<br><br>N=115                     | Reflective learning<br>guide (LEaP)  | 1)Difference in reflective scores<br>(using RAR) +/-reflective learning<br>guide 2) reflective score<br>correlation with demographics &<br>satisfaction | 10/11<br><br>3/5<br><br>Acceptable                             | 2b               | Reflective guide<br>improves reflective<br>writing                                 |
| Devi et al 2017<br><br>Non-randomised<br>control trial   | India<br>Preclinical<br>Research<br>elective<br><br>N=173     | Two-hour module on<br>reflection followed by<br>written reflection about<br>research                             | Difference in reflective scores (using<br>own rubric) for intervention versus<br>control group  | 8/11<br><br>3/5<br><br>Acceptable                              | 2b               | Reflection module<br>improves reflecting skills                                    |
| Aukes et al 2008<br><br>Controlled before and<br>after study                                       | Netherlands<br>Preclinical<br><br>N=797                       | Experiential learning<br>(clinical<br>experience/small<br>group/mentor/portfolio)                                | Pre and post-test GRAS test<br>compared to control  | 9/11<br><br>3/5<br><br>Acceptable                              | 2a               | Experiential learning<br>enhances reflection                                       |
| Liao & Wang 2016<br><br>Controlled before and<br>after study                                       | Taiwan<br>Preclinical<br>Interdisciplinary<br><br>N=86        | Interdisciplinary HCG in<br>reflective writing for<br>med humanities<br>literature                               | Pre and post 1) reflective writing test<br>2) Empathy Scale in Patient Care 3)<br>Critical thinking disposition<br>assessment in HCG vs non HCG         | 10/11<br><br>4/5<br><br>Good                                   | 2b               | Deeper reflective<br>thinking in HCG vs non<br>HCG                                 |
| Spampinato et al 2014<br><br>Historically<br>Controlled, before<br>and after study                 | USA<br>Preclinical<br>Anatomy course<br><br>N=143             | Four facilitated<br>reflection group sessions<br>on professionalism  | Difference in reflection scores (using<br>Wittich et al) of test versus historical<br>control   | 9/11<br><br>2/5<br><br>Acceptable                              | 2a               | Reflection scores lower<br>in intervention group                                   |
| Hayton et al 2015<br><br>Historically<br>Controlled study  | USA<br>Medicine<br>Clerkship<br><br>N=360                     | 90 min workshop (video,<br>small and large group<br>exercises then written<br>reflections)                       | Difference in reflection scores (using<br>REFLECT) in test versus historical<br>control   | 8/11<br><br>4/5<br><br>Good                                    | 2b               | 14% control and 47%<br>test group writing<br>“critical reflections”                |
| Duke et al 2015<br><br>Uncontrolled Before<br>and after study                                      | USA<br>Clerkship<br>Professionalism<br>formation<br><br>N=259 | Faculty facilitated peer<br>small group/virtual<br>classroom/social<br>networking/sharing<br>personal narratives | Pre and post course GRAS test and<br>JSE  | 9/11<br><br>2/5<br><br>Poor                                    | 2a               | Reflection scores<br>improved after sharing<br>personal narratives                 |
| Peterkin et al 2012<br><br>Uncontrolled before<br>and after study - pilot                          | Canada<br>Clerkship<br>Elective<br><br>N=10                   | Eight group sessions in<br>class/online with<br>reflective writing about<br>CanMeds roles                        | 1) Reflective writing scored using<br>RAR and REFLECT at intervals<br>through intervention 2) course<br>evaluation form                                 | 11/11<br><br>3/5<br><br>Acceptable                             | 2b               | Online and class<br>reflective writing<br>sessions increase<br>reflecting capacity |

**Abbreviations:** GRAS - Groningen Reflection Ability Scale; HCG – Heterogenous Cluster Grouping; JSE - Jefferson self-assessment of empathy; LEaP – Learning from your Experiences as a Professional; Obs/Gyne – Obstetrics and Gynaecology; RAR - Reflective Ability Rubric; REFLECT - Reflection Evaluation for Learners’ Enhanced Competencies Tool; USA – United States of America