



U.S. Army Research Institute for the Behavioral and Social Sciences (ARI)

Mapping Assessments to Competencies (MAC) Process

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Jacqueline Deuling, PhD
Army Research Institute
Jacqueline.k.deuling.civ@army.mil

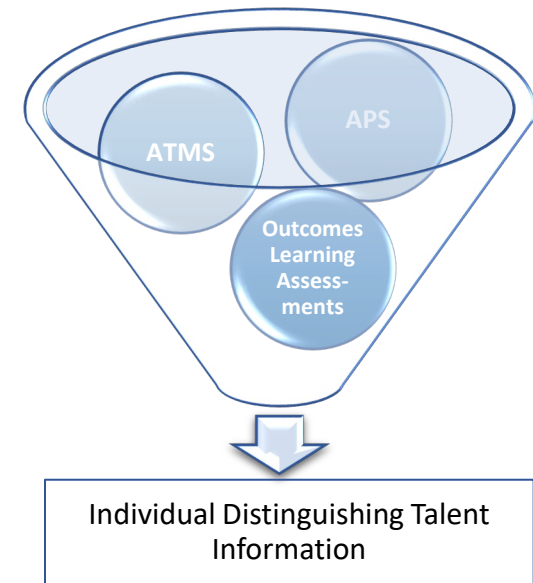
Heather Wolters, PhD
Center for Naval Analysis
woltersh@cna.org



Mapping Assessments to Competencies (MAC) Rationale



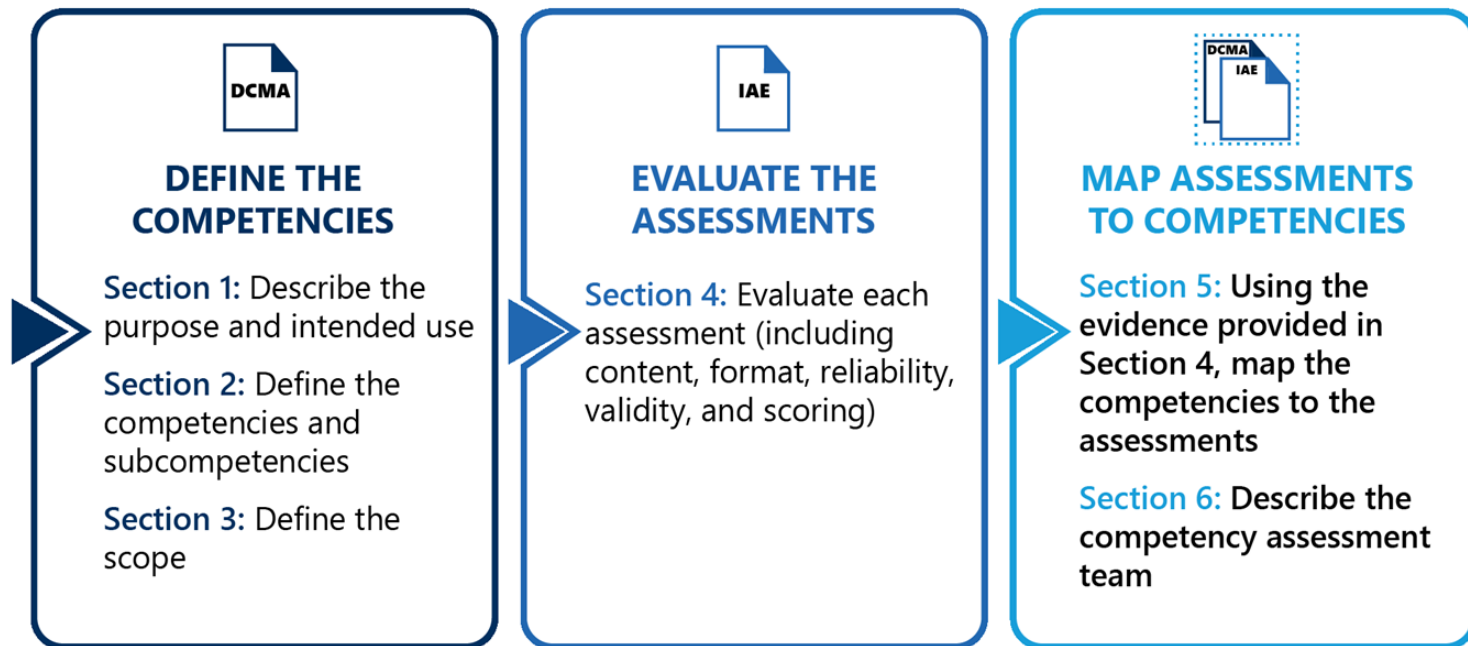
- The Army People Strategy (APS) calls for:
 - Systems that understand and appreciate unique talents, and
 - Talent assessments in education and leader development.
- The Army Talent Management Strategy (ATMS) calls for:
 - Continuous talent assessments, supported by data-rich information systems, and
 - Individual talents comprehensively assessed across all domains
- Officer PME Policy (OPMEP) emphasizes direct assessments of student achievement.
- The MAC process addresses APS, ATMS, and OPMEP intent by:
 - Creating a process to identify and map existing assessments (including activities, projects, and peer evaluations) to competencies, and
 - Establishing a long-term goal to use competency proficiency information to distinguish personnel and inform the talent management system.





The MAC Process

The MAC process is intended to examine and evaluate existing assessments (e.g., ratings, scoring rubrics) and determine alignment of assessments to a key competency of interest.





Assessment Levels and Evidence Required



The purposes of assessments should align with the type of evidence required to justify their use.

- **Developmental assessments** provide feedback to a learner or instructor on current levels of competency development and may provide a guide for how to improve.
- **Diagnostic assessments** provide evidence regarding alignment of competencies or traits to assignments and occupations (but should not be used to make selection decisions).
 - Diagnostic-low – more rigor and content validation than developmental
 - Diagnostic-high – demonstrated construct validity
- **Predictive assessments** are criterion validated, meaning they are predictive of an outcome of interest (e.g., job performance). There are legal implications to the use of predictive assessments, especially when used for selection.

As the stakes of the decision being made based on the assessment increases, so do the requirements for rigorous assessment development and validation



Pilot of the MAC Process



- 10 educational assessments from CGSOC-core courses were analyzed using the MAC process:
 - 4 assessments concerned contributions to group learning (CTGL), 1 through a practical exercise,
 - 3 were written/constructed,
 - 2 concerned comprehensive oral boards, and
 - 1 was a multiple-choice exam.
- There were 6 focal competencies targeted, including 46 associated sub-competencies. These were:
 - Decision Making, Problem Solving, Oral Communication, Written Communication, General Communication, and Active Listening.



Multiple Subcompetencies were Assessable across Assessment Types



Category	Competency	Essay/case study	Multiple choice	CTGL	Oral boards
Cognitive	Problem solving	4/8	3/8	1/8	1/8
	Decision making	2/9	3/9	1/9	0/9
Communication	Written comm.	4/5	1/5	0/5	0/5
	General comm.	2/12	0/12	3/12	2/12
	Active listening	0/5	0/5	1/5	0/5
	Oral comm.	0/7	0/7	1/7	2/7

Example: Across 3 essay/case studies, on average 4 of 8 problem solving subcompetencies were assessable at the developmental or diagnostic-low level

For those that were not, the primary reason was that the assessment did not evaluate the subcompetency, regardless of original design or rubric.



Multiple Assessments Used for Developmental or Diagnostic-Low Purposes



Category	Subcompetencies within	Essay/case study	Multiple choice	CTGL	Oral boards
Cognitive	Problem solving	Diag-low/Dev	Developmental	Developmental	Developmental
	Decision making	Diag-low/Dev	Developmental	Developmental	
Communication	Written comm.	Diag-low/Dev	Developmental		
	General comm.	Diag-low/Dev		Developmental	Diag-low/Dev
	Active listening			Developmental	
	Oral comm.			Developmental	Diag-low/Dev

No assessments from the pilot, in their current form, could be used for diagnostic-high or predictive uses.



Minor Changes to Assessments Could Make them Appropriate for Higher-Level Uses



Assessment level	Most common revisions required to achieve this level
Developmental	<ul style="list-style-type: none">• Ensure scoring rubric evaluates the identified subcompetency
Diagnostic-Low	<ul style="list-style-type: none">• Ensure assessment evaluates subcompetency on content and format that aligns with career level• Ensure scoring rubric contains specific description of performance levels• Ensure raters are qualified
Diagnostic-High	<ul style="list-style-type: none">• Ensure rubric provides examples of student responses at each score level• Ensure unbiasedness of assessment design and outcomes• Provide evidence of construct validity

In all cases, students should be informed of the additional intended uses for the assessment.



The MAC Process: Lessons-Learned



- The MAC Process provides a comprehensive and replicable method for evaluating assessments in one context for broader applicability for measuring competencies by:
 - Leveraging the Standards for Educational and Psychological Testing,
 - Evaluating evidence of validity, reliability/precision, and fairness,
 - Making systematic judgments based on established assessment standards, and
 - Allowing practitioners to “work backwards” from assessments already created.
- A pilot test conducted to refine the MAC process demonstrated that:
 - The MAC Process can differentiate between assessment types, subcompetencies, and levels of assessment;
 - Some assessments may be used to measure subcompetencies at the developmental or diagnostic-low level, although
 - Additional evidence is required for diagnostic-high or predictive uses.



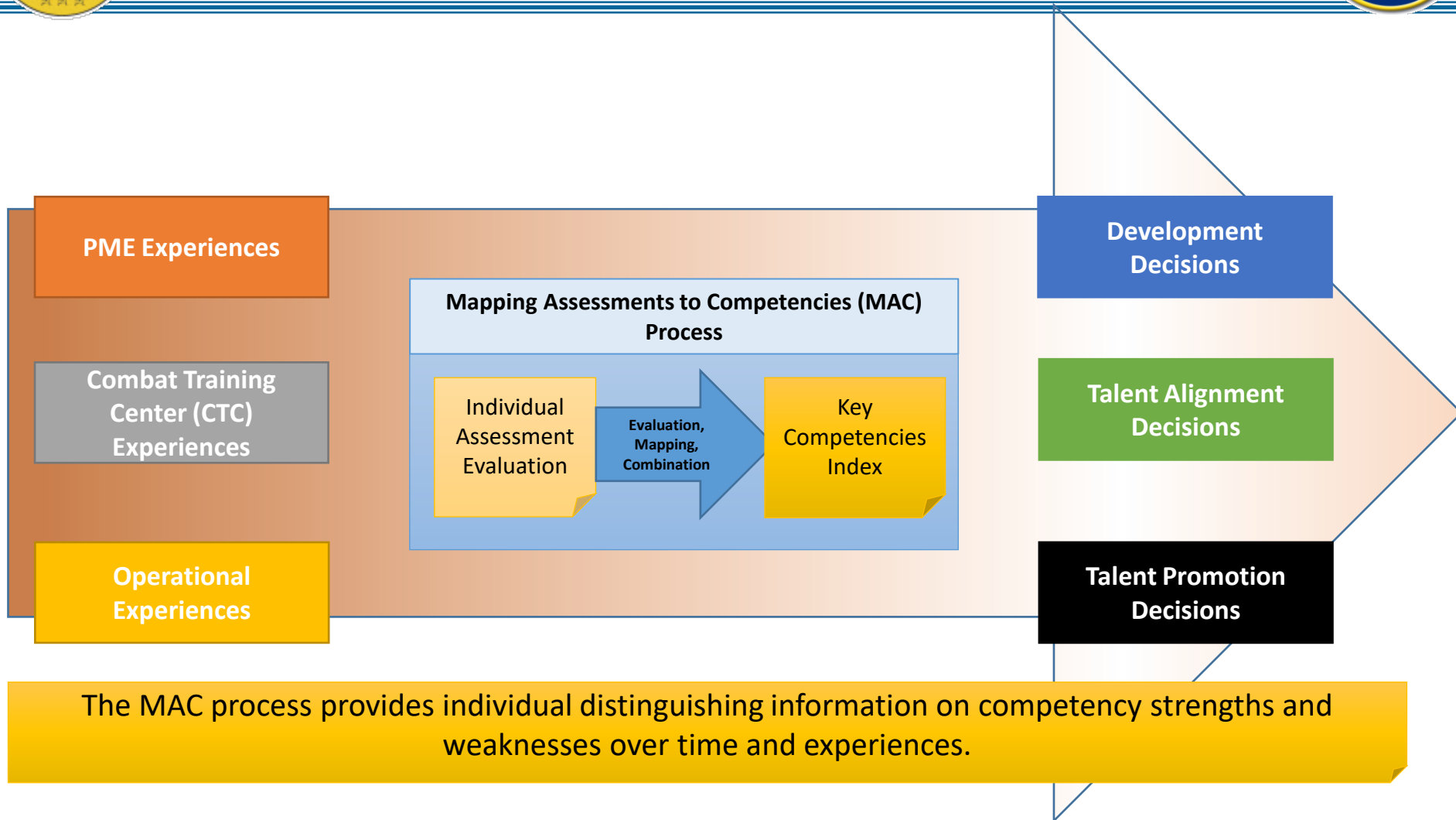
Ongoing Research



- Evaluating the extent to which the MAC Process can be executed by those unfamiliar with its development
 - The MAC Process training materials are being updated to include suggestions and changes from pilot research with CGSS Curriculum Developers and Department Chairs.
- Exploring the extent to which competency assessments can be combined to provide an indicator of Officer competencies.
 - What research and technical processes are needed to combine results of multiple assessments into a measure that may be used to inform talent management?



The MAC Process: Future Directions



The MAC process provides individual distinguishing information on competency strengths and weaknesses over time and experiences.



Questions, Comments, Suggestions?



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14. ABSTRACT The Army's Talent Management Strategy (ATMS) details the importance of demonstrating and measuring expertise rather than depending on time in grade, service, or position for development or promotion decisions. Throughout the educational and training process, the Army assesses its personnel. To support ATMS objectives, the Mapping Assessments to Competencies (MAC) process is being developed to explore the extent to which existing educational, training, or operational assessments could be used to evaluate Army personnel on mastery of specific competencies for application in ATMS initiatives. The purpose of the MAC process is to allow the Army to develop a more dynamic collection of talent assessments that measure the unique knowledge, skills, behaviors, and preferences of Army soldiers and civilians. A pilot project of the MAC process using material from CGSOC core courses is described. Current research includes evaluating MAC user training and research to identifying mechanisms for combining disparate competency assessment scores into a single competency index to be used for future talent management decisions.					
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