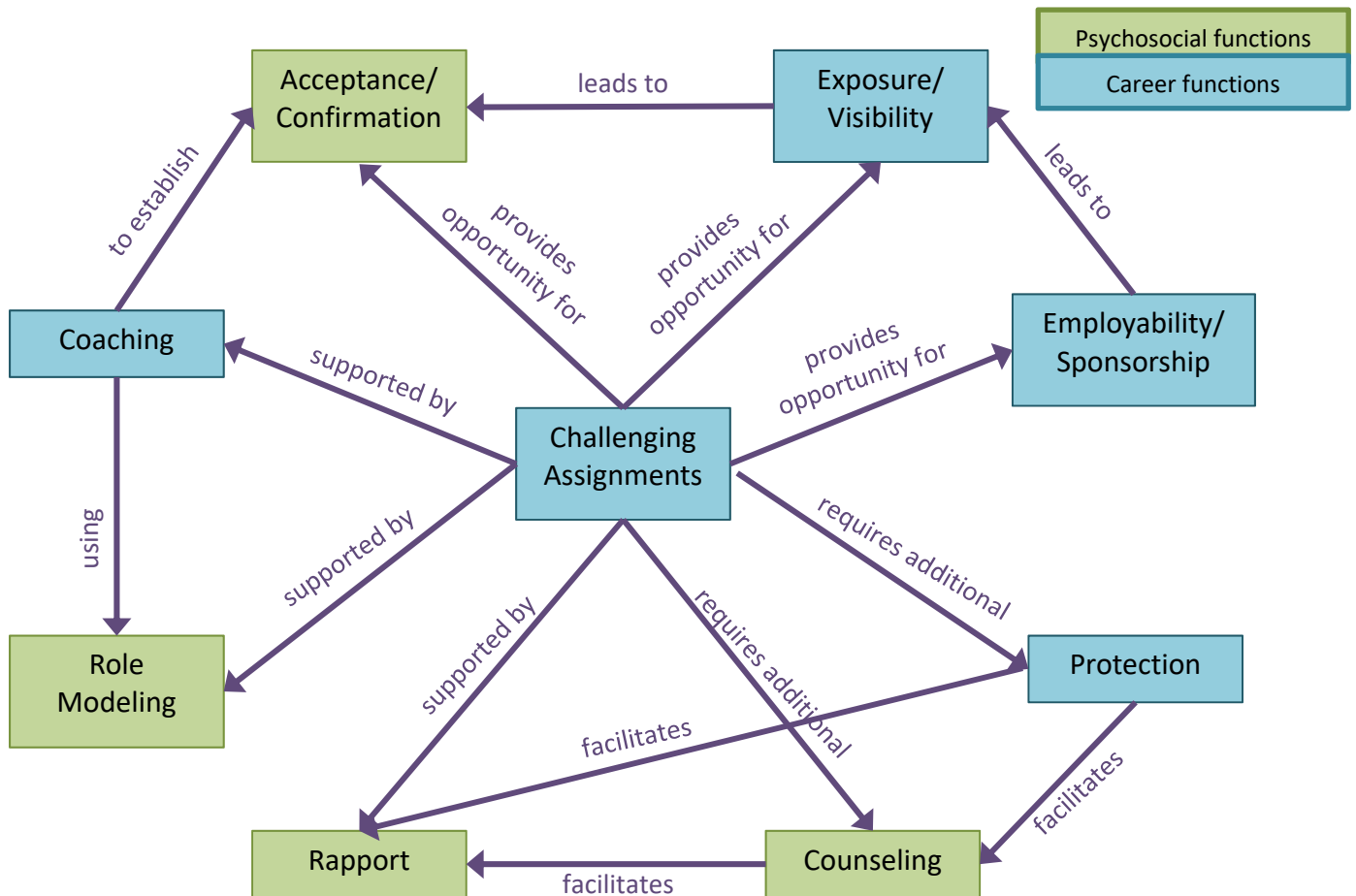


Model of Mentoring in Engineering Capstone Courses: Functions and Practices

Career Development functions support students' careers by providing necessary skills and opportunities for advancement. **Psychosocial Development** functions support students' developing sense of self and identity.

	Function	Operational Definition	Associated Practices
Career Development	Employability/ Sponsorship	To provide students with access, opportunities, and materials that will assist them in attaining employment.	<ul style="list-style-type: none"> • Provide access to potential future employers • Develop materials for job attainment
	Exposure/ Visibility	To provide students with diverse opportunities to exhibit their skills and knowledge that facilitate acclaim and feedback and enculturate students in engineering practice.	<ul style="list-style-type: none"> • Interact with professionals • Showcase student work
	Coaching	To impart knowledge pertaining to technical engineering and professional skills through a variety of pedagogical approaches.	<ul style="list-style-type: none"> • Direct Instruction • Modeling • Direct to resources • Serve as a sounding board and questioner
	Protection	To prevent student from failing to learn, failing projects, and poor relationships with clients through administration and execution of the course.	<ul style="list-style-type: none"> • Select projects & form teams • Ensure accountability • Supply resources • Be available • Know status of project & team
	Challenging Assignments	To develop students' technical and professional skills by providing them with complex realistic projects.	<ul style="list-style-type: none"> • Integrate previous learning • Offer new and relevant experiences • Address a full project cycle
Psychosocial Development	Role Modeling	To develop attitudes, values, and behaviors of the field through interactions with the students.	<ul style="list-style-type: none"> • Model behaviors and approaches • Describe engineering and professional work experiences • Express personal values • Establish a class setting that mimics workplace
	Acceptance/ Confirmation	To aid in the development of a student's self-efficacy and identity as a practicing engineer.	<ul style="list-style-type: none"> • Create a sense of accomplishment • Encourage personal ownership and responsibility
	Counseling	To guide teams and students through difficult interpersonal and personal problems	<ul style="list-style-type: none"> • Allow students to handle it on their own • Provide suggestions • Personally handle situations
	Rapport	To develop interpersonal relationships with students that establish an environment in which students feel comfortable approaching the faculty.	<ul style="list-style-type: none"> • Cultivate approachability • Know students' skills, knowledge, and personal attributes

Model of Mentoring in Engineering Capstone Courses: Interactions Among Functions



Data Sources

- Survey of 1258 capstone design instructors (491 respondents representing 40% of the 1862 ABET- accredited programs and 53% of ABET-accredited institutions)
- Interviews with purposive sample of 42 survey participants across all major engineering disciplines; sample was sufficient to achieve response saturation
- Survey of 139 capstone design students

Pembridge, James J. (2011) *Mentoring in Engineering Capstone Design Courses: Beliefs and Practices across Disciplines*. Doctoral Dissertation. Virginia Tech, Blacksburg, VA.

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