

DOMAIN	ARTICLE REFERENCES	N	POPULATION	VIRTUAL REALITY SYSTEM			VR SIMULATOR	NON TECHNICAL SKILLS						OUTCOMES (KIRKPATRICK's LEVEL)				
				SB	VW	IV E		SA	DM	COM	TW	LD S	SM	FM	1	2	3	4
emergency medicine	Cohen et al., 2013 ⁽⁴¹⁾	23	Ambulance practitioner, surgical registrars, emergency department consultants		X		Second Life® + OpenSimulator	X	X	X	X	X	X		X	X		
emergency medicine	Greci et al., 2013 ⁽²⁷⁾	14	Emergency department nurses and hospital administrators		X		MUVE (Multi User Virtual Environment) using Second Life®		X	X	X				X	X		
emergency medicine	Heinrichs et al., 2010 ⁽⁴³⁾	22	Physicians and nurses		X		VED II (Virtual Emergency Department) an online virtual world				X				X			
emergency medicine	King et al., 2012 ⁽⁴⁵⁾	15	Medicine, nursing, respiratory therapy, pharmacy, speech language pathology, diagnostic medicine sonography students		X		Second Life®			X	X				X			
emergency medicine	Youngblood et al., 2008 ⁽³⁹⁾	30	Medical graduates and students		X		3D Virtual World (internet-based virtual emergency department)					X	X		X	X		
health education	Hudson et al., 2015 ⁽⁴⁴⁾	12	Nurses		X		Second Life®	X	X						X	X		
health education	Riesen et al., 2012 ⁽³²⁾	60	Recent graduates from nursing, paramedic, police and child and youth service programs		X		Web.Alive™			X	X	X			X	X		
health education	Rogers, 2011 ⁽⁴⁹⁾	16	Nursing students		X		Second Life®	X			X				X			
health education	Sweigart et al., 2016 ⁽³⁶⁾	109	Health professional students		X		VLE with avatar			X	X	X			X	X		
health education	Umoren et al., 2017 ⁽⁴⁸⁾	144	Nursing and medical students		X		VLE with avatar			X	X					X		

urology	Brewin et al., 2015 ⁽²⁴⁾	20	Experienced and trainee urologists	X		TURP Simulator (Limbs and Things®, Bristol, UK) distributed simulation environment	X	X	X	X	X			X	X		
urology	Brunckhorst et al., 2015 ⁽²⁵⁾	32	Medical students	X		Uro Scopic Trainer (Limbs and Things®, Bristol, UK) + Uro Mentor™ and Percmentor (Symbionix USA Corp., Cleveland, OH, USA)	X	X	X	X	X			X	X		
urology	Paige et al., 2007 ⁽⁴⁶⁾	10	Senior surgery resident, nurse anesthetist and circulating nurse	X		Symbionix LapMentor	X		X	X				X			
urology	Shamim Khan et al., 2013 ⁽³⁵⁾	38	Specialist registrars of different grades and urological nurses	X		Uro Mentor™ and Percmentor (Symbionix USA Corp., Cleveland, OH, USA)		X	X	X				X			
gastroenterology	Dorozhkin et al., 2016 ⁽⁴²⁾	49	Students to attending surgeons		X	VEST OR Simulator (Virtual Electrosurgical Skill Trainer) with Oculus Rift HMD	X					X		X			
gastroenterology	Abelson et al., 2015 ⁽⁴⁰⁾	33	Surgeons, residents and medical students		X	ICE STORM platform (Integrated Clinical Environment; Systems, Training, Operations, Research, Methods) (Lockheed Martin Corporation, Oswego, NY)				X				X			
gastroenterology	Grover et al., 2015 ⁽²⁸⁾	33	Novice endoscopists	X		EndoVR simulator endoscopy (CAE Healthcare Canada, Montreal, Quebec, Canada)			X					X	X		

gastroenterology	Khan et al., 2017 ⁽²⁹⁾	42	Novice endoscopists	X		EndoVR simulator Healthcare Montreal, Canada)	endoscopy (CAE Canada, Quebec,	X	X	X	X	X				X	X	
laparoscopic surgery	Maschuw et al., 2008 ⁽³¹⁾	40	Inexperienced and advanced surgical residents	X		LapSim® (Surgical Science, Sweden)	Goteborg,						X			X		
laparoscopic surgery	Sankaranarayanan et al., 2016 ⁽³⁴⁾	16	Surgeons and residents	X	X	Gen2-VR® system (HMD) and Gen1 VR (VBLAST-PT©)							X	X	X			
vascular surgery	Rudarakanchana et al., 2014 ⁽³³⁾	32	Experienced or trainee endovascular specialists, interventional radiology trainees and assistants, interventional radiology or vascular surgery consultants, scrub nurses and radiographers	X		(VIST)-C, Mentice, Gothenburg, Sweden				X	X					X		
vascular surgery	Willaert et al., 2011 ⁽³⁷⁾	20	Junior medical residents	X		AngioMentorExpress™ (Simbionix USA Corp., Cleveland, OH, USA)		X	X	X	X	X				X	X	
cardiology	Khanal et al., 2014 ⁽³⁰⁾	148	Certified clinicians		X	Second Life®					X					X		
cardiopulmonary resuscitation	Creutzfeldt et al., 2010 ⁽²⁶⁾	12	Medical students		X	Multiplayer virtual world (OLIVE, SAIC inc.)		X			X					X		
Orthopedic surgery	Wucherer et al., 2015 ⁽³⁸⁾	19	Junior surgeons	X		VR surgical procedural simulator							X	X	X			
Post Anesthesia Care Unit (PACU)	White et al., 2015 ⁽⁴⁷⁾	43	Nurses	X		2 Virtual Humans displayed on 2 screens (Wizard of Oz setup: converse with trainee)				X	X					X		

Note. N= Number of participants. Virtual reality system is coded : SB : Simulation-based virtual reality simulator ; VW : virtual world ; IVE : Immersive virtual environment.

Non technical skills are coded : SA : Situation awareness ; DM : Decision making ; COM : Communication ; TW : Teamwork ; LDS : Leadership ; SM : Stress management ;

FM : Fatigue management.