Fifth Year Interim Report

Part V: QEP Impact Report

Strengthening Leadership through Enhanced Creative Problem Solving

Prepared for

Southern Association of Colleges and Schools
Commission on Colleges
10 March 2021

Executive Summary

As a result of reviewing data from five years of student and faculty surveys, in person focus groups, and on-line inputs from students, faculty, and staff from across Marine Corps University (MCU), the President of Marine Corps University selected *Strengthening Leadership through Enhanced Creative Problem Solving* as the topic for the university's Quality Enhancement Plan (QEP). The MCU QEP has one overarching goal: *to enhance students' creative problem solving skills.*

For over a decade, service posture statements and defense professionals have declared that future military leaders must prepare for an uncertain, complex environment in which multifaceted problems reign, resources dwindle, and unintended consequences dominate decision making. While a strong grasp of history, refined analytical capacity, and an appreciation of doctrine are key to succeeding in this environment, they are insufficient on their own. The Marine Corps and Joint Community require forums in which leaders can creatively explore divergent approaches to problem solving.

Strengthening Leadership through Enhanced Creative Problem Solving will provide this opportunity. Creative problem solving is critical to the 21st century warfighter as both our adversaries and our operating environment grow more complex. Creativity is defined as the "*production of novelty*."[1] Creative problem solving refers to the process of developing a solution that is novel, effective, and whole.[2] "Novel" refers to a fresh, unusual, or revolutionary approach. "Effective" in this context means valuable, sensible, and/or useful. Finally, "whole" in this context refers to a solution that is organic, well crafted, and/or ordered.[3]

In order to achieve the QEP's overarching goal, the QEP will specify three objectives: (1) develop curricula that require students to solve problems creatively; (2) prepare faculty to create learning environments conducive to creative problem solving; and (3) provide integrated learning opportunities that challenge students to collaborate outside traditional cohorts and constructs.

Strengthening Leadership through Enhanced Creative Problem Solving calls for the establishment of the MCU Center for Applied Creativity (CAC), which will serve as a general support asset to MCU schools by assisting with curriculum and faculty development. The CAC will also coordinate learning opportunities for MCU faculty and students.

The QEP will enhance student learning by honing our students' capacities for creative thought and allowing them opportunities to apply creative thinking skills to solve concrete problems. This objective is aligned directly with the mission and vision of Marine Corps University and will position our students to be more competent leaders and decision makers in the challenging times ahead.

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[1] Arthur Cropley, *Creativity in Education & Learning: A Guide for Teacher and Educators*, (Sterling, VA: Cogan Page, 2001), 2.
[2] Punya Mishra, Danah Henriksen, and the Deep-Play Research Group, "A NEW Approach to Defining and Measuring Creativity: Rethinking Technology & Creativity in the 21st Century," *Techtrends: Linking Research & Practice To Improve Learning*, 57 (2013): 11.
[3] Mishra, Henriksen, and the Deep-Play Research Group, "A NEW Approach to Defining and Measuring Creativity," 11.

IMPACT REPORT OF THE QUALITY ENHANCEMENT PLAN
Strengthening Leadership through Enhanced Creative Problem Solving

INITIAL GOALS AND INTENDED OUTCOMES

MCU's Quality Enhancement Plan seeks to achieve one simple overarching program goal:
Enhance students' creative problem-solving skills.

As a professional military education institution, MCU's programs must produce graduates with the mental acuity and critical thinking skills to plan, lead, and execute military operations in a challenging security environment. Since MCU's programs' student learning objectives (SLO) vary in keeping with the professional and educational requirements of non-commissioned, company grade, and field grade officers, MCU adopted one university-level SLO that would demonstrate creative problem-solving, regardless of curricular content:

Students will develop effective, complete, and innovative solutions to complex, novel, intractable, or ill-defined problems.

To achieve this goal and SLO, MCU originally intended to establish a two-person Center for Applied Creativity (CAC), manned by a Director and Deputy, who would support MCU's academic programs by providing subject matter expertise, directly or through seeking out such expertise, in accomplishing its three QEP supporting objectives:

(1) Develop curricula that require students to solve problems creatively. The CAC would review or arrange for review of existing and developing curricula; coordinate with University elements, such as History Division and National Museum of the Marine Corps, to link their respective unique collections and capabilities to curriculum development; seek and develop grants to support faculty curriculum development; and assist in the development, design, and assessment of pilot programs.

(2) Prepare faculty to create learning environments conducive to creative problem-solving. The CAC would conduct initial and continuing faculty development, conduct norming sessions, develop and maintain a repository of relevant literature, research, and best practices for faculty use and reference, and conduct observation and coaching in order to provide feedback and mentorship on faculty performance.

(3) Provide integrated learning opportunities that challenge students to collaborate outside traditional cohorts and constructs. The CAC would cultivate relationships with external military organizations to bring subject matter expertise into the classroom, invite leading experts from non-military disciplines to present on how their professions' foster creative problem-solving, design MCU wide student events, exercises, and wargames that cross program cohorts and host an annual "Innovation Summit" for students from across MCU to share research and experiential learning.

The CAC staff would also review assessment data related to the overarching program goal, the MCU-level SLO, three supporting objectives, and school-level SLOs in order to improve implementation and student learning. Table 1 illustrates the originally intended assessment measures and types to be used for the main and supporting goals.

Table 1: QEP Assessment Plan

QEP Goal/Objective	Required Assessment Measure (Type)
Program Goal: Enhance students' creative problem-solving skills.	Consensual Assessment Technique (CAT) of student artifacts (Direct) School-level assessments of SLOs identified in Appendix A (Direct) Student and alumni evaluation of creative problem-solving skills (Indirect)
Objective 1: Develop curricula that require students to solve problems creatively.	Number of faculty requests for assistance (Direct) Curriculum reviews (Direct) School level assessments of SLOs identified in Appendix A (Direct) CAC assessment of MCU-SLO (Direct)
Objective 2: Prepare faculty to create learning environments conducive to creative problem-solving.	Number of faculty attending faculty development (Direct) School-level assessment of faculty performance (Direct) Faculty evaluation of CAC faculty development programming (Indirect)
Objective 3: Provide integrated learning opportunities that challenge students to collaborate outside traditional cohorts and constructs.	Number of MCU publications and talks on applied creativity (Direct) Number of faculty and students participating in integrated learning opportunities (Direct) Faculty and student evaluation of integrated learning (Indirect) Consensual Assessment Technique (CAT) of student projects (Direct)

CHANGES TO THE QEP AND CURRENT STATUS

The QEP envisioned implementation in four phases leading up to MCU's Fifth Year Interim Report in May 2021: Phase 0 (AY14-15) to validate assessment measures, baseline data, and conduct initial faculty development; Phase 1 (AY15-16) focusing on faculty and curriculum development and establishing the CAC; Phase 2 (AYs16-18) with continued faculty and curriculum development, launch of Innovation Summits, and expanding external partnerships, and Phase 3 (AY18-20) with continued faculty and curriculum development and continued MCU wide integrated learning opportunities. For reasons outlined below, MCU has extended Phase 3 through AY21-22.

In the two years following its approval, progress in implementing the QEP was sporadic and insufficient. MCU experienced significant personnel turnover in key leadership positions, to include many of those intimately involved in developing and approving the QEP. During AY16, a progress review revealed that there were no records of the baseline assessments performed for AY 14-15, key implementation milestones had not been met, and desired resources, fiscal and personnel, had not materialized. As a result, at the beginning of AY 16-17 MCU had insufficient empirical understanding of where it stood relative to its stated goal of enhancing student's creative problem-solving skills. This deficiency prompted the President, MCU to convene a working group to examine QEP requirements and create a learning environment leading to improved student creative thinking and problem-solving.

The working group first met on 11 Sep 2017; final recommendations were presented to the President on 30 Oct 2017. Fragmentary Order 1 (FRAGO 1) codified the decisions made by the President, to include establishment of the QEP Implementation Team (QEPIT), delineated actions required to accomplish QEP activities through the end of Phase 2 (AY17-18), and directed completion of Phase 2 no later than 15 July 2018 in compliance with all SACSCOC standards and requirements.

Through the combined efforts of the QEPIT, a University reading team, and school faculty, MCU successfully completed requirements and actions through the end of Phase 2 to validate its assessment measures, baseline its programs, conduct the inaugural Innovation Summit, and enhance the capability of the CAC. As importantly, it gained valuable insights on the way forward for Phase 3.

A significant change was the expanded role of the CAC. Originally, the CAC was conceived as a two person entity to serve as the "hub" to coordinate accomplishing the QEP's overarching program goal. To emphasize that role, during AY16 MCU obtained family permission to rename the CAC the Brute Krulak Center for Applied Creativity (BKCAC) after Lieutenant General Victor H. "Brute" Krulak, a legendary Marine leader well-known for his innovative and agile solutions to significant warfighting and organizational challenges during his military career.

To strengthen the BKCAC and synchronize the QEP effort across the entire MCU campus, FRAGO 1 clearly articulated the BKCAC role and every other MCU entity's contribution to QEP implementation. The BKCAC was re-designated the Brute Krulak Center for Innovation and Creativity (Krulak Center), to highlight and enhance the technical aspects of "innovation" as it relates and applies to creative problem-solving. The name change further aligned MCU with the current Commandant of the Marine Corps' focus on improving the Marine Corps' overall future readiness by providing innovative ideas to CMC sponsored Innovation Challenges.

More importantly, the Krulak Center's manning was dramatically enhanced from the two-person structure originally envisioned in the QEP. A Title 10 permanent government employee Director was hired at the end of AY17-18 and a permanent deputy billet was established. The entire 4-person MCU "Red Team" (Marines specially trained to challenge an enterprise's plans, policies, procedures, and assumptions), 2 Technical Information Officer positions (Marine experts in Information warfare considerations), a Professor of Energy Studies position (to focus on developing solutions to the Marine Corps' operational energy requirements), and 6 MCU Foundation Chairs, including extending the original CAC Chair for Applied Creativity, were added to the Center. MCU is currently developing a Director of Wargaming position in the Center to manage all MCU wargaming efforts.

In September 2018, the President, MCU issued FRAGO 2 to delineate university and school-level efforts to enhance creative problem-solving across the three objective areas. While those efforts were successfully executed, in May 2020 the President further directed that educational programs will continue to implement, assess, and report on Phase 3 activities through AY22 in order to ensure that the QEP goals are fully institutionalized throughout MCU and potential additional lessons learned are identified and incorporated.

IMPACT ON STUDENT LEARNING

Through curriculum refinement, purposeful faculty development, and enhanced integrated learning opportunities**, the QEP goal is to enable students to develop effective, complete, and innovative solutions to complex, novel, intractable, or ill-defined problems**. Students encountered elements of this prior to initiating this QEP, but MCU recognized the need to systematically integrate best practices that cultivate creative problem-solving. This section describes the evolution and evidence of changes related to the overarching learning goal (i.e., student creative-problem-solving) and achievement of the three supporting program objectives.

Measuring Success of the QEP Goal
Assessing change in student creative problem-solving skills proved challenging, but the MCU established an assessment methodology that is both meaningfully informing planning and proliferating across assignments within the schoolhouses. MCU is capturing the impact of its programs on students' creative problem-solving through a combination of direct and indirect measures that incorporate student, faculty, and Marine Corps stakeholder perspectives. The evidence shows meaningful change in student creative problem-solving skills, but not yet meeting the benchmarks for program success. Rather, the assessments have revealed additional areas for improvement in curriculum design and faculty development going forward.

Consensual Assessment Technique and Student Artifacts
As direct evidence of student creative problem-solving abilities, select faculty employed the Consensual Assessment Technique (CAT) and the MCU Creative Problem-Solving Rubric, an adaptation of the American Association of Colleges and Universities' Creative Thinking VALUE Rubric, to independently assess select student assignments.[1] The original intent was to have CAC staff conduct the CAT assessments; however, previously mentioned challenges in standing up the Center necessitated change and impacted timeliness of CAT assessments during Phase 2 of the QEP. The CAC had conducted an AY15-16 assessment using an alternate assessment tool, but an end of year AY15-16 progress review found no records of an AY14-15 baseline assessment. In 2017, a university reading team was established and charged with validating an assessment tool and reviewing assignments from the Marine Corps War College (MCWAR), the School of Advanced Warfighting (SAW), and a representative sampling of Command and Staff College (CSC) students. The team evaluated artifacts for the AY14-15 baseline, AY16-17, and AY17-18 assessments. The AY15-16 assessment tool and data was compared with the MCU Creative Problem-Solving Rubric to judge relative reliability, validity, and utility for decision-making. The MCU President approved the team's recommendation to adopt the MCU Creative Problem-Solving Rubric.

The CAT approach has proved challenging both because of resources and the complexity of the construct being measured. During initial validation of a measure for creative problem-solving, the university reading team expressed divergent views of the construct and, therefore, produced different and even conflicting interpretations of the rubric. During the baseline assessment, it became clear that more rigorous norming was necessary to capture a reliable picture of student learning. Prior to evaluating AY16-17 artifacts, the reading team underwent a two-stage norming

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[1] Association of American Colleges and Universities. (2009). *Creative Thinking VALUE Rubric.* Retrieved from https://www.aacu.org/value/rubrics/inquiry-analysis.

process focused on establishing theoretical depth on the rubric components and then contextual understanding of the assignments. Reliability and factor analysis following the norming sessions confirmed the rubric's internal validity and inter and intra-rater reliability improved to acceptable confidence level for statistical comparison.

AY18-19 witnessed a proliferation in QEP assessment activities, with school faculty assuming responsibility for evaluating incoming student artifacts and the university rater team assessing the growing number of university events (e.g., Innovation Summit) using the MCU Rubric. School faculty faced similar challenges implementing the new rubric, but each Fall and Spring targeted norming sessions were continued as new faculty assumed rater responsibilities. These discussions strengthened connections between the measurement instrument and the assessed events, enhancing both reliability and usability of the evidence captured. Analytical results were also reviewed with faculty and academic leadership to incorporate into curriculum review discussions. These additional benefits to linking assessment, teaching, and curriculum review informed the decision to maintain school-embedded assessment activities for the remainder of Phase 3. Written artifacts remained the primary assessment for QEP assessment, but creative performances were assessed in exercise, oral presentation, and game-based environments over the year. Use of the written artifact as the cornerstone of the CAT provided numerous benefits, allowing incorporation of third raters when needed and adapting easily during the emergency shift to a virtual delivery environment during AY19-20 due to COVID-19.

The picture of student learning from CAT assessment shows that MCU has more to do to reach its goal for 80% of students to achieve a creative score in their Spring assignment (Table 2). Two factors contributed to the wide variation in data - the annual turnover of student cohorts with different baseline comfort levels for different types of creative performance, and the modification or replacement of assignments across years to better elicit creative problem-solving. Despite these factors, the comparison of different student achievement of creative problem-solving, taking into account their baseline (Fall) performance, provided valuable insights into how assignment and pedagogical redesign were impacting students. In AY20, MCWAR contrasted written artifacts in two different courses and observed significant differences in student capabilities between the two, indicating that both type of writing and student baseline knowledge in an area contribute to creative performance.

Table 2: Percent of Student Written Artifacts Rated as "Creative" or "Transformative"

	Baseline - AY15		AY16*		AY17		AY18		AY19		AY20	
	F	**S**	**F**	**S**	**F**	**S**	**F**	**S**	**F**	**S**	**F**	**S**
CSC	7%	13%	69%	81%	1%	13%	3%	4%	4%	8%	39%	49%
MCWAR	8%	4%	86%	100%	14%	21%	0%	13%	4%	0%	DS 70%	77%
											NS 7%	50%
SAW	17%	71%	76%	71%	0%	69%	4%	63%	96%	100%	100%	N/A
All Artifacts	11%	31%	77%	85%	4%	26%	2%	19%	28%	30%	59%	59%

F: Fall; S: Spring; DS: Diplomacy & Statecraft Course; NS: National Security Course. N/A indicates assignment unavailable due to COVID-19 impacts. Note: AY16 differences reflect use of different (and discarded) assessment tool and should not be directly compared to other academic year's results. AY16 results are shown here to illustrate data used in academic decision-making.

Although not achieving the 80% goal, assessments did indicate significant changes in student performance over the course of each academic year (Table 3). In university and school-level discussions this led to a re-evaluation of the overall QEP target, suggesting that improvement ought to also be considered as a second component of success regarding QEP efforts. As seen below, MCU programs have made a significant impact on student creative problem solving skills across the academic year, with increased positive effects from those seen in the baseline year.

Table 3: Effect Size of Observed Change in Creative Problem-Solving from Fall to Spring

	Baseline AY15	**AY16***	**AY17**	**AY18**	**AY19**	**AY20**
CSC	0.2	N/A	1.1	0.8	0.6	0.6
MCWAR	0.2	N/A	0.2	0.6	0.2	DS: 0.6
						NS: 1.2
SAW	1	N/A	2.3	1.2	0.7	N/A

Note: AY16 differences reflect use of different (and discarded) assessment tool and so are not directly compared here. Interpretation of Cohen's d effects size: 0.2 = small, 0.5 = medium, 0.8 = large. Cohen, J. (1988). Statistical power analysis for the behavioral sciences, 2nd ed. New York, NY: Routledge. The exception is SAW AY19 which was calculated as a partial-eta squared, with .7 indicating a large effect size.

Additionally, as schools assessed different types of activities (written, oral, exercise), faculty also observed differences in student creative problem-solving capacity and confidence in these varying contexts. For example, across all three schools, students' Fall capacity within gamified learning activities was much greater than their written performance. Notably, all the assessments have yielded valuable observations about assignment design and evaluation criteria and fostered discussions amongst faculty about aligning curriculum activities to the overall QEP purpose.

School-Level Assessments of SLOs
Within each educational program, student performance has also been directly assessed to determine achievement of program-level SLOs relevant to creative problem-solving. Annual Institutional Effectiveness Reports from each schoolhouse document student achievement of these SLOs,[2] and indicate students are meeting program-level expectations, which vary in their specific focus and level of sophistication (in keeping with the varied professional and educational requirements of Non-Commissioned, Company Grade, and Field Grade Officers). Schools may elect to utilize the MCU Creative Problem-Solving rubric to assess student learning on the SLOs. They may also elect to tailor the rubric or its content, provided they assess the identified components of creative problem-solving.

Perceptions of Student Creative Problem-Solving Outcomes
MCU also solicits feedback from students at the end of their program, and graduates and their immediate supervisors' 18-months after graduation to capture perceived impact of educational programs on creative problem-solving. Responses indicate an overwhelmingly positive sense of improvement perceived by students and graduates, and observation of those skills in our graduates by their supervisors (Figure 1).[3] Low survey response rates, particularly from

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[2] Office of Institutional Research, Assessment, and Planning (IRAP). (2016, 2017, 2018, 2019, & 2020). Institutional Effectiveness Assessment Report, Marine Corps University.

[3] Based on responses to the IRAP Annual Student Survey, 2016 to 2018, and the Graduate and Supervisor survey for AY16 graduates. Note that there were no responses to MCWAR AY16 Supervisor survey.

graduates and supervisors limit the generalizability of this feedback; however, MCU is seeking to enhance this evaluation component through focus groups and interviews that will provide more meaningful insights into program impact.
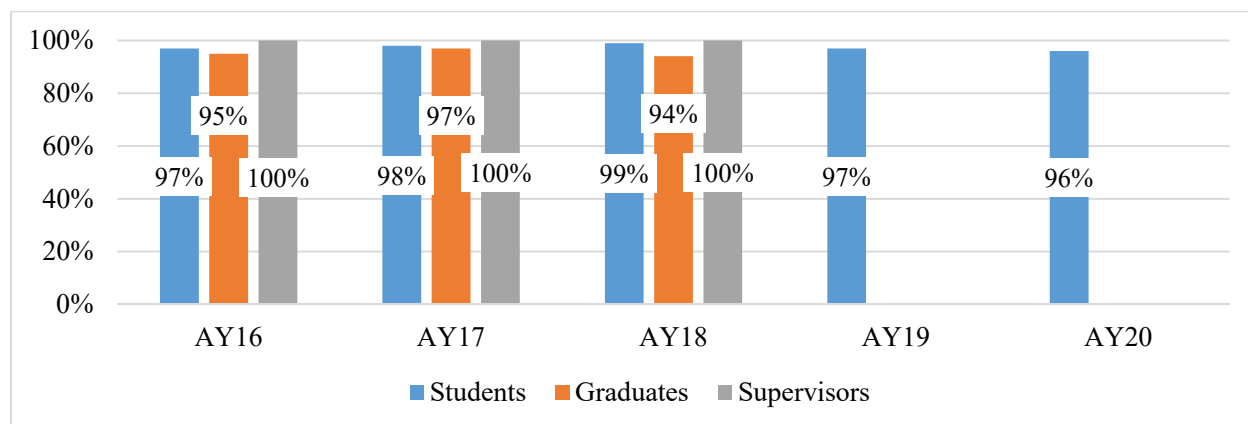

Figure 1: Perceptions of Student/Graduate Creative Problem-Solving
Note: Includes responses from or related to CSC, MCWAR, and SAW students / graduates

Measuring Success of QEP Objectives
Since initiating the QEP in 2015, all university programs have conducted thorough curriculum reviews, emphasizing current and emerging dimensions of different threat environments. Programs have and continue to pilot test new elements within the curriculum, seeking to design a learning environment conducive to creative solutions. Faculty have participated in university and school-led development opportunities focused on subject matter expertise and instructional approaches. The university has increased integration opportunities and idea exchange through a targeted speaker series, a cross-cutting wargame, and a university-wide Innovation Summit.

Program Objective 1 – Curriculum
MCU educates and prepares leaders to meet current and future security challenges. Through the Curriculum Review Boards (CRB) and Course Content Review Boards all MCU programs have identified and strengthened linkages to creative problem-solving. During the May 2020 CRBs, each program outlined its two-year plans for further QEP implementation based on the lessons learned. Creative problem-solving initiatives will be a specific briefing area for future CRBs.

Schools have also piloted new approaches to delivering and assessing their curriculum. In AY19, MCWAR and CSC both examined creative problem-solving in simulation-based environments. Interestingly, student creative performance was routinely stronger in exercise/game-based environments than written. Measurement of observed performance in AY18 and AY19 was a challenge due to various rater differences and sampling issues that weakened the measurement validity. In AY20, CSC examined creative problem-solving in written, oral, and simulation-based environments; unfortunately, the spring oral and simulation-based assessments were cancelled due to COVID-19.

The Krulak Center enhanced MCU curriculum by providing subject matter experts and targeted curricular opportunities. Its faculty designed and delivered elective courses, and provided guest lectures and programming in support of all MCU programs, sponsored numerous writing

contests on various professional military education (PME) and Marine Corps challenges, conducted student wargames linked to Marine Corps requirements; and the executed the annual MCU Innovation Summit. The Center has also budgeted for research grants for faculty and students travel in support of vetted projects.

Program Objective 2 – Faculty Development/Learning Environment
Faculty development programming has adjusted to incorporate elements of subject matter and andragogy that facilitate student creative problem-solving. In Years 1- 4, faculty development was delivered via the annual MCU Faculty Development Conference, attended by all faculty, featuring plenary speakers on innovation and break-out sessions on subject matter and teaching strategies. MCU also sponsored faculty development series throughout each AY highlighting faculty research, instructional strategies, and assessment approaches relevant to QEP.

In AY20, MCU revised its Faculty Development to better integrate QEP-related discussions with school-specific curricular requirements, delivering a new faculty orientation with QEP-related components in conjunction with school-run development sessions in both fall and spring semesters. MCU also contracted with the consulting entity, Innovation Bound, to provide a workshop called, "Unleashing Creativity." Faculty participants then served as Creativity Curators, meeting throughout the year to discuss new instructional and assessment approaches, and offer training sessions to the faculty within their schoolhouses. MCU will continue to examine targeted faculty development opportunities that allow it to "train the trainer."

In addition to tracking the activities described above, MCU assesses the success of this objective by examining a combination of faculty and student feedback. Faculty consistently report feelings of agency to change curriculum and instructional techniques, and sufficient development opportunities to improve student creative problem- solving (Figure 3).
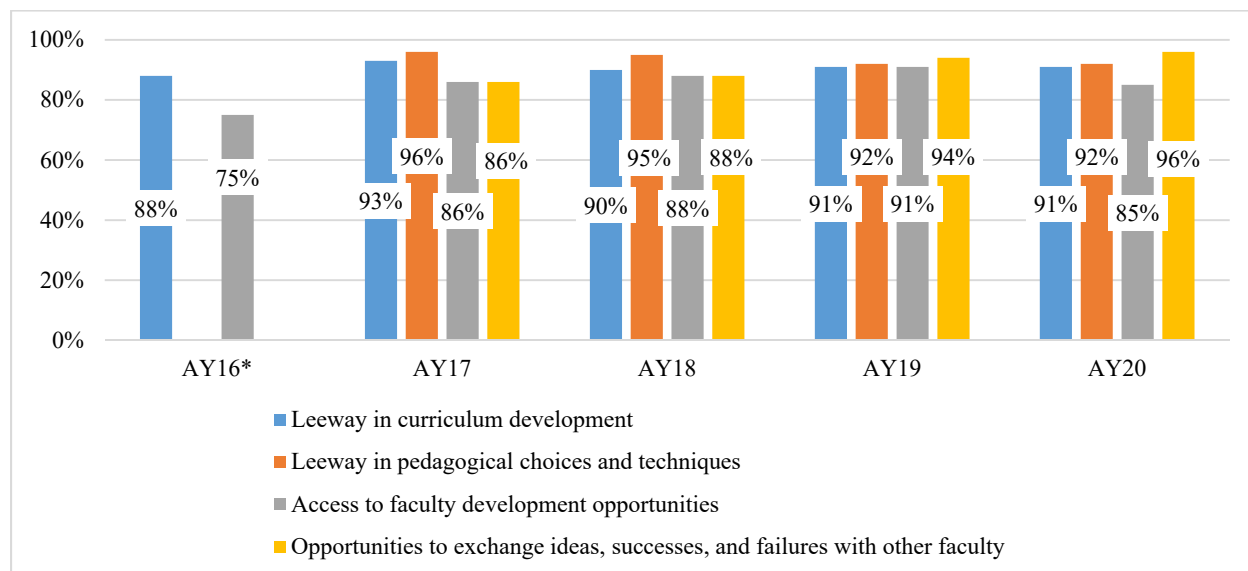

Figure 2: Faculty Perspectives of Agency and Resources Increase Student Creative Problem-Solving
(Based on feedback to the IRAP Academic and Administrative Survey, 2017-2020)

While student feedback is highly positive about the learning environment and faculty in general, students indicate that greatest obstacles to their creative problem-solving development are overly prescriptive seminar discussions, feedback, and evaluation criteria.[4] In AY20 surveys, both students and faculty underscored the challenge of establishing sufficient time and space within the curriculum to focus on creative problem-solving. These issues are routinely reviewed as part of curriculum revision (objective 1) to seek to achieve the right balance. Continued faculty development in CAT assessment and norming sessions may address some of these challenges.

Program Objective 3 – Integration Opportunities
MCU's educational goals emphasizes the need for integration – not only connecting expertise to the classroom, but bringing together MCU and the larger national security community for collaborative learning experiences. In AY16, MCU kicked off an annual SEA DRAGON wargame competition where small student teams competed head-to-head in an elimination wargame challenge. SEA DRAGON now uses the Defense Advanced Research Project Agency's PROTEUS software, allowing MCU students to experiment with future capabilities like tactical cyber and drone swarms. By AY20, the Krulak Center's educational wargaming capability provided a robust catalog of wargaming support to all MCU schools as well as operational Marine units, to include crisis simulation, collaboration with civilian institution faculty on wargame design techniques, and development of a list of tabletop and digital games that will be purchased and made available as a gaming repository.

In 2018, MCU hosted its inaugural Innovation Summit, featuring presentations from 7 teams and 5 schools, including Naval Postgraduate School. In AY19 integration activities were expanded as the Krulak Center became fully operational, hosting speakers, promoting writing contests, and piloting an Energy Scholars program. By AY20, the expansion of these offerings, specifically the Krulak and Barrow Scholars programs, focused on developing solutions for strategic and operational challenges facing the Marine Corps, further institutionalized the practice of sponsoring cross-university electives. The Center continues to expand its offerings in AY21.

Another component of integration has been the university distinguished lecture series, which have been better interwoven by establishing an annual theme selected by the MCU President. Before AY18, the series was comprised of stand-alone lecture events; they were integrated only to the extent that students in residence in every program at the time of each lecture attended. The now truly integrated lecture series host distinguished speakers to focus on current threats and future operating concepts, often rooted in historical context and case studies.

The schools have also taken steps to increase integration and idea exchanges within and beyond MCU. MCWAR, SAW, and CSC use the growing number of MCU Chairs, leveraging their expertise for guest lectures, electives, and mentorship of student research projects. SAW has extended the mentorship connection and sought to facilitate student partnerships across PME institutions, e.g. Naval Postgraduate School and Naval War College, to collaboratively research and write the Future War paper. CSC has expanded the number of Gray Scholar initiatives, allowing students to delve into a particular area of interest in conjunction with faculty and practitioner experts. As with Objective 2, more can, and will, be done to assess the impact of these activities on the student experience and student learning.

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[4] Based on IRAP Annual Student Survey, 2016-2018.

REFLECTION ON INSTITUTIONAL LESSONS LEARNED

One of the most significant challenges implementing the QEP was the delayed establishment of the Krulak Center. MCU engaged in its own creative problem-solving exercise to redistribute and reimagine the responsibilities for facilitating the QEP components, ending up with the more team-based model of a QEPIT. As a result of its success, at the end of AY18-19 the President, MCU established a permanent standing Accreditation Working Group (AWG) to oversee the remaining implementation of the QEP and the development of MCU's Fifth Year Interim Report, and ensure lessons learned from this evolution are incorporated into future MCU policies and practices. In particular, MCU will not rely heavily on one component, particularly a new one, in implementing a QEP or in implementing accreditation requirements in general.

Delayed assessment of the overarching student learning objective constrained the use of data to inform university planning. In AY18, the intensive efforts of the university rating team remediated this deficiency, and enhanced direct engagement with schoolhouse faculty and the efforts of the Krulak Center in AY19 and AY20, were extremely important to building on the momentum of AY18's successes. However, this also highlighted the incredible challenge of assessing students' creative problem solving ability. While schools worked diligently with MCU's Institutional Research, Assessment, and Planning office to identify appropriate assessments and norm assessment practices, this area requires on-going attention and improvement. We will continue to emphasize direct engagement of schoolhouse faculty with QEP assessment and analysis. Pilot assessments indicate continued need for community dialog about the meaning of creative problem-solving in order to more effectively foster it in our classrooms. Variations in student performance across written, exercise, and game environments also provide important insights into student ability to adapt creative problem-solving skills to different settings; we should consider how to explore and maximize student confidence in each setting. Increased faculty engagement with QEP assessment will link directly to improvements in curriculum and learning environment (Objectives 1 and 2) as assignments are aligned with our rubric criteria and students are provided meaningful formative feedback on the same.

Continuing momentum also entails seeking deeper information about the impact and relevance of the QEP to our graduates and the Corps through focus groups and interviews. It also means review and revision of our assessment tools and strategies for objective: for curriculum development, re-exploring the measurement and thresholds of SLOs in our Institutional Effectiveness Reporting; for faculty development, implementing a more systematic set of measures and performance indicators that better link development opportunities to teaching practice and outcomes; for integrated learning, adding a direct assessment component to our Innovation Summit and SEA DRAGON exercise and considering separate examination of cross-university electives offered by the Krulak Center.

The Commandant of the Marine Corps noted in his 2019 Planning Guidance for the Service that in regards to enhanced learning "…meaningful innovation is not just having great thoughts and concepts rather, it is about translating great thoughts and concepts into action." MCU chose *Strengthening Leadership through Enhanced Creative Problem Solving* in order to better develop students to do just that; and we will continue our focused efforts toward that goal.