
Postgraduate Certificate in Medical Education and Simulation

Research Methods in Medical Education

Research Methods in Medical Education Glossary

A

Academic Medicine: Academic medicine refers to the branch of medicine that is focused on teaching, research, and patient care provided by medical schools and teaching hospitals. It involves the integration of medical education with clinical practice and research.

Assessment: Assessment in medical education refers to the process of evaluating the knowledge, skills, and attitudes of medical students or practitioners. It can take the form of exams, quizzes, practical assessments, and evaluations of clinical performance.

Assessment Methods: Assessment methods in medical education refer to the various techniques used to evaluate the performance of students or practitioners. These methods can include written exams, practical assessments, objective structured clinical examinations (OSCEs), and peer evaluations.

B

Backward Design: Backward design is an instructional design approach that involves starting with the end goals in mind and working backward to develop the curriculum. In medical education, this approach ensures that the curriculum is aligned with the desired learning outcomes.

Best Evidence Medical Education (BEME): Best Evidence Medical Education (BEME) is an international collaboration that aims to promote evidence-based education in the healthcare professions. BEME reviews the best available evidence to inform educational practice and policy.

Blended Learning: Blended learning is an educational approach that combines traditional face-to-face teaching with online learning. In medical education, blended learning can involve a mix of lectures, small group discussions, and online modules.

C

Case-Based Learning: Case-based learning is an instructional method that uses real or fictional cases to teach medical concepts and principles. Students analyze the case, make diagnoses, and develop treatment plans, promoting critical thinking and problem-solving skills.

Clinical Competency: Clinical competency refers to the ability of medical students or practitioners to

perform clinical tasks effectively and safely. Competency is assessed through evaluations of knowledge, skills, and attitudes in a clinical setting.

Cohort Study: A cohort study is a type of research design that follows a group of individuals over a period of time to study the development of a particular disease or condition. In medical education research, cohort studies can be used to examine the impact of educational interventions on student outcomes.

D

Deliberate Practice: Deliberate practice is a focused and structured approach to skill development that involves repeating tasks, seeking feedback, and making improvements over time. In medical education, deliberate practice is essential for mastering clinical skills.

Descriptive Study: A descriptive study is a type of research design that aims to describe the characteristics of a particular population or phenomenon. In medical education research, descriptive studies can provide valuable insights into the factors influencing student learning.

Diagnostic Study: A diagnostic study is a type of research design that evaluates the accuracy of a diagnostic test or tool. In medical education research, diagnostic studies can assess the effectiveness of assessments in predicting student performance.

E

Educational Outcomes: Educational outcomes in medical education refer to the knowledge, skills, and attitudes that students are expected to acquire by the end of a course or program. Outcomes are usually defined in terms of competencies that students should demonstrate.

Educational Research: Educational research in medical education involves the systematic investigation of teaching and learning processes to improve educational practice. Research methods in educational research can include qualitative and quantitative approaches.

Empirical Study: An empirical study is a type of research design that relies on observation and experimentation to gather data. In medical education research, empirical studies can provide evidence to support educational interventions.

F

Formative Assessment: Formative assessment in medical education refers to ongoing evaluations that provide feedback to students to improve their learning. Formative assessments can take the form of quizzes, peer evaluations, and self-assessments.

Focus Group: A focus group is a qualitative research method that involves a small group of participants discussing a particular topic or issue. In medical education research, focus groups can provide insights into

student perceptions and experiences.

G

Grounded Theory: Grounded theory is a qualitative research method that involves developing theories based on data collected from observations and interviews. In medical education research, grounded theory can help researchers understand the underlying processes influencing student learning.

Group Dynamics: Group dynamics refer to the interactions and relationships between individuals in a group setting. In medical education, understanding group dynamics is important for promoting collaboration and effective teamwork among students.

H

Historical Study: A historical study is a type of research design that examines past events and trends to understand their impact on the present. In medical education research, historical studies can provide insights into the evolution of educational practices.

Hybrid Simulation: Hybrid simulation is a simulation-based training method that combines physical manikins with virtual reality technology. In medical education, hybrid simulation can provide realistic clinical scenarios for students to practice their skills.

I

Instructional Design: Instructional design is the process of planning, developing, and evaluating educational materials and activities to achieve specific learning objectives. In medical education, instructional design ensures that the curriculum is effective and engaging for students.

Interprofessional Education (IPE): Interprofessional education (IPE) involves teaching students from different healthcare professions to work together as a team. In medical education, IPE promotes collaboration, communication, and mutual respect among healthcare providers.

Interview Study: An interview study is a qualitative research method that involves collecting data through interviews with participants. In medical education research, interview studies can provide in-depth insights into student experiences and perspectives.

J

Just-in-Time Teaching (JiTT): Just-in-Time Teaching (JiTT) is an instructional strategy that involves giving students assignments or quizzes before a class session to gauge their understanding of the material. In medical education, JiTT helps instructors tailor their teaching to students' needs.

K

Key Performance Indicators (KPIs): Key performance indicators (KPIs) are measurable metrics used to evaluate the performance of individuals or organizations. In medical education, KPIs can include student retention rates, exam scores, and student satisfaction surveys.

L

Longitudinal Study: A longitudinal study is a type of research design that follows a group of individuals over an extended period of time to study changes and developments. In medical education research, longitudinal studies can track student progress and outcomes.

M

Meta-Analysis: A meta-analysis is a research method that combines and analyzes the results of multiple studies on a particular topic to draw conclusions. In medical education research, meta-analyses can provide a comprehensive overview of the effectiveness of educational interventions.

Mixed-Methods Research: Mixed-methods research is a research design that combines qualitative and quantitative data collection and analysis techniques. In medical education research, mixed-methods studies can provide a more comprehensive understanding of complex issues.

N

Needs Assessment: Needs assessment in medical education involves identifying gaps in knowledge, skills, and attitudes that need to be addressed through educational interventions. Needs assessments can inform the development of curricula and educational programs.

O

Objective Structured Clinical Examination (OSCE): An Objective Structured Clinical Examination (OSCE) is a standardized assessment method used to evaluate clinical skills and competencies. In medical education, OSCEs involve stations where students interact with standardized patients to demonstrate their skills.

Observational Study: An observational study is a type of research design that involves observing and recording data without intervening in the study participants' behavior. In medical education research, observational studies can provide insights into student behaviors and interactions.

P

Participatory Action Research (PAR): Participatory Action Research (PAR) is a research approach that involves collaboration between researchers and participants to address real-world problems. In medical education research, PAR can engage stakeholders in the research process to create meaningful change.

Peer Assessment: Peer assessment in medical education involves students evaluating the performance of

their peers. Peer assessments can provide valuable feedback and promote self-reflection and collaboration among students.

Phenomenological Study: A phenomenological study is a qualitative research method that aims to understand the lived experiences of individuals. In medical education research, phenomenological studies can explore student perceptions and emotions related to learning.

Q

Qualitative Research: Qualitative research is a research approach that focuses on understanding human behavior, experiences, and perspectives through methods such as interviews, observations, and focus groups. In medical education research, qualitative studies can provide rich insights into complex educational issues.

Quantitative Research: Quantitative research is a research approach that involves collecting and analyzing numerical data to test hypotheses and make predictions. In medical education research, quantitative studies can provide objective measurements of student learning and performance.

Questionnaire Study: A questionnaire study is a research method that involves collecting data through structured surveys or questionnaires. In medical education research, questionnaire studies can gather information on student perceptions, attitudes, and behaviors.

R

Randomized Controlled Trial (RCT): A randomized controlled trial (RCT) is a research design that randomly assigns participants to different groups to test the effectiveness of an intervention. In medical education research, RCTs can provide strong evidence of the impact of educational interventions on student outcomes.

Reflective Practice: Reflective practice in medical education involves self-assessment, self-awareness, and critical reflection on one's teaching or clinical practice. Reflective practice can help educators identify areas for improvement and enhance their teaching effectiveness.

Research Design: Research design in medical education refers to the overall plan or strategy for conducting a research study. The research design outlines the methods, procedures, and data analysis techniques used to address the research questions.

S

Simulation-Based Training: Simulation-based training in medical education involves using simulators, manikins, and virtual reality technology to provide realistic clinical scenarios for students to practice their skills. Simulation-based training can enhance student learning and clinical competency.

Survey Study: A survey study is a research method that involves collecting data through structured questionnaires or surveys. In medical education research, survey studies can gather information on student attitudes, perceptions, and behaviors.

Systematic Review: A systematic review is a research method that summarizes and synthesizes the results of multiple studies on a particular topic. In medical education research, systematic reviews can provide a comprehensive overview of the existing evidence on educational interventions.

T

Teaching Strategies: Teaching strategies in medical education refer to the methods and techniques used to deliver instruction and facilitate student learning. Teaching strategies can include lectures, case-based learning, problem-based learning, and small group discussions.

Time Series Study: A time series study is a research design that examines changes in a particular variable over time. In medical education research, time series studies can track trends in student performance, learning outcomes, and educational practices.

U

Usability Testing: Usability testing involves evaluating the ease of use and effectiveness of educational materials, tools, or technologies. In medical education, usability testing can ensure that instructional materials are user-friendly and support student learning.

V

Validity: Validity in research refers to the extent to which a study measures what it intends to measure. In medical education research, validity is essential to ensure that assessments, instruments, and research findings are accurate and reliable.

Virtual Patient: A virtual patient is a computer-based simulation of a patient that allows students to practice clinical skills and decision-making in a realistic virtual environment. Virtual patients are used in medical education to enhance student learning and clinical competency.

W

Web-Based Learning: Web-based learning, or e-learning, involves delivering educational content and activities online. In medical education, web-based learning can include online modules, virtual patient simulations, and interactive quizzes to enhance student learning.

X

X-Plain: X-Plain is an interactive multimedia program developed by the National Institutes of Health (NIH) to

help patients understand medical procedures, conditions, and treatments. In medical education, X-Plain can be used to enhance patient education and communication skills.

Y

Yield: Yield refers to the amount of learning or knowledge gained from a particular educational intervention or activity. In medical education, educators aim to maximize the yield of educational interventions to enhance student learning and performance.

Z

Zero-Inflated Model: A zero-inflated model is a statistical model used to analyze data with excess zeros or an overabundance of zero values. In medical education research, zero-inflated models can be used to account for data distributions that deviate from normal assumptions.