

## Supplemental Digital Appendix 1

### Participant Types, Instruments, and Constructs Measured in the 62 Articles Included in a Review of Validity Evidence and Factor Analysis in Medical Education Instrument Development\*

Study author and year <sup>ref</sup>	Type of participant	Instrument description or title	Construct measured by instrument
Aramesh et al, 2009 <sup>30</sup>	Residents	American Board of Internal Medicine (ABIM) questionnaire for measuring professionalism (Farsi translation)	Professionalism in medical residency training programs
Aukes et al, 2007 <sup>31</sup>	Medical students	Groningen Reflection Ability Scale (GRAS)	Personal reflection ability of medical students
Boor et al, 2007 <sup>32</sup>	Medical students, residents	Postgraduate Hospital Educational Environment Measure (PHEEM)	Postgraduate hospital educational environment
Campbell et al, 2007 <sup>33</sup>	Physicians, patients	Questionnaire on perceptions of physician communication	Process and content of communication in a single office visit
Carruthers et al, 2009 <sup>34</sup>	Medical students, tutors	Attitudes to Patient Safety Questionnaire	Medical student attitudes toward patient safety
Chou et al, 2008 <sup>35</sup>	Residents, physicians	Hopkins Assessment of Surgical Competency (HASC)	Resident surgical competency in gynecologic surgery
Colletti et al, 2010 <sup>36</sup>	Residents	Assessment of emergency medicine faculty professionalism, commitment to knowledge and instruction, inclusion and interaction, patient focus, and openness to ideas	Instructional quality of emergency medicine department faculty
Cruess et al, 2006 <sup>37</sup>	Residents, physicians	Professionalism Mini-Evaluation Exercise	Medical student professionalism
Di Lillo et al, 2009 <sup>38</sup>	Physicians	Jefferson Scale of Physician Empathy (JSPE) (Italian translation)	Physician empathy
Dimoliatis et al, 2010 <sup>39</sup>	Medical students	Dundee Ready Education Environment Measure (DREEM) (Greek translation)	Educational environment

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Donnon et al, 2009 <sup>40</sup>	Medical students	Rural Integrated Community Clerkship questionnaire (RICC)	Medical student motivations or deterrents to pursuing a rural integrated community clerkship
El-Zubeir et al, 2006 <sup>41</sup>	Medical and nursing students	Readiness for Interprofessional Learning Scale (RIPLS)	Health care student attitudes and readiness for interprofessional learning
Eslaminejad et al, 2010 <sup>42</sup>	Physicians	Questionnaire on knowledge, attitude, skills, and habits related to e-learning	Instructors' technical and pedagogical readiness for e-learning
Flin et al, 2009 <sup>43</sup>	Medical students	Questionnaire for new medical students in the United Kingdom to assess knowledge, attitudes, and anticipated behaviors related to patient safety and medical error	First-year medical student knowledge and attitudes about patient safety and medical error
Frye et al, 2006 <sup>44</sup>	Medical students	Complementary and Alternative Medicine Survey	Medical student knowledge and attitudes related to complementary and alternative medicine
Gaspar et al., 2008 <sup>45</sup>	Medical students	Assessment of curriculum and relationship between student and teacher, appropriate for both lecture and small-group formats	Instructional quality
Gooneratne et al, 2008 <sup>46</sup>	Residents	PHEEM	Postgraduate hospital educational environment
Haidet et al, 2008 <sup>47</sup>	Physicians, patients	CONNECT instrument	Patient and physician illness perspectives in primary care settings
Harlak et al, 2008 <sup>48</sup>	Medical students	Communication Skills Attitude Scale	Attitudes toward learning communication skills
Harvey et al, 2006 <sup>49</sup>	Medical students	Oddi Continuing Learning Inventory	Self-directed learning
Helayel et al, 2009 <sup>50</sup>	Residents, physicians	Measure of attitudes of anesthesiologists and anesthesiology residents at teaching and training centers regarding upper and lower limb blocks	Resident and anesthesiologist attitudes regarding peripheral nerve blocks
Hendry and Ginns, 2009 <sup>51</sup>	Medical students	Self-directed Learning Readiness Scale (SDLRS)	Readiness for self-directed learning

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Hojat et al, 2006 <sup>52</sup>	Physicians	Jefferson Scale of Physician Lifelong Learning (JeffSPLL)	Physician orientation toward lifelong learning
Hojat et al, 2009 <sup>53</sup>	Physicians	JeffSPLL	Physician orientation toward lifelong learning
Holt et al, 2010 <sup>54</sup>	Residents	Accreditation Council for Graduate Medical Education Resident/Fellow Survey	Graduate program quality and resident satisfaction
Kane et al, 2007 <sup>55</sup>	Patients	Jefferson Scale of Patient's Perceptions of Physician Empathy	Patient perceptions of physician empathic engagement
Kataoka et al, 2009 <sup>56</sup>	Medical students	Jefferson Scale of Physician Empathy–Student version (JSPE-S; Japanese translation)	Medical student empathy
Klein et al, 2007 <sup>57</sup>	Residents	Learning Styles Questionnaire (LSQ)	Learning styles
Lam et al, 2010 <sup>58</sup>	Residents	Questionnaire on stress-causing factors and stress-relieving means/resources	Resident stress factors and support needs
Leenstra et al, 2007 <sup>59</sup>	Residents	Quality Improvement Proposal Assessment Tool (QIPAT-7)	Resident quality improvement proposals
Leung et al, 2008 <sup>60</sup>	Problem-based learning (PBL) tutors	Tutotest-C (Chinese)	Medical student skills and attitudes in PBL
Lie et al, 2009 <sup>61</sup>	Standardized interpreters	Interpreter Scale (IS)	Medical student communication skills in interpreted patient encounters
Lin et al, 2007 <sup>62</sup>	Residents	Survey of residents' attitudes and behaviors related to work hour limitations and residents' perceptions of the impact of these limitations on their training experience	Resident perceptions of the impact of work-hour limitations on clinical experiences, patient care, resident education, well-being, and compliance
Lockyer et al, 2009 <sup>63</sup>	Physicians, laboratory staff	Multisource Feedback Instrument	Pathologist and laboratory medicine physician competence in clinical competence, collaboration, professionalism, and communication
McCormack et al, 2007 <sup>64</sup>	Medical students	Revised peer nomination form	Clinical competence and interpersonal skills

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McLaughlin et al, 2009 <sup>65</sup>	Physicians	Internal medicine clerkship evaluation tools, including in-training evaluation report (ITER), objective structured clinical examination (OSCE), and multiple choice questions (MCQs)	Medical student internal medicine clerkship declarative knowledge, information processing, and professionalism
McManus et al, 2006 <sup>66</sup>	Premedical students	Medical Situations Questionnaire	Generic motivations for studying medicine
Menachery et al, 2006 <sup>67</sup>	Physicians	Survey of behaviors or proficiencies related to providing, eliciting, or reflecting on feedback	Faculty feedback skills
Mihalynuk et al, 2008 <sup>68</sup>	Medical students	Survey of perceived nutrition proficiency (items informed by American Society of Clinical Nutrition) and adequacy of nutrition training (quality, quantity, coverage and importance of information)	Nutrition proficiency and adequacy of training
Mitchell et al, 2009 <sup>69</sup>	Residents	Cognitive Behavior Survey: Residency Level (rCBS)	Cognitive, metacognitive, and experiential aspects of resident learning
Nagraj et al, 2007 <sup>70</sup>	Medical students	Mini-Surgical Theatre Educational Environment Measure (mini-STEEM)	Educational environment in the operating room
Orlander et al, 2006 <sup>71</sup>	Residents	Resident Leadership Scale (RLS)	Team leadership skills of internal medicine resident
Park et al, 2009 <sup>72</sup>	Residents	Measurement of resident physicians' preparedness and skills to provide quality care to diverse patient populations	Perceived readiness and abilities to provide cross-cultural care
Pentzek et al, 2009 <sup>73</sup>	Physicians	Questionnaire on general practitioner attitudes toward early recognition and drug therapy, confidence in the management of dementia, and the practice of disclosing a diagnosis to patients and their relatives	General practitioner attitudes about dementia care
		Questionnaire on general practitioner knowledge related to dementia epidemiology, genetics, diagnosis, dementia symptoms, therapy, management, and support	General practitioner knowledge of dementia care

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Reinders et al, 2009 <sup>74</sup>	Patients	Patient Feedback on Consultation Skills questionnaire (PFC)	Patient perceptions of physician consultation skills
Riquelme et al, 2009 <sup>75</sup>	Medical students	PHEEM (Spanish translation)	Hospital educational environment
Rogers et al, 2009 <sup>76</sup>	Medical students	Career choice measure reflecting social cognitive career theory (SCCT) to assess attitudes and intentions regarding specialty choice	Behavioral attitudes and intention to choose a specialty
		Career choice measure reflecting SCCT to assess attitudes and intentions regarding practice location choice	Behavioral attitudes and intention to choose a practice location
Roh et al, 2010 <sup>77</sup>	Medical students	JSPE-S (Korean translation)	Medical student empathy
Sargeant et al, 2010 <sup>78</sup>	Interprofessional workshop participants	Interprofessional Education Facilitation Scale (IPFS)	Interprofessional education facilitation
Short et al, 2006 <sup>79</sup>	Physicians	Physician Readiness to Manage Intimate Partner Violence Survey (PREMIS)	Readiness to manage intimate partner violence
Singer and Carmel, 2009 <sup>80</sup>	Residents	Evaluation of palliative care training program for family medicine residents	Perceptions of skills and confidence in caring for terminally ill patients
Sladek et al, 2008 <sup>81</sup>	Medical students, residents, physicians	Inventory of Cognitive Bias in Medicine (ICBIM)	Cognitive bias in clinical decision making
Sodano and Richard, 2009 <sup>82</sup>	Students	Medical Specialty Preference Inventory (MSPI)	Medical specialty interests
Tian et al, 2010 <sup>83</sup>	Physicians	Adaptable continuing medical education (CME) survey, based on Theory of Planned Behavior (TPB), of attitudinal predictors of changes in physician practice	Attitudinal determinants of physician changes in practice after a CME intervention
Tromp et al, 2010 <sup>84</sup>	Resident, physicians	Nijmegen Professionalism Scale	General practitioner and resident professionalism

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Tsai et al, 2007 <sup>85</sup>	Medical students	Medical professionalism questionnaire based on ABIM definition of professionalism (Chinese translation)	Professionalism
Vasan et al, 2009 <sup>86</sup>	Medical students	Questionnaire on students' perceptions of team-based learning (TBL) and of teamwork during TBL sessions	Perceptions of TBL experiences
Vieira, 2008 <sup>87</sup>	Residents	PHEEM (Portugese translation)	Postgraduate hospital educational environment
Wall et al, 2009 <sup>88</sup>	Medical students, residents	PHEEM (international versions)	Postgraduate hospital educational environment
Wetzel et al, 2010 <sup>89</sup>	Medical students	Jefferson Scale of Physician Lifelong Learning–Medical Student version (JeffSPLL-MS)	Medical student orientation toward lifelong learning
Wittich et al, 2010 <sup>90</sup>	Physicians	Mayo Evaluation of Reflection on Improvement Tool (MERIT)	Resident reflection on quality improvement opportunities
Wright et al, 2006 <sup>91</sup>	Residents	Survey of internal medicine residents on perceptions of personal growth	Personal growth during residency

\* Refer to article's reference list for full citations.