

Advancing a Competency-Based Mixed Methods Tool to Assess a Course-Based Service-Learning Model Integrating Real-World Experience

Su-I Hou

University of Central Florida, Florida, United States

Abstract: *Given increasingly complex societal issues such as global aging, evaluators must develop essential competencies responding to the messiness of reality. This practice note advances an argument for the inclusion of service learning as a form of experiential learning that engages learners in hands-on practice with guided reflection, and shares a competency-based mixed methods (MM) tool for generating learning evidence in a course-based service-learning model. I aligned key design elements with pedagogical approaches with evaluation competencies. Competency-based guidance is critical to ensure effective assessment and quality course delivery. I conclude with lessons learned for integration of MM within program evaluation education.*

Keywords: *assessment tool, evaluation competency, mixed methods, program evaluation education, service-learning*

Résumé : *Vu la prévalence de problèmes sociaux de plus en plus complexes comme le vieillissement global de la population, les évaluateurs et évaluatrices doivent développer des compétences essentielles pour répondre au désordre de la réalité. La présente note sur la pratique met de l'avant un argument pour l'inclusion de l'apprentissage par le service comme forme d'apprentissage expérientiel qui donne aux étudiantes et étudiants l'occasion de faire des exercices pratiques assortis d'une réflexion orientée, et fait part d'un outil de méthodes mixtes fondé sur les compétences pour la création de données d'apprentissage dans un modèle d'apprentissage par le service relevant d'un programme de cours. J'ai fait concorder les éléments de conception clés d'approches pédagogiques avec des compétences en évaluation. Une orientation fondée sur les compétences est d'une importance critique pour assurer une évaluation efficace et la prestation d'un cours de qualité. Je termine avec des leçons tirées de l'intégration de méthodes mixtes à une approche de formation en évaluation de programme.*

Mots clés : *outil d'évaluation, compétences en évaluation, méthodes mixtes, formation en évaluation programme, apprentissage par le service*

Corresponding author: Su-I Hou, School of Global Health Management & Informatics, University of Central Florida, 528 W. Livingston Street, Suite 401, Orlando, Florida, 32801, United States; Su-I.Hou@ucf.edu

The [American Evaluation Association \(AEA, 2018\)](#) has identified and the [Canadian Evaluation Society \(CES, 2018\)](#) has recently updated key evaluator practice competencies. These efforts, focusing on competencies and led by premier professional associations in the evaluation field, speak to the importance of competency-based evaluation training and education. Part of the competency of evaluators includes methodological, technical aspects of systematic inquiry, including mixed methods (MM) evaluation designs for interpretive decision making. This practice note introduces a corresponding competency-based convergent MM assessment tool to assess the impact on evaluation competencies and explore key course design elements and pedagogy mapped with essential evaluation competencies.

Ongoing efforts examining evaluator training in terms of the number of university programs providing evaluation courses, topics or content taught, and instructors' perceptions of topic importance show considerable diversity in training new evaluators (e.g., [Christie et al., 2014](#)). Coursework training among evaluators shows that most courses taken were quantitative, qualitative, or research courses, instead of evaluation-specific training ([Christie et al., 2014](#)). Evaluation-specific training is critical because competencies specific to program evaluation are more contextual, requiring integrative skills and communications beyond traditional research design or statistical courses ([Dillman, 2012](#); [Poth et al., 2020](#)).

RELEVANCE TO THE SPECIAL ISSUE

This practice note is timely and important to this special issue focused on integration of MM evaluation, because contextually relevant program evaluation education is necessary to address major issues ([AEA, 2018](#); [CES, 2018](#)). There is a critical need for program evaluation-specific education accounting for the complexity of contextual reality ([Linfield, 2019](#)). Using the MM approach to generate evidence of learning may better capture the complexity of learning outcomes ([Poth et al., 2020](#)). As the evaluation field continues to professionalize and as engaged training strategies strengthen, empirical work examining teaching and learning in evaluation is needed. Given the need for evaluator training, access to research-tested tools to generate learning evidence ([El Hassar et al., 2020](#)) and effective, innovative pedagogies for teaching future evaluators about essential evaluator competencies require critical attention.

In this practice note, we advance an argument for the inclusion of service learning as a form of experiential learning that engages learners in hands-on practice with guided reflection, increases competency-based learning outcomes, and contributes to communities ([Eyler & Giles, 1999](#); [Hou & Pereira, 2017](#); [Kolb, 1984](#)). Yet we know little about the role that opportunities like integrating real-world community hands-on practical experience via course-based service learning plays in training future evaluators in higher education settings. Multiple types of evidence are required to address this gap because the course-based service-learning model, if designed well, provides a university with promising opportunities to integrate real-world hands-on projects in educating future generations

(Hou, 2009; Hou & Pereira, 2017). How can we generate mixed-methods evidence of learning and training experiences that enable future evaluators to apply what they have learned in complex, real-world settings?

This practice note shares insights from developing and using a corresponding competency-based MM tool to assess student learning. Also, this note provides guidance on key course design elements of an innovative service-learning model with pedagogical approaches mapped on with essential evaluation competencies. Lessons learned focus on suggestions that can improve program evaluation education by incorporating applications in the complexity of real-world situations and encouraging critical thinking on the utility of MM evaluation and integration.

DIMENSIONS EXAMINED

Essential domains and assessment of evaluation competencies

Stevahn et al. (2005) defined competencies as “the background, knowledge, skills, and dispositions program evaluators need to achieve standards that constitute sound evaluations” (p. 45). The American Evaluation Association (AEA, 2018) and Canadian Evaluation Society (CES, 2018) recommended five similar essential competency domains (see Table 1).

Table 1. Integrated AEA and CES competency domain and description

Evaluation competency domain	Evaluation competency description
Professional Reflective Practice (PRP)	Focuses on what makes evaluators distinct as practicing professionals, including evaluation standards and guiding principles, cultural competence, etc.
Context Situational Practice (CSP)	Focuses on understanding the unique circumstances and multiple perspectives, including site environment, stakeholders, organization, culture and values, politics, power privilege, etc.
Methodology Technical Practice (MTP)	Focuses on technical aspects of systematic inquiry, including quantitative, qualitative, and mixed designs for interpretive decisions required to conduct an evaluation.
Planning and Management Practice (PMP)	Focuses on applying sound project management skills including work plan, timelines, and resources throughout the evaluation project.
Interpersonal Practice (IP)	Focuses on social and personal skills required to communicate and interact effectively with all stakeholders.

1 American Evaluation Association; 2 Canadian Evaluation Society

A gap analysis of evaluator training needs and competencies found that professional practice and methodology technical practice competencies are perceived as the most important domains (Galport & Azzam, 2016). Evaluators also identified the need for additional training in the interpersonal competence and reflective practice competency domains (Galport & Azzam, 2016). These findings provide insights into developing and modifying programs to train and prepare future evaluators. Given complex real-world issues like long-term care and global aging, the context situational practice and planning and management practice competencies require particular attention. Although these essential competencies for evaluators have been identified (Stevahn et al., 2005), there remains a lack of validated program evaluation competency assessment tools to assess student outcomes. Dillman (2012) was among the first to measure evaluator competencies, educational experience, and the relationship between them. Poth and colleagues (2020) stressed the importance of effective competency-based measurements for outcome assessment and evaluation-specific guidance in designing and implementing competency-based evaluation education.

Course-based service-learning design elements and rationale

Experiential learning through carefully designed service-learning activities supports the construction of knowledge through student reflection, new conceptualization development, and experimentation with those new conceptualizations (Kolb, 1984). Reflection is “the hyphen in service-learning” because it links the community service experience and academic learning (Eyler & Giles, 1999). Service-learning experiences must expose students to meaningful activities applicable to the discipline for future career opportunities (Hou, 2009; Hou, forthcoming; Hou & Pereira, 2017; Hou & Wilder, 2015).

Incorporating service-learning opportunities and academic learning can deepen student engagement in learning, enhance personal growth, cultivate citizenship, and build campus-community partnerships (Hou, 2009; Hou & Pereira, 2017; Hou & Wilder, 2015). A meta-analysis concluded that including a service-learning component shows a 53% improvement in learning outcomes, including understanding of subjects, skills learned, and ability to apply knowledge and reframe complex social issues (Novak et al., 2007).

METHODS

This practice note introduces a corresponding competency-based convergent MM assessment tool to assess the impact on evaluation competencies and explore key course design elements and pedagogy mapped with essential evaluation competencies. The use of this tool was integrated at the study design level, where quantitative and qualitative data were collected and analyzed during a similar timeframe to foster teaching evaluation from different data types (Creswell & Plano Clark, 2018).¹

Competency-based mixed methods evaluation tool

Quantitative measures

A 17-item Program Evaluation Competency Scale (PECS_17) was developed and tested to measure detailed performance objectives of developing a sound and practical evaluation proposal. The PECS_17 quantitative measurement was pilot tested among five cohort groups of students (2015–2019; $N = 51$). The argument-based approach was used to develop and evaluate statements of the claims inherent in the proposed interpretations while avoiding unnecessary complexity (Kane, 2013). These quantitative measurement statements were developed by using a complementary three-step process: (1) reviewing key content coverage and skills recommended from select evaluation textbooks (Newcomer et al., 2015; Mertens, 2018; Rossi et al., 2003); (2) examining the evaluation course learning objectives and topic outlines; and (3) developing matching items to assess essential evaluation competency domains recommended by the AEA and CES. Key competencies were translated into corresponding quantitative performance objective measurement items and pilot tested among a small group of interdisciplinary doctoral students ($n = 10$). These step-by-step performance objectives were built sequentially, practiced, and discussed during weekly class meetings.

This PECS_17 was administered at the course's beginning and end. At the end of the course, two additional items were used to assess the course's impact on student competencies. Table 2 details key course design elements and pedagogy approaches matched with course learning objectives, with corresponding PECS_17 items mapped with essential evaluation competency domains.

Qualitative measures

To gain a holistic perspective on course impact on student learning, five reflective questions were developed to examine the five essential domains for evaluation competencies. Students from the 2019 class ($n = 9$) completed these five reflective qualitative questions. At the end of the evaluation course, students reflected on the essential evaluation competency domains and described (with scenarios or examples if possible) how competent they felt due to the evaluation course and project, compared to the semester's beginning (Table 3). The essential competency domains assessed from both quantitative and qualitative measurement provide a better integration platform for MM data analyses and learning outcome interpretation. Data from the quantitative measure and the qualitative components were analyzed separately and convergently integrated during the interpretation phase.

Evaluation course design elements and pedagogy mapped with essential competencies

Policy and Program Evaluation is a core course for an interdisciplinary doctoral program in Public Affairs at a large southern university in the United States. The key innovation is the infusion of course-based service-learning projects combined

Table 2. Key course design elements with corresponding PECS_17 items mapped with essential evaluation competency domains.

AEA competency domain ^a	PECS_17 item description ^b I feel confident to ...	Key course design element ^c	Pedagogy ^d	Learning objective ^e
CSP	PECS-1. Identify and analyze key stakeholders.	EPR	EL; ITL; IM	LO1; LO6
PRP	PECS-2. Work ethically and respect all stakeholders.	EPR	EL; ITL; IM; GR	LO1; LO5; LO6
PRP	PECS-3. Apply professional evaluation standards.	AR; EPR	EL; SCD; ITL; IM; GR	LO1; LO6
CSP	PECS-4. Describe a policy or program for evaluation purposes.	AR; EPR	EL; SCD; ITL; IM; SDL; GR	LO2; LO4
MTP	PECS-5. Articulate or develop a policy / program logic model for evaluation.	AR; EPR	EL; SCD; ITL; IM; SDL	LO1; LO2
MTP	PECS-6. Describe different types of exploratory evaluation	AR; EPR	SCD; SDL	LO2
MTP	PECS-7. Frame evaluation questions based on different types of eval purposes.	AR; EPR	EL; SCD; ITL; IM	LO2; LO4
MTP	PECS-8. Explain similarities and differences btw process and outcome evaluations.	FPP; FWP	SCD; ITL	LO1; LO5; LO6
MTP	PECS-9. Identify threats to evaluation validities.	MA	SCD; ITL; SDL	LO1; LO5; LO6
MTP	PECS-10. Discuss strengths and weakness of various evaluation designs	MA	SCD; ITL; SDL	LO2; LO5; LO6
MTP	PECS-11. Develop sound evaluation designs to address threats to validities.	MA; FPP; FWP	SCD; ITL; SDL	LO2; LO5; LO6
MTP	PECS-12. Discuss strengths and weakness of various data collection methods.	AR; FPP; FWP	SCD; ITL; SDL	LO3
MTP	PECS-13. Develop appropriate data collection and sampling plan.	FPP; FWP	EL; SCD; ITL; IM; SDL	LO3

(Continued)

Table 2. (Continued)

AEA competency domain ^a	PECS_17 item description ^b I feel confident to ...	Key course design element ^c	Pedagogy ^d	Learning objective ^e
MTP	PECS-14. Provide rationales and evidence for decision-making throughout the process.	PC; FPP; FWP	EL; SCD; ITL; IM; SDL; GR	LO1 ~ LO6
PMP	PECS-15. Develop thoughtful evaluation management plan (timeline, activities, budget).	FPP; FWP	EL; SCD; ITL; IM; SDL	LO1 ~ LO6
IP	PECS-16. Provide constructive comments and feedback to other evaluation proposals.	PC	SCD; ITL	LO1 ~ LO6
PRP	PECS-17. Prepare a sound evaluation proposal including key evaluation components.	PC; FPP; FWP	EL; SCD; ITL; IM; SDL; GR	LO1 ~ LO6

^aCompetency Domains: PRP = Professional Reflective Practice; CSP = Context Situational Practice; MTP = Methodology Technical Practice; PMP = Planning and Management Practice; IP = Interpersonal Practice

^bPECS_17 = 17-item Program Evaluation Competency Scale; Cronbach's alpha was 0.971 (CITC ranged 0.480~0.901)

^cCourse Design Element: AR = Article Review; MA = Mini-Assignments; EPR = Early Progress Report; PC = Peer Critique; FPP = Final Proposal Presentation; FWP = Final Written Proposal

^dPedagogy: EL = Experiential Learning; ITL = Interdisciplinary Team Learning; SCD = Structured Class Discussion; IM = Instructor Mentoring; SDL = Self-Directed Study; GR = Guided Reflection

^eLearning Objectives: LO1 = Apply evaluation concepts and terminology; LO2 = Apply principles of research design to evaluation questions; LO3 = Apply qualitative and quantitative data collections for evaluation; LO4 = Describe economic evaluation; LO5 = Demonstrate oral and written communication skills in delivery evaluation proposal; LO6 = Collaborate interdisciplinarity with team members on evaluation proposal.

with interdisciplinary team-based learning and real-world community partners. The purposes of integrating these course-based service-learning projects are to provide real-world hands-on practice opportunities to equip CSP and PMP competency domains and to build campus-community partnerships to practice CSP and IP domains, while helping evaluate programs addressing complicated social issues to build PRP and MTP domains. I assigned students to small interdisciplinary teams to work with stakeholders on developing authentic and workable evaluation proposals. This design strives to strengthen student evaluation

Table 3. Five questions to encourage reflection on the essential competency domains.

AEA competency domain ^a	Specific qualitative question prompts
PRP	Please reflect on your professional practice related to the application of evaluation standards, guidelines, and ethics. Please describe (with scenarios / examples if possible) how well or competent you feel you are in this area as a result of this evaluation course and project, compared to the beginning of the semester.
CSP	Please reflect on your context / situational practice related to understanding the unique circumstances, multiple perspectives, stakeholder culture and values, etc. Please describe (with scenarios / examples if possible) how well or competent you feel you are in this area as a result of this evaluation course and project, compared to the beginning of the semester.
MTP	Please reflect on your evaluation strategic methodology related to technical aspects of the evaluation designs (quantitative, qualitative, or mixed) and various decision making. Please describe (with scenarios / examples if possible) how well or competent you feel you are in this area as a result of this evaluation course and project, compared to the beginning of the semester.
PMP	Please reflect on your planning and management skills including determining and monitoring work plans, timelines, or other components, throughout the evaluation project. Please describe (with scenarios / examples if possible) how well or competent you feel you are in this area as a result of this evaluation course and project, compared to the beginning of the semester.
IP	Please reflect on your interpersonal skills including cultural competence, communication, facilitation, and conflict resolution. Please describe (with scenarios / examples if possible) how well or competent you feel you are in this area as a result of this evaluation course and project, compared to the beginning of the semester.

^aCompetency Domains: PRP = Professional Reflective Practice; CSP = Context Situational Practice; MTP = Methodology Technical Practice; PMP = Planning and Management Practice; IP = Interpersonal Practice

competency development in context-situational practices, real-world planning and management practice, and interpersonal communication domains, as well as professional practice and methodology technical practice domains.

Unlike conventional evaluations, the course-based service-learning evaluation project incorporates a utilization-focused evaluation approach inviting

project managers and key staff partners to participate in the evaluation design and evaluation proposal presentation to provide feedback. This facilitates process and findings ownership and promotes evaluative thinking (Newcomer et al., 2015). Guided reflection opportunities were provided early in the semester before the first stakeholder meeting and throughout the semester project discussions; in addition, an overall personal reflection took place at the course's end (Eyler & Giles, 1999). Students were encouraged to reflect and bring up issues considered related to the five core evaluation competency domains of professional practice, contextual situational practice, technical aspect of evaluation designs, project planning and management, and interpersonal communication issues. Class time was allocated for these reflections and discussion opportunities related to students' team projects.

Lessons learned

Mixed methods assessment tool on program competency outcomes

Self-report is a common approach to measure competencies (Hou, 2009, 2021, forthcoming; Hou & Pereira, 2017). Self-report using a pre-post approach provides different types of data (both quantitative and qualitative) that can be integrated to make visible the development of evaluation competencies using a service-learning approach to evaluation. Analyses demonstrated satisfactory reliability of the PECS_17, with Cronbach's alpha of 0.971, showing high internal consistencies of the scale items. Because of the sample size, factor analysis was not conducted. Despite the small sample, data showed significantly increased PECS_17 scores at the course's end (from scale item means of 3.25 to 4.76 out of 5; $p < 0.001$). Also, students rated high in overall confidence in the evaluation field ($M = 4.75$) and in being equipped with important evaluation competencies for a future career ($M = 4.80$). Qualitative responses of the five evaluation domains were overall very positive, demonstrating strong convergent evidence of the significant impact of the evaluation course and projects on student learning outcomes.

Key successful course design elements with pedagogy approaches

There are a lot of details to consider in intentional course design that seeks to advance evaluation competencies of learners through a service-learning course design. To provide practical guidance, Table 4 highlights key course assignment design elements, purpose, procedures, and pedagogy approaches mapped with specific program evaluation competencies (PECS_17). I incorporated increased qualitative elements, such as guided reflection during progress reports and learning activities throughout the semester to better shape student understanding of evaluation competencies. Four key successful course design themes are illustrated to provide concrete examples for high-quality evaluation competency development.

First, one of the greatest lessons learned is the value of ensuring high-quality course design and delivery through carefully structured class discussion with

Table 4. Key course assignment design elements, purpose, procedures, and pedagogy approaches mapped with the specific program evaluation competencies (PECS_17)

Key course design element	Purpose	Procedures	Pedagogy ^a	PECS_17 ^b
Article review (AR)	This doctoral program is grounded in an interdisciplinary curriculum aiming to solve complex community and social issues. The purpose of this article review assignment is to encourage students to analyze and critique policy or program evaluation articles from different disciplinary perspectives.	A pair of students reviewed the same article of the students' choice on program and/or policy evaluation, and analyze perspectives from different disciplines (social work, public affairs, health, and criminal justice). Articles need to be approved by the professor in advance. The review includes a <i>critical</i> evaluation of the article based on the rubric, plus leading an article review discussion with Q/A in class.	ITL; SDL; SCD; GR	PECS-3 PECS-4 PECS-5 PECS-6 PECS-7 PECS-12
Mini-class Assignment (MA)	Be engaged and gain deeper understanding and application practices for (1) the various threats to validities and (2) different types of evaluation design.	(MA1) Each student was randomly assigned to threats to validities. For each threat assigned, students defined the threat, provided an example to explain it, and indicated ways to address the threat. (MA2) Each student was randomly assigned an evaluation design. For each design assigned, students defined and explained the design, discussed when and why we might choose the design, potential threats to validity, and analyses and reporting notes.	SDL; SCD; ITL; IM	PECS-9 PECS-10 PECS-11

Early progress report (EPR)	To ensure sufficient progress and quality development on the evaluation proposal throughout the semester, multiple intermediate progress reports will be assigned for students to receive feedback from both the instructor and student peers.	Each small interdisciplinary team of students worked with pre-identified community partners to develop an evaluation proposal of an existing program or policy. Each student team reported to the class their project focus including evaluation questions, significance, stakeholder engagement, and program theory / logic model during this early progress report. Each project team received both oral and written feedback from fellow students and the course instructor.	EL; SDL; ITL; IM; GR	PECS-1
				PECS-2
				PECS-3
				PECS-4
				PECS-5
				PECS-6
				PECS-7
Peer critique (PC)	To learn to provide and receive constructive and technical feedback to and from peer fellows. To improve the quality of the final evaluation proposals.	Each student reviewed a randomly assigned proposal from another team and provided both written and oral feedback to the proposal.	ITL; IM; GR	PECS-14

(Continued)

Table 4. (Continued)

Key course design element	Purpose	Procedures	Pedagogy ^a	PECS_17 ^b
Final proposal presentation (FPP);	To apply knowledge and competencies learned throughout the semester and develop a sound and feasible real-world evaluation proposal working with stakeholders.	Each small interdisciplinary team of students continued working with community partners to finalize the development of the evaluation proposal. Each student team reported back to the class their complete evaluation proposal including address issues raised during the EPR, with more emphasis on the remaining evaluation proposal components including evaluation designs and threats, evaluation measurements, sample / data collection / human subject, and management and reporting plan.	EL; SDL; ITL; IM; GR	PECS-11
Final written proposal (FWP)		Each project team received both oral and written feedback from fellow class students and the course instructor. A final written edited evaluation proposal addressing peer feedback was also turned in to the instructor for review and grading.		PECS-12 PECS-13 PECS-14

^a Pedagogy: EL = Experiential Learning; ITL = Interdisciplinary Team Learning; SCD = Structured Class Discussion; IM = Instructor Mentoring; SDL = Self-Directed Study; GR = Guided Reflection

^b PECS_17 = 17-item Program Evaluation Competency Scale; Cronbach's alpha was 0.971 (CITC ranged 0.480~0.901)

step-by-step instructor guidance (Dillman, 2012; Hou, 2009, 2021, forthcoming; Hou & Pereira, 2017). Instructors' guidance and close mentoring help students gain an in-depth understanding of course material (Dillman, 2012). Besides fieldwork, mentoring from the instructor was shown to play the second most crucial supporting role to evaluator competency development (Dillman, 2012). Mentoring guidance was operationalized in the current case via essential evaluation concepts taught through informative lectures with examples and exercises, weekly hands-on guidance to troubleshoot project issues via lively class discussion, and step-by-step instructions with guided worksheets to help students apply skills and concepts to their semester-long projects with community partners. These carefully organized and designed sequences of content and transparent alignment of activities with course objectives help students ingrain the program evaluation process essentials and how evaluation nuances link to the grand objective.

Second, high-quality evaluation project development can be achieved through incremental team-based learning with close instructor mentoring (Dillman, 2012; Hou, 2009, 2021, forthcoming; Hou & Pereira, 2017). I built the partial submissions of the final evaluation proposal, providing each evaluation component with feedback from peers and instructors to challenge students to balance the rigor required for evaluation with stakeholder perspectives and constraints in real life, while assisting with refinement for quality final proposal development. These included an early progress report, regular checkpoints with stakeholders, class project discussions with peers and instructors throughout the semester, peer critiques on evaluation proposal drafts, and final oral and written proposals.

Third, high-quality skills application comes about through a real-world experiential project with interdisciplinary team-based learning (Dillman, 2012; Hou, 2009, 2021, forthcoming; Hou & Pereira, 2017; Linfield, 2019). Existing research found that fieldwork contributed more to evaluation competency development than any other educational experience (Dillman, 2012). Specifically, fieldwork was the most influential educational experience for developing contextual, project management, and effective communication domains. Engaged content with real-world practice and application, combined with team-based learning, was recommended to improve students' learning outcomes while benefitting community partners (Dillman, 2012; Hou, forthcoming; Linfield, 2019).

Students worked in their interdisciplinary team on complex social and health issues and critically analyzed context and priorities. Team members developed a sound proposal with a sound logic model of causal chains, discussing design validity and reliability with justification, and a detailed evaluation measurement and management plan. Students worked with community partners, articulating the evaluation purpose and questions, designing tailored process and outcome evaluations, developing workable data-collection procedures, and providing recommendations for continued program improvement.

Finally, high-quality learning engagement is ensured through guided reflection in a constructive, safe environment (Eyler & Giles, 1999; Hou, 2021, forthcoming; Hou & Wilder, 2015). Guided personal reflections (Eyler & Giles,

1999) and in-class group debriefing were facilitated early to address anxiety and concerns before interaction with community partners, as well as throughout the process to link academic objectives with project experience. The instructor facilitated a safe, constructive environment to support student engagement in a relaxed, meaningful learning experience. The PECS_17 convergent MM self-assessments (beginning and end of semester) also encouraged students to reflect on their learning and development of evaluation competencies before and after the course and team project applications.

CONCLUSIONS AND IMPLICATIONS

This practice note has provided a practical, research-tested MM tool to assess evaluation competencies. I have shared four key successful course design elements with practical pedagogical guidance to ensure the promotion of high-quality evaluation competency development in course delivery, project development, skills application, and learning engagement.

Integrating course-based interdisciplinary service-learning projects to bridge stakeholder engagement and promote authentic learning showed a profound impact on developing (training) program evaluation competencies among students. Such approaches have generated MM competency learning data that were integrated to showcase the impact on increased student competencies and confidence from previous empirical data on program planning (Hou, 2009) and program development and implementation competencies (Hou & Pereira, 2017), mixed methods research competencies (Hou, 2021), and the current study on program evaluation competencies (Hou, forthcoming).

All student group projects chose the MM evaluation as the most appropriate design. Many involved complex real-world challenges for which pure quantitative evaluation could not tell the complete story of program impact, and for which purely qualitative evaluation with a small sample size might have lacked credibility in showing significant program impact. Students showed significant critical thinking on the utility of MM integration to highlight program values through the MM evaluation designs chosen. Lessons learned suggest that future evaluation education course topics include MM designs and integration as part of content and skills training.

Regarding the essential competencies recommended, while MM are not explicit in CES competencies, they are identified in the AEA competency 2.4. However, neither CES nor AEA discusses integration. MM integration can reveal insights that a single type of data could not have made explicit. Mixing and integrating data from both qualitative and quantitative sources yield more complete evidence for a better understanding of the depth and breadth of complex social issues (Creswell & Plano Clark, 2018). Also, insights could be missed if only formative or summative evaluation were used. Thus, evaluation training including MM integration and complex MM evaluation designs adds merit to the program curriculum for our future generation of evaluators. Given the lack of guidance on MM evaluation (El Hassar et al., 2020) or integration of MM in evaluation in

the evaluation competencies, most existing evaluation training does not examine these important methodological areas or emerging methodological trends. To prepare and advocate for credentialing evaluators, the evaluation community should consider how awareness of MM evaluation importance shapes revisions of essential competencies (Mertens, 2018; Stevahn et al., 2005). Additionally, higher education institutions require guidance in identifying practical ways to prepare faculty who can use the course-based service-learning model to integrate real-world experience (Hou & Wilder, 2015) and teach MM evaluation and integration, the defining feature of MM research (Creswell & Plano Clark, 2018).

This MM assessment tool was pilot tested over five cohort groups of doctoral students, which strengthens external validity and content validity. Despite these efforts, the sample size ($N = 51$) was too small to warrant a factor analysis. Future research is recommended to validate this tool with larger samples and other populations for use beyond higher education settings.

In sum, advancing a competency-based MM assessment tool for generating learning evidence in an innovative course-based service-learning model integrating real-world experience can powerfully evaluate competency development. This competency-based MM tool can serve as self-assessment for professionals, an educational tool in higher education, or training for organizations that conduct evaluations. Lessons learned point to promoting the development and evaluation of training programs for future evaluators dealing with complex real-world situations, as well as critical thinking on the utility of MM evaluation and integration.

NOTE

1. This study has been approved as a non-human subject study by the author's Institutional Review Board (IRB ID# STUDY00001671).

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AUTHOR INFORMATION

Su-I Hou is professor and founding director of the School of Global Health Management and Informatics, and PAF-PhD Health-specialization Liaison, College of Community Innovation and Education at the University of Central Florida. ORCID: <http://orcid.org/0000-0002-4519-0974>