

Competencies for Training Grants

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Goals

- What are competencies?
- How can you develop them?
- How can you use competencies in your training program?
- How do you assess trainees' competency development?
- What resources are available for competency development?

What are competencies?

Core competency is a defined level of competence in a particular job or academic program.

Refers to someone's set of skills or experience in some activity or domain.

Competency Example: Leadership

Diversity and inclusion - fosters a diverse and respectful workplace where team members are valued for who they are

Empowers others - gives employees confidence and allows freedom to complete tasks

Ethics - sets a positive example for others by following high ethical standards

Influence - enlists the support and cooperation of others and encourages them to be proactive

Strategic-minded - focuses on the big picture, ensuring that goals and objectives are strategically aligned with the organization's vision and mission

Team building - establishes and guides a team effort that promotes a common goal; builds team cohesiveness

Competencies are Organized into Domains/Areas

- **Clinical & Translational Research**

- Clinical & translational research questions
- Literature critique
- Study design
- Research implementation
- Sources of error
- Scientific communication
- Cultural diversity
- Translational teamwork
- Leadership
- Cross-disciplinary training
- Community engagement

CHARACTERISTICS OF A TRANSLATIONAL SCIENTIST

Translation is the process of turning observations in the laboratory, clinic and community into interventions that improve the health of individuals and the public – from diagnostics and therapeutics to medical procedures and behavioral changes. The professionals involved in this process, either developing interventions or improving the process itself, are *TRANSLATIONAL SCIENTISTS*.

RIGOROUS RESEARCHER

Conducts research at the highest levels of rigor and transparency, possesses strong statistical analysis skills, and designs research projects to maximize reproducibility.

BOUNDARY CROSSER

Breaks down disciplinary silos and collaborates with others across research areas and professions to collectively advance the development of a medical intervention.

TEAM PLAYER

Practices a team science approach by leveraging the strengths and expertise and valuing the contributions of all players on the translational science team.

PROCESS INNOVATOR

Seeks to better understand the scientific and operational principles underlying the translational process, and innovates to overcome bottlenecks and accelerate that process.

DOMAIN EXPERT

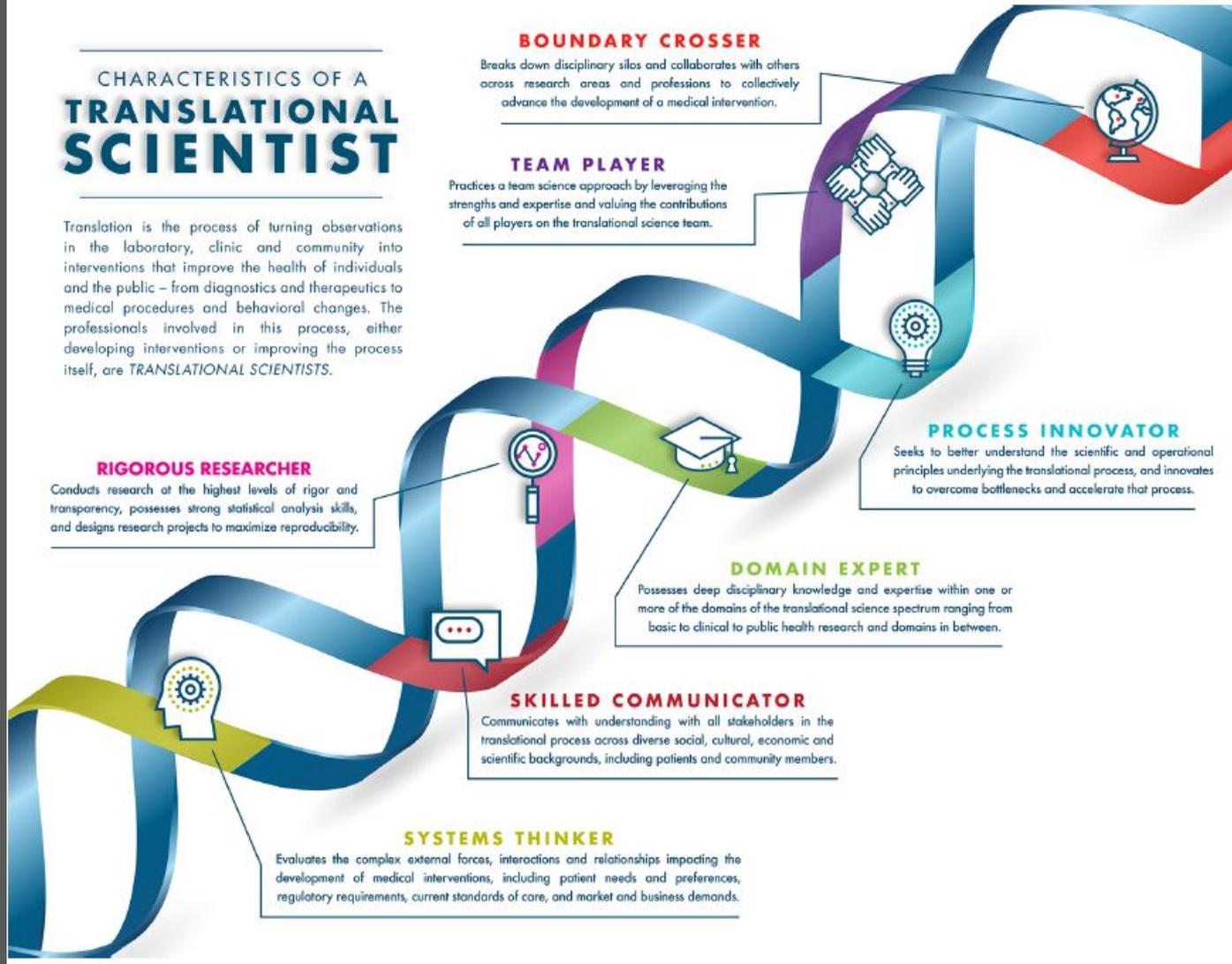
Possesses deep disciplinary knowledge and expertise within one or more of the domains of the translational science spectrum ranging from basic to clinical to public health research and domains in between.

SKILLED COMMUNICATOR

Communicates with understanding with all stakeholders in the translational process across diverse social, cultural, economic and scientific backgrounds, including patients and community members.

SYSTEMS THINKER

Evaluates the complex external forces, interactions and relationships impacting the development of medical interventions, including patient needs and preferences, regulatory requirements, current standards of care, and market and business demands.



Competencies are defined & listed for each domain

Scientific Communication

1. Communicate clinical and translational research findings to different groups of individuals, including colleagues, students, the lay public, and the media.
2. Translate the implications of clinical and translational research findings for clinical practice, advocacy, and governmental groups.
3. Write summaries of scientific information for use in the development of clinical health care policy.
4. Translate clinical and translational research findings into national health strategies or guidelines for use by the general public.
5. Explain the utility and mechanism of commercialization for clinical and translational research findings, the patent process, and technology transfer.

How can competencies be used in training programs?

Communicate expectations for trainees **clearly**

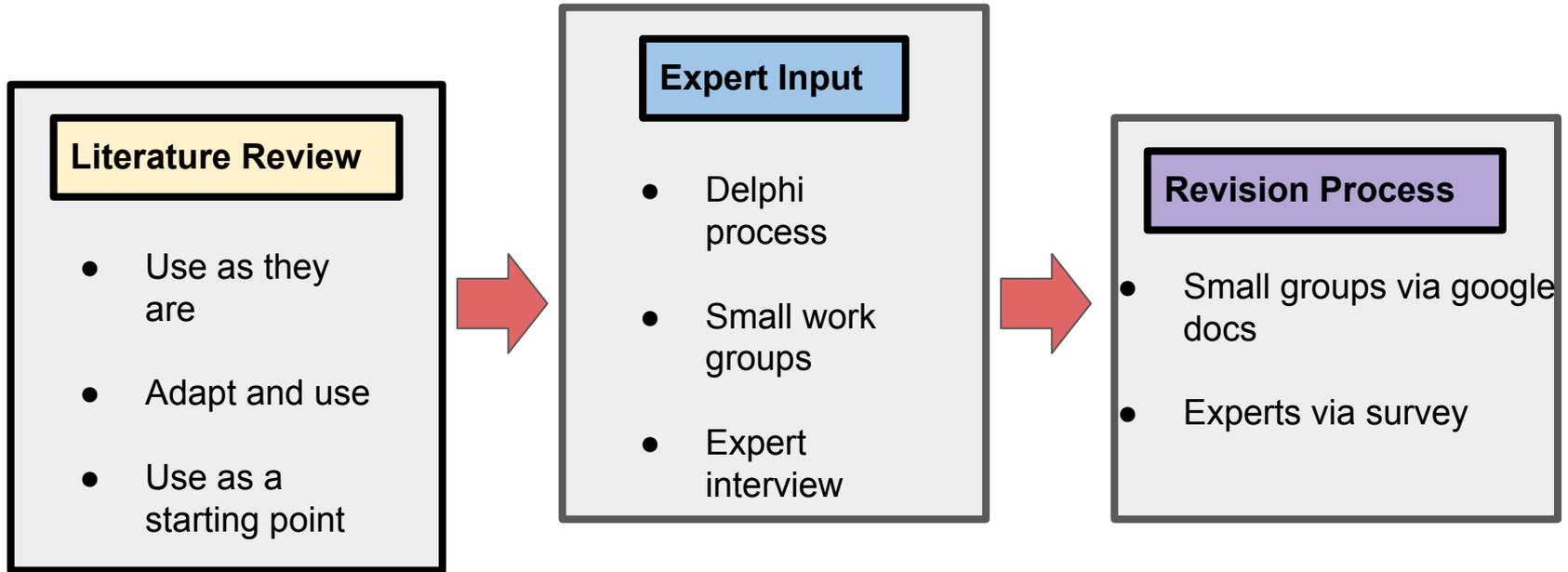
Design specific activities to facilitate development of the competencies

Assess trainees' progress

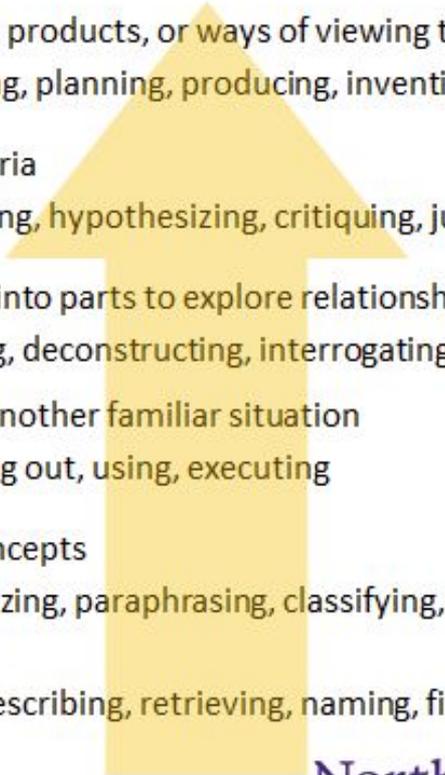
Have conversations between mentors and mentees about their progress

Facilitate **meaningful & specific conversations** about **IDP's**

How can you develop competencies?



What kind of thinking do you want from your students?



Creating	Generating new ideas, products, or ways of viewing things Designing, constructing, planning, producing, inventing	Bloom's Revised Taxonomy (Cognitive)
Evaluating	Judging based on criteria Experimenting, checking, hypothesizing, critiquing, justifying	
Analyzing	Breaking information into parts to explore relationships Comparing, organizing, deconstructing, interrogating, finding	
Applying	Using information in another familiar situation Implementing, carrying out, using, executing	
Understanding	Explaining ideas or concepts Interpreting, summarizing, paraphrasing, classifying, explaining	
Remembering	Recalling information Recognising, listing, describing, retrieving, naming, finding	

Competency Assessment: Levels of Mastery

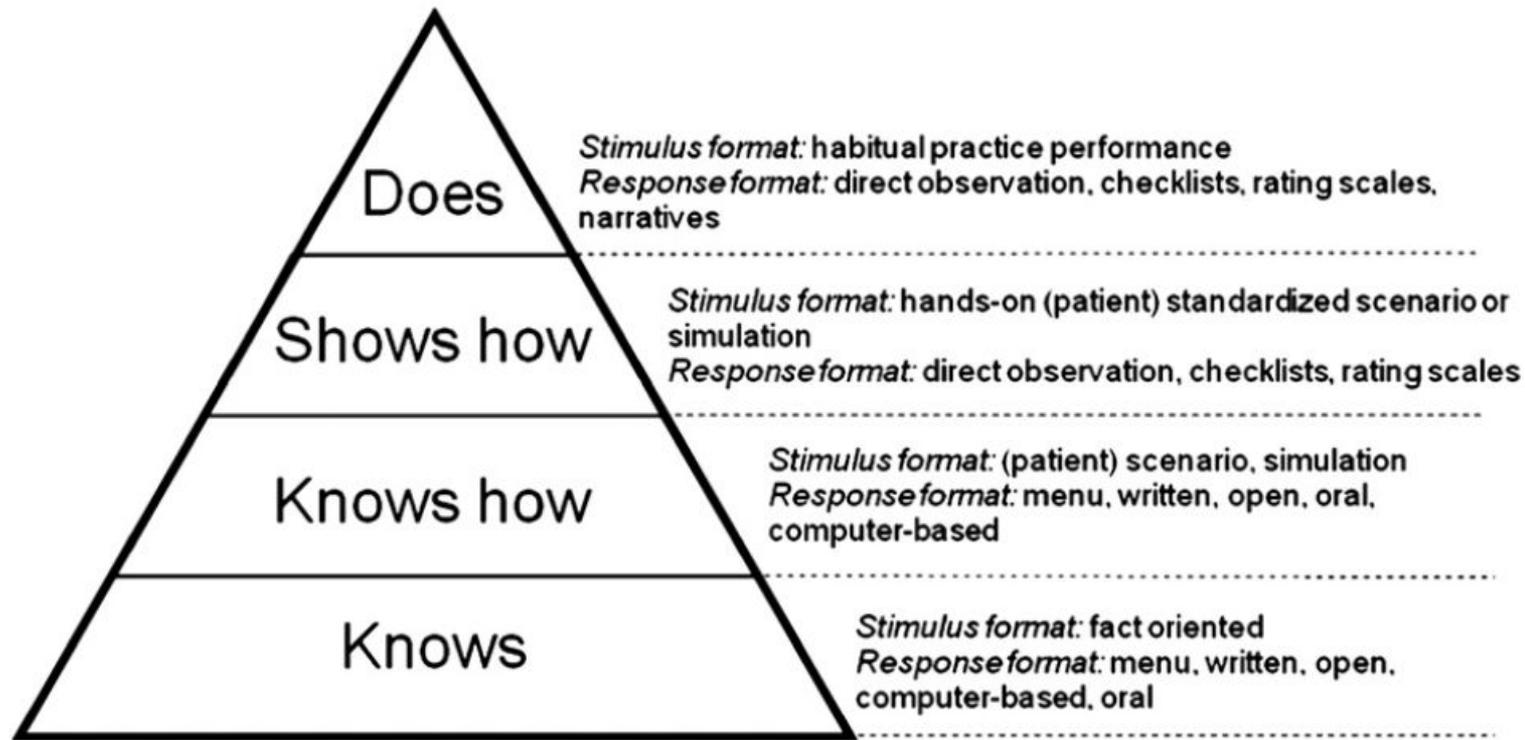


Fig. 1. Miller's pyramid and types of assessment used for assessing the layers.

Mastery Levels

Table 2. *Final mastery levels*

Mastery level	Definition
Exposure	An introduction to the competency and meaningful/relevant vocabulary. Training may be done in large groups with different disciplines.
Application	More substantial skills training that will be used to initiate and implement a specific research endeavor within a mentored experience or ultimately with collaborators.
Integration	In-depth training with a goal for the learner to become independent in using the skills in their own research.
N/A	Training is not required for this phenotype.

Mastery Levels

Mastery Level	Definition
No exposure	No exposure
Foundational	Is aware of or has a basic understanding
Emerging	Applies or implements
Proficient	Implements at a higher level Evaluates, critiques Refines, improves Integrates

Mastery can involve integration of skills

Competency: Demonstrate knowledge of participatory research approaches that foster participation and engagement of vulnerable populations.

Foundational	Emerging	Proficient
<p>Knows and understands the types of roles of research partners including patients and other stakeholder partners.</p>	<p>Roles and decision-making authority of all research partners, including the patient and other stakeholder partners, are defined and clearly stated by the research</p>	<p>Roles and decision-making authority of all research partners, including the patient and other stakeholder partners, are defined collaboratively and clearly stated.</p>

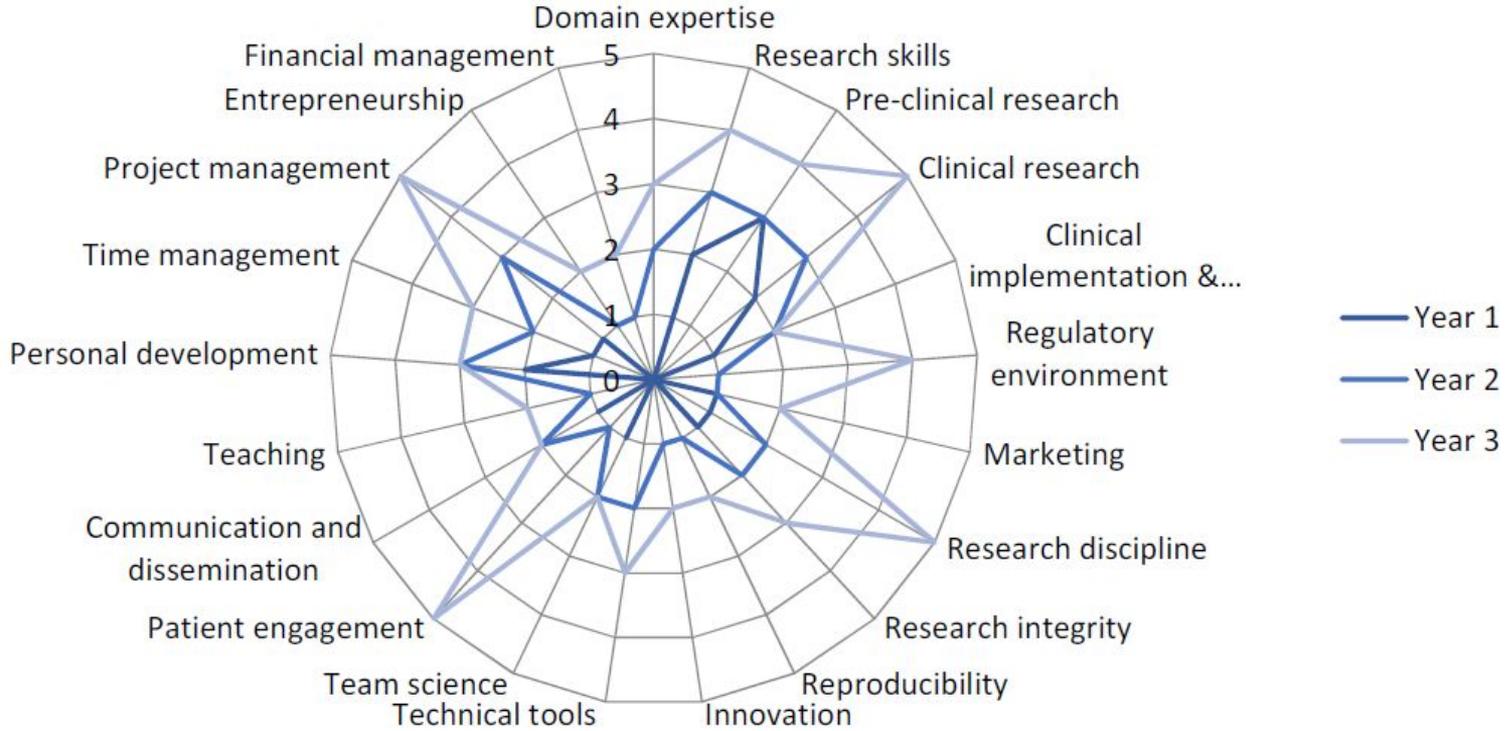
Assessing Competencies: ERASMUS

Rate your skills using the following 5-point scale:

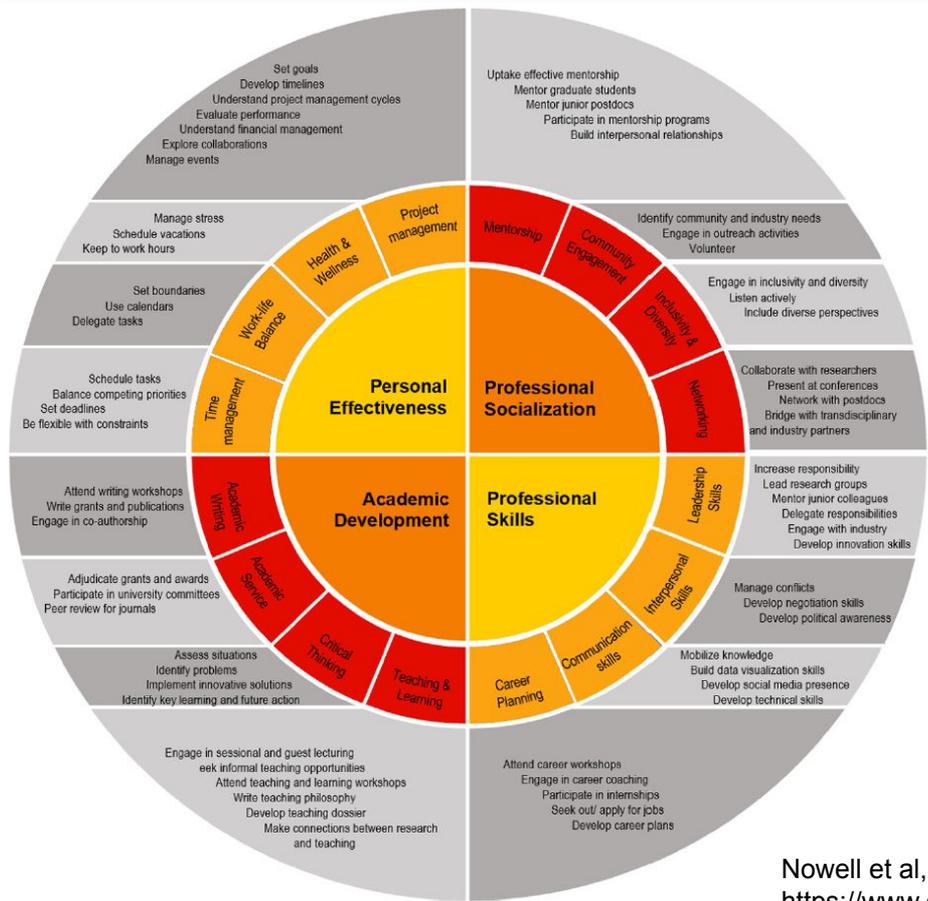
1	Poor skills/ experience
2	Moderate skills/ experience
3	Acceptable skills/ experience
4	Good skills/ experience
5	Excellent skills/ experience

Research skills		Year 1	Year 2	Year 3	Year 4	Year 5
A translational scientist is able to formulate clear research questions and hypotheses, design solid research protocols and demonstrates in-depth knowledge of his/ her field and the challenges that lie ahead.						
Domain expertise	Possesses deep knowledge and expertise within a particular domain of the translational science spectrum. Indicate your expertise/specialization area (e.g. Immunology; Pharmacology; Medicine): _____					
Research skills	Demonstrates ability to design solid research experiments using appropriate data collection and analysis methods					

ERASMUS: Trainee competency profile Over 3 years



Using competencies for program design



Map competencies to program

Competency	Coursework	Seminars	Invited Talk
Research Methods 1. Developing question	x	x	
Research Methods 2. Integrating stakeholder input to research question	x	x	x
3. Creating impactful research questions	x		

PEC Website Resources

- Grant Writing
- Diversity, Equity & Inclusion
- Team Science
- Patient Centered Outcomes Research
- Comparative Effectiveness Research
- Clinical & Translational Research
 - Clinical & translational research questions
 - Literature critique
 - Study design
 - Research implementation
 - Sources of error
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In small groups...

1. What have you done, or are you planning to do in the area of competencies?
2. What challenges did you or will you face?
3. What resources have you found?