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Professional development for faculty in Uzbekistan

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This ethnographic case study focuses on adult learners in a professional development grant program. The program applied the ADDIE model to train faculty in Uzbekistan to conduct research, write for academic audiences, and publish in top-tier academic journals. Agricultural and biosystems engineering and English faculty members at a US Midwest university forged an interdisciplinary partnership to virtually deliver a 5-month program to an initial cohort of 68 participants. Topics included research ethics, experimental and survey research design, and structure of scientific papers, among others. The pre- and post-tests objectively measured material covered in the curriculum. Post-test scores from 18 participants showed improvement ($n = 11$), no change, ($n = 4$), or lower scores ($n = 3$). Regardless, the granting agency was pleased with the implementation of the project. This manuscript informs future collaborators on successful procedures, such as training models and virtual delivery, and opportunities for improvement, including English language proficiency, eligibility standards, and emphasizing research ethics.

KEYWORDS

case study, Uzbekistan, interdisciplinary grant work, ADDIE, cognitive learning theory

1 Introduction

This project showcases adult learners at an agriculture engineering university in Uzbekistan who participated in an international and interdisciplinary professional development grant led by Agricultural and Biosystems Engineering (ABE) and English faculty members at a land-grant university in the United States (US). Uzbekistan experienced rapid change and expansion after Shavkat Mirziyoyev became president in 2016 (Khan, 2019) yet still fits the description of a developing nation (Hamadeh et al., 2022). Famed for its historical relevance on the Great Silk Road, Uzbekistan approximates the geographical size of the US state of California and has a population of 32.1 million people (World Bank, 2018). The government began a gradual shift toward a stronger market-based economy (World Bank, 2018; Khan, 2019) and moving relations with the US beyond strategic, military interdependencies to other sectors of society (Sulimanov and Beloglazov, 2018). While international relations in the region are complex (Sullivan, 2019), the government has an interest in expanding partnerships with the US and in all sectors, including higher education (Uralov, 2020). The Uzbek government expects faculty to publish in Scimago Journal and Country Rank¹ journals with a Q1 rank (i.e., Q1 journals), collaborate with faculty at US higher education institutions (HEIs), visit US HEIs, and conduct related activities.

The HEI environment in Uzbekistan can be described as evolving. A report from the newly formed [Accreditation and Rating International Agency \(2024\)](https://www.accreditationandratinginternationalagency.com/) in Uzbekistan provides

¹ www.scimagojr.com

descriptive information in English on the status of higher education in the country. ARIA identified government underfunding, outdated curricula, limited technology, lack of international cooperation, insufficient number of faculty, and underqualified faculty as key challenges. However, strategic efforts in recent years have led to the creation of a Ministry of Higher Education, Science, and Innovation; an increase in articles indexed in Scopus and Web of Science (over 3,500 total in 2024); an additional 133 HEIs since 2016, 40 of which are financially and academically independent; and an increase in the number of institutions and enrollment in a seven-year time span. The international reputation shows advancement as 38 programs were reviewed for international accreditation and two universities—including the Tashkent Institute for Irrigation and Agricultural Mechanical Engineering (TIAME)—were listed among the top 1,000 universities in the 2025 QS World University Rankings. Despite these achievements, the research output and low international research collaborations remain concerns in the Uzbek HEI environment.

This ethnographic case study describes and analyzes one specific collaboration between a US university and an Uzbek institute to offer professional development for faculty, intended to strengthen their academic research skills and increase their publications in Q1, international journals. The analyze, design, develop, implement, and evaluate (ADDIE; Heaster-Ekholm, 2020) training model guided the project implementation. The ADDIE model is widely used by professionals in the talent development industry for adult learners in and outside the US. For example, researchers used this approach when developing e-learning, aquaculture modules for extension specialists and farmers in India (Mahalakshmi and Krishnan, 2012). Researchers in Indonesia applied the framework when developing a mobile app to benefit rice and vegetable farmers (Moedjiono et al., 2018). These examples validate the use of ADDIE with adult learners in an international context.

We use cognitive learning theory as the framework for the project. In the paper, we elaborate on its interdisciplinary nature and lay out the details of the project design and implementation. The paper ends by discussing the outcomes of the project, implications, and project limitations.

2 Pedagogical framework

2.1 Adult learning: cognitive learning theory

We applied cognitive learning theory because of its emphasis on processing of information. Adult learners in this case were obtaining new information rather than other cognitive tasks such as problem-solving or analyzing. The instructor bears much responsibility for learning with this theory (Heaster-Ekholm, 2020), but an effective instructor will carefully consider learning objectives and activities that students can follow. Cognitive learning theory includes an array of teaching practices such as retrieving main points at the end of a session, including periodic quizzes, or reviewing concepts related to a case study, among others (McSparron et al., 2019). Our aim was for learners to receive information and then apply their learning to an individual research/writing project that would enhance their careers.

The ADDIE model lays out a process to use when designing training programs and coincides with cognitive learning theory.

Current applications of the model follow five steps (Heaster-Ekholm, 2020):

- First, (A) *analyze* the situation or task.
- Second, (D) *design* a program that responds to the needs identified during analysis.
- Third, (D) *develop* the materials and resources needed to match the design decisions.
- Fourth, (I) *implement* the training through delivery of the material.
- Fifth, (E) *evaluate* the program.

2.2 Language of instruction

English knowledge benefits faculty in Uzbekistan because of evolving language shifts from Russian to English. In the 1980s, Russian became the official state language of the United Soviet Socialist Republics (U.S.S.R.), which included present-day Uzbekistan (Bahry et al., 2017). This mandate resulted in linguistic imperialism (e.g., Phillipson, 1992) by requiring Uzbeks to learn Russian in the formal education system. As a result, many older Uzbeks currently speak Uzbek and Russian, despite official data indicating Russian is spoken by only 14% of the population. When Uzbekistan emerged as an independent nation in 1991, one challenge for the burgeoning country was, and continues to be, language policy. Uzbek became the official language of the new republic upon independence. Uzbeks have spoken their native language for centuries and it prevails among 80% of the current population (Hasanova, 2016). However, the country maintains usage of Russian in academic and administrative environments (Bahry et al., 2017). Formal or official correspondence consistently use Cyrillic but inconsistently use Uzbek.

The addition of English into language policy complicates interactions even though it is perceived to be of great importance. English rapidly penetrated the education system in the 1990s (Hasanova, 2016) and former President Islam Karimov issued a resolution on December 10, 2012, stating:

Starting from 2013/2014 school year foreign languages, mainly English, gradually throughout the country will be taught from the first year of schooling in the form of lesson-games and speaking games, continuing to learning the alphabet, reading and spelling in the second year (grade) (Uzbekistan National News Agency, 2012).

Uzbeks interpreted the ‘mainly English’ section of this resolution as ‘only English’ based on personal interactions the authors have had with university professors and administrators. However, data from the World Bank (2018) indicate 15% of second language learning continues in Russian whereas only 3% of second language learning focuses on English. Uzbeks want to increase English language proficiency, but experience limitations and scarcity of needed resources, such as teachers and texts. The debate about English’s global expansion and domination has been chronicled for decades among linguists (see Kuteeva, 2020 for an example). However, Uzbeks perceive English as a liberating language that exemplifies modernity and globalization (Hasanova, 2016). In fact, Uzbek students and staff indicated that Russian threatens the native Uzbek language, but English does not (Bezborodova and Radjabzade, 2021).

Advancing English proficiency will empower adult Uzbeks to expand more fully into an international arena. Additionally, English is affiliated with international “high stakes domains” including the scientific community (Kuteeva, 2020, p. 83). For these reasons, professional development on research and journal publishing conducted in English supports Uzbek faculty members as they join ongoing conversations and scholarship in their specializations. The next section elaborates on the ethnographic case study method to describe the design and implementation of the ADDIE model to this professional development project.

2.3 Learning environment

A case study “retain[s] the holistic and meaningful characteristics of real-life events” (Yin, 2005, p. 2). We chose the case study method to examine context-dependent, intensive examinations of real-life situations as they occurred (Flyvbjerg, 2001, 2006). A single-case design (Yin, 2005) demonstrates the uniqueness and representativeness one, specific experience provides. Situated in the interpretivist paradigm, the case study is reported through an ethnographic lens where we write about the grant experience from our perspectives. We engaged in the project as complete participants (Tracy, 2020) because we actively participated in the grant work and interacted with the participants. This stance gave us first-hand knowledge of the participants’ engagement and quality of work.

Raw records and email correspondence supported the analysis and write-up as both authors took notes during meetings and documented follow-up information with email messages. The handwritten or typewritten raw notes recorded facts, notations, or paraphrases from others *in situ* (Tracy, 2020). The emails provided a record of events while iterative drafting and revising of manuscripts provided moments for analytic reflections (Tracy, 2020). This writing encouraged us to reflect on the ‘why’ of our outcomes, which are presented in the Implications section.

Ethical concerns for ethnographic approaches include the potential for deception and institutional review board (IRB) oversight. We rectify the limitation of perceived deception by recalling a previous version of this paper that was co-authored by members of TIIAME-BB and presented at a conference (Koziel et al., 2021). The primary contact at TIAMME-BB has since left the institution. This manuscript is therefore authored by the US authors. The project required no oversight from the institutional review board because, as the IRB at ISU affirmed (personal communication), the events and outcomes from this project do not generalize to larger populations; the project is educational in nature (not a research intervention); the results do not build or test theory; and the data collected are specific to the grant program. We remain steadfast in the principles of protecting confidentiality by not naming grant participants at the partner institution and reporting pre/post test data in aggregate. We present the case study by introducing the actors, describing the formation of the collaboration, and laying out the work using the ADDIE model.

2.3.1 Actors

This case brings together the Central Asia University Partnerships Program (UniCEN), two faculty members from Iowa State University, and colleagues at the Tashkent Institute of Irrigation and Agricultural Mechanization Engineering–Bukhara Branch (TIIAME-BB). UniCEN

is a division of American Councils for International Education, who, in collaboration with the US Department of State, provide grant opportunities to support partnerships between Central Asian and US HEIs. UniCEN’s work supports a need to increase internationalization of HEIs in Uzbekistan (World Bank, 2018).

The Iowa State University faculty on this project were each former Fulbright recipients with postings in Uzbekistan—Professor Coffelt from English and Communication Studies and Professor Koziel from ABE. Coffelt’s Fulbright experience in Uzbekistan (e.g., Coffelt, 2024) motivated her to continue collaborations and expand intercultural communication knowledge. Koziel has nearly three decades of experience as a mentor, researcher, and educator, and focuses on the nexus of environment, animal agriculture, and chemistry. Koziel is an L2 speaker of English and can relate to the grant participants who had varying levels of English language proficiency. Koziel has good understanding of Central Asian culture and geopolitics, including an understanding of the societal impact of Soviet occupation and the challenges of transformation (Saidmamatov et al., 2020), similar to those experienced in his native Poland. Both authors share an interest in supporting faculty development at HEIs in Uzbekistan.

TIIAME-BB (now named Bukhara Institute of Natural Resources Management of the National Research University of TIIAME) is an important training institute in Uzbekistan for agricultural mechanization, granting bachelor of science, master of science, and doctoral degrees. TIIAME was the #2 ranked university in Uzbekistan in 2019 and was also ranked by Quacquarelli Symonds (QS) in the 301–350 range of Eastern Europe and Central Asian universities. TIIAME-BB sought collaborations with universities around the world to internationalize research and teaching programs. The director of international relations served as the primary contact for this project.

2.3.2 The actors unite

In March 2020, UniCEN announced a grant program consisting of a two-part application and matching process. First, HEIs in Uzbekistan submitted proposals to UniCEN that described their goals and objectives in working with a US partner institution. UniCEN approved applications from HEIs in Uzbekistan and issued a call to US institutions to apply for a partnership grant. Coffelt and Koziel reviewed the list of Uzbek institutions. TIIAME-BB’s goals to (a) train professors to conduct high-quality research and publish research results in peer-reviewed, scientific journals and apply for grants and (b) use best practices to develop research capacity and sustain a partnership with a US HEI were areas where Coffelt and Koziel had expertise and motivation. They submitted a proposal that would satisfy the objectives presented by TIIAME-BB. UniCEN awarded a grant to Iowa State University called *Enhancing the Reputation of Research in Uzbekistan through Professional Development*.

2.3.3 Implementation with ADDIE

The grant work began in September 2020 and followed the ADDIE process to design a professional development/training program for adult learners. Each step in this process follows and includes the decisions and rationale at each step.

2.3.3.1 (A) Analyze

A needs analysis occurred in November 2020 to refine the goals originally provided on TIIAME-BB’s proposal. The needs analysis meeting took place over Zoom with Coffelt, Koziel, and 11

representatives from TIAME-BB, including the director of international relations, selected administrators, and six faculty members. Coffelt and Koziel prepared questions for the needs analysis (Appendix A). The meeting agenda organized questions into broad, specific, and closing questions. The ambitious list of questions required editing during the meeting to account for the elaborate answers provided. We scheduled the meeting for 2 h and listed this expectation on the prepared agenda. We did not expect to get through all the questions, but got through fewer than we anticipated. Attendees reiterated the needs established in their initial proposal, such as research development and publishing in the world's leading journals. Some attendees identified disciplinary content knowledge such as soil salinization, advance laser-leveling for irrigation, management of irrigation ditches, and others. Their hoped-for outcomes included writing manuscripts, international grants, or technical content focused on solutions.

Coffelt and Koziel analyzed the responses from the meeting and finalized a list of topics. Several needs were identified; however, many individuals in the meeting noted the need for conducting research and publishing in international journals. Both authors possessed this knowledge and experience, and this need was specifically mentioned in TIAME-BB's initial application. The World Bank (2010) identified expanding research capacity as a need for economic expansion in transitional economies, as well. Thus, we proceeded to develop a program with these foci with the taken for granted assumption that we had shared meaning about conducting research and publishing in international journals. The authors recognized the critique of such professional development programs because they press for the universality of English, overlook the importance of regional or national journals to address local issues, and expect authors to conform to dominant writing conventions for the presentation of scientific research (Getahun et al., 2021). However, many countries not in the Global North, such as Uzbekistan, have endorsed the belief that they need to publish in international, high impact journals, many of which are published in English. This grant work supports one Uzbek university toward their stated goal.

2.3.3.2 (D) Design

Next, the authors developed a curriculum plan. The curriculum included learning modules with the following objectives: identify your discipline and specialization, apply ethical standards, design a research project, write and present results, find and apply for grants, and demonstrate a scholarly reputation. Each module had subtopics with learning objectives, structure, and activities (see Table 1). Participants watched video lectures to obtain or enhance their knowledge. Each video was accompanied by a transcript. Captions could be turned on so that participants could read and listen at the same time. Table 2 lists the titles of video lectures.

2.3.3.3 (D) Develop

Nearly all distance education programs that apply the ADDIE model are delivered with asynchronous delivery (Spatioti et al., 2022), which we adopted. Seminars for this project were delivered using Canvas Free for Teachers as the platform for virtual delivery because Iowa State University had experience with this learning management system, and it would be free for the Uzbek participants. The virtual presentations were prepared with the support of Iowa State's instructional technology office (ITO) to provide support for online

instruction initiatives. ITO assigned an instructional designer to support the authors with online content development.

The staff at ITO created a PowerPoint template to provide visual continuity throughout the curriculum. PowerPoint files were prepared by the authors. A graduate assistant at ITO evaluated clarity of ideas, slide layout, and consistent application of formatting standards, among other elements. The review also applied universal design principles.

The ITO staff then augmented the PowerPoint files with audio and video enhancements. Using Studio in Canvas, each author video-recorded their respective content with visual and text support provided on PowerPoint slides. The use of multimedia presentations in asynchronous delivery is common in distance education that uses the ADDIE model (Spatioti et al., 2022). Presentations ranged in length from 5 to 40 min. ITO staff evaluated the production and sound quality, commenting on background colors, lighting, and orientation within the recording area. When the video and audio were deemed ready, ITO used voice-to-text software to add subtitles to the presentations. While designed for accessibility purposes, subtitles benefitted grant participants who had varying levels of English proficiency. ITO staff uploaded all documents to the file manager in Canvas Free for Teacher.

Coffelt finished content development by uploading a syllabus and schedule, creating modules, placing video and pdf files in the relevant modules, programming the dates for module release, writing instructions for assignments, and creating a pre/post-test. Each module contained an overview page, links to presentations, a discussion forum, and an assignment.

2.3.3.4 (I) Implement

The program launched in January 2021 with 68 faculty and advanced graduate students at TIAME-BB. The head of international relations led institutional efforts to establish criteria for participation. In this way, they regulated who could and/or needed to participate to meet the goals of TIAME-BB. Participants viewed and read orientation materials, then completed their first assignment, a pre-test. The pretest consisted of 50 multiple-choice questions related to the content covered in the program (see Tables 1, 2). Sample items included *After reading the introduction and/or literature review section of a research article, you should know:* or *Read the two statements below and then select the one that is the null hypothesis.* There were 58 participants who took the pretest resulting in a mean score of 38.3 (range = 14–50). Participants progressed through the modules each week. A discussion forum was provided with each module, but rarely utilized. All content was delivered in English.

The primary assignment was for each participant to complete one writing project by the end of the program. The options for their project included a paper ready to submit for publication, a paper ready to submit to a conference, a grant proposal, a research proposal, or another writing project of their choosing. Each participant made their selection early in the program. Included with each module was a prompt to work on their project in ways that applied the material from specific modules.

Participants submitted their progress at the end of designated modules. Coffelt provided feedback on each submission using the annotation features in Canvas Free for Teachers or 'Track Changes' in downloadable versions of the papers. The intent was a scaffolded approach where participants received feedback at

TABLE 1 Curriculum plan and learning modules.

Topic	Learning objectives	Est. time	Structure	Activities
Module 00: Course orientation (1 week)				
Introductory session	Acquire program information from orientation videos, syllabus, and project description	30 min	Read <i>Welcome and Start Here</i> information Watch orientation videos Read orientation materials	Pre-test Select project Discussion forum
Module 1: Overview (1 week)				
Research overview	Distinguish among theoretical, empirical, and applied research	15 min	Watch video lecture Skim theoretical, empirical, and applied sample articles	Discussion forum
Research process	Identify steps in the research process	30 min	Watch video lecture	Submit program of research statement
Module 2: Identifying your Discipline and Specialization (1 week)				
Entering an academic conversation	Solidify your academic discipline, specialization, and academic community	30 min	Watch video lecture	Discussion forum
	Recognize reliable and credible journals and articles in your field	1 h	Watch video lectures	Find 30–50 articles to support project
Module 3: Applying Ethical Standards (1 week)				
Research ethics	Describe federal requirements in the US	1 h	Watch video lecture	Write ethical standards into the paper
Writing ethics	Identify where and how to write ethics procedures Implement conventional authorship principles	1 h	Watch video lecture	Discussion forum
	Prepare quotations, in-text citations, and a references section in accordance with the field's style guide Avoid plagiarism	1 h	Watch video lecture	Write references section for the articles found in the previous module
Module 4: Designing a Research Project (4 weeks)				
Selecting variables	Define conceptualization, operationalization, independent, dependent, mediating, moderating	30 min	Watch video lectures	Select/identify variables for project Discussion forum
Hypothesis testing	Distinguish between the null and alternate hypothesis Distinguish between tests of association or difference Interpret the outcome of hypothesis testing	30 min	Watch video lecture	Write null and alternate hypothesis for project
Conceptualization	Explain a purpose statement Recall principles to develop an argument; establish credibility; identify gaps; and present a hypothesis	2 h	Watch video lecture	Write introduction and literature review
Operationalization	Define nominal, ordinal, interval, and ratio variables	30 min	Watch video lecture	Identify level of measurement for variables
Validity & reliability	Explain validity and reliability Identify how researchers establish validity and reliability	30 min	Watch video lecture	

(Continued)

TABLE 1 (Continued)

Topic	Learning objectives	Est. time	Structure	Activities
Procedures: Experiments	Recall types of experimental designs	2 h	Watch video lecture	
Procedures: Sampling	Identify forms of random and nonrandom sampling	1 h	Watch video lecture	
Writing	Recall writing conventions in a methods section	1 h	Watch video lectures	Write the methods section
	Writing Consultation 1	30 min	Synchronous	Discuss project
Module 5: Writing and Presenting Results (3 weeks)				
Analysis and results	State the results of a study using writing conventions for a designated style guide	2 h	Watch video lectures	Write a results section if the data are collected
	Recognize the conventions to write a discussion section	30 min	Watch video lectures	Discussion forum
Module 6: Finding and Applying for Grants (2 weeks)				
Grants	Find grants Recognize the content appropriate for sections of a grant Preview how to prepare a budget and budget justification	5 h	Watch video lecture	Submit a list of granting agencies germane to your program of research Discussion forum
Module 7: Showing your Scholarly Reputation (1 week)				
Public profile	Examine Google Scholar, Research Gate, and others as potential outlets	1 h	Watch video lecture Skim links to Google Scholar, ORCID, Scopus, etc.	Discussion forum
Using databases	Distinguish among Scopus, Publons, Web of Science, Research Gate, Google Scholar Clarify the purpose of an ORCID Evaluate publication metrics	2 h	Watch video lecture	
Writing habits	Recall different writing habits	30 min	Watch video lecture Watch online resources for professional development Skim links to resources such as Grammarly, Publons, etc.	
Submitting manuscripts to conferences and journals	Identify 5–10 reputable, peer-reviewed journals where articles could be submitted for publication	30 min	Watch video lectures Skim websites and articles related to predatory journals Skim predatory conference website and article	Submit a list of 3–5 upcoming conferences that would be of interest
Presenting at a conference	Outline a conference presentation; learn best practices for presenting research	1 h	Watch video lecture	Take the post-test Submit final project
Supplemental materials	To describe the HEI environment in the US To elaborate on learning management systems		Watch video lectures	

each step, revised, and resubmitted while integrating new sections that corresponded to each module. This pattern continued throughout the program.

By the end of the program, 16 participants wrote some form of a paper. Nineteen participants took the post-test resulting in a mean score of 40.6 (*range* = 25–50). Eighteen participants took both the

pre- and post-test. Of these, four had no change in their score, 11 increased, and three decreased.

Participants were recognized at three levels: certificate of participation ($n = 52$), certificate of completion with a \$75 stipend ($n = 5$), and certificate of completion with distinction with a \$99 stipend ($n = 10$). Those who began the program and completed at least

TABLE 2 Titles of video lectures.

Module	Video lecture title	Video length (min:sec)
00: Course Orientation		
	Orientation videos	13:41 4:56 6:00 2:33
01: Overview		
	Academic research overview	9:24
	Research process	6:24
02: Identifying your Discipline and Specialization		
	Watch entering an academic conversation video lecture	11:06
	Access current literature video lectures	26:46 8:54 12:35
03: Applying Ethical Standards		
	Research ethics	22:22
	Writing ethics	22:58
	References and citations	27:54
04: Designing a Research Project		
	Overview	2:23
	Variables	34:34
	Steps in hypothesis/significance testing	21:56
	Conceptualization and writing a literature review	28:56
	Operationalization	11:30
	Validity and reliability	19:07
	Procedures: experiments	14:10
	Sampling	23:48
	Writing the methods section	10:24
	Wrap-up	1:47
05: Writing and Presenting Results		
	Conducting analyses and writing the results section	11:08
	Writing: verbs	16:16
	Writing: pronouns	21:42
	Writing: conciseness and clarity	18:13
	Writing: continuity and flow	13:04
	Present data visually when appropriate	16:55
	Discussion section	6:03
	Title, abstract, and key words	13:16
06: Finding and Applying for Grants		
	Finding grants	32:00
07: Showing your Scholarly Reputation		
	Professional profile	22:58
	Writing habits	18:28
	Online resources for professional development	14:51
	Conference presentations	32:00
	Presenting at conferences	22:58
	Journal submissions	14:51
	Predatory journals	21:19
	Predatory conferences	13:23
Supplemental material	Research and teaching universities in the US	9:23
	Higher education context in the US	10:47
	Learning management system (LMS) overview	2:12

one element received a certificate of participation. Those who began the program and completed 50% of the activities, including a final paper, received a certificate of completion. Those recognized for distinction showed exceptional dedication for the duration of the program and submitted a complete paper.

COVID-related travel restrictions were lifted during the grant period, so Coffelt traveled to Bukhara, Uzbekistan at the end of the grant project in June 2021. During this visit, she met individually with 22 grant participants, dispersed the stipends, discussed the participants' writing projects, and guided each participant to set individual goals for the advancement of their writing project. She presented to the university administration and spent time in meetings with the department heads of English and international relations. These discussions resembled brainstorming sessions by sharing ideas for future collaborations that crossed English for academic purposes, research and writing, and cultural awareness.

2.3.3.5 (E) Evaluate

Assessments included pre- and post-tests and a writing project. Two individual, virtual writing consultations were added after the grant began. These virtual sessions between the faculty at Iowa State and the grant participants at TIAME-BB personalized the program for the participants while giving them richer feedback on their projects than type-written feedback can do. At the time of grant completion, it was clear that development of new projects would require financial support, more than Iowa State University or TIAME-BB had available. Their ideas included short-term English training at Iowa State for teachers, online English classes for adult learners, and improving and revising the existing program, among others. Each institution agreed to watch for grant calls that would help them fulfill some of their ambitious ideas. Additional evaluation of the project appears below.

2.4 Implications

This section completes the evaluation of the project by presenting an analysis of salient aspects of the grant project. We address adult learners' outcomes, content knowledge outcomes, and bridging disciplinary backgrounds because they were initial, underlying objectives of the project. Then, we discuss the limitations of the project.

2.4.1 Adult learners' outcomes

From an adult learning and professional development standpoint, the project seemed like a disappointment. We began the project with 68 participants, which reinforced interest in the program content. The early modules and first major writing assignment required a literature review. There were 19 submissions. Nearly all of the submissions appeared to be previous publications, rather than new writing. As the program unfolded, participation decreased. By the end, 10 individuals submitted an original, complete paper.

The poor attrition could be explained with a few possibilities. First, we received feedback around week eight that the workload was too much. Second, Coffelt was told that some only participated for the stipend, a statement difficult to verify. Third, the English-only instruction may have exceeded some of the participants' abilities. Fourth, perhaps the research method we presented was not applicable for some of the specializations. For instance, some of the papers

showed models for equipment design, whereas our content applied to experimental testing and survey data collection. Should we be able to repeat this program, we will ask administrators to review the curriculum between the needs assessment and content preparation. This step would instill confidence that the material selected matches the intended needs. Fifth, cultural variations in how to organize and present material may have made the content seem illogical to Uzbek learners. We followed a linear writing approach, whereas future projects should learn more about Uzbek writing education. Sixth, most participants were men and directly engaged in agriculture engineering teaching and research. There may have been credibility issues with involvement from a woman who was not an agriculture engineer. It is not known how this disparity affected the program outcomes. Future programing efforts could potentially address this question.

Another disappointing outcome involved instances of plagiarism. Use of the plagiarism-checking tool, iThenticate (iThenticate, 2024), for the final submissions identified alarming similarities between the participants' papers and the number of previously published materials by others. Additionally, the participants did not properly cite and reference their own previously published material. In retrospect, we could have emphasized originality more in the ethics module. Further, conducting plagiarism checks earlier in the program could have detected the issue and given the authors time to address this aspect of writing during the program.

Despite these disappointing indicators, one of the staff from the granting agency acclaimed the program because of the investment faculty at a US university made in a project with an Uzbek university. The collaboration itself allowed TIAME-BB to report completion of internationalization efforts. The *enactment* of the grant served as an indicator of success for the faculty and staff at TIAME-BB and for the granting agency.

2.4.2 Content knowledge outcomes

The results from the pre- and post-test survey showed little improvement, only two points on the average score, suggesting little learning on research and publishing practices. Some of the participants had very high scores at the beginning of the program, indicating their previous educational experiences successfully covered scientific research design concepts. The average score of 38 on the pre-test implies participants had a reasonable amount of knowledge on the concepts, and the slight uptick on the post-test average score indicates modest improvement. We had hoped to see more improvement overall, especially from those with low initial scores. Perhaps they had the knowledge but did not have the English aptitude to showcase that knowledge. Similarly, they may not have had the knowledge and did not have the English proficiency to learn the material. Other variables could be plausible, such as motivation, time, or lack of familiarity with Canvas Free for Teachers, among others. Despite responding to TIAME's objectives in their application and our needs analysis, the content selected for delivery would have benefited from more analysis and review before program implementation.

2.4.3 Bridging disciplinary backgrounds

This project provides a unique and successful example of an interdisciplinary collaboration that supports adult learners. The grant project brought together disciplines with seeming incompatibility. ABE and English typify humanities and hard sciences. In this case,

both Iowa State University researchers rely on the scientific method. Their similar approaches to research design, writing, and publishing benefited the Uzbek grant participants.

The project echoes the findings from an interdisciplinary, international collaboration in health and higher education, namely the importance of information sharing and communication (Teunissen et al., 2023). Specifically, their grant-funded project, like this one, showed that information and communication aspects were strong predictors of quality. Reflections by the US collaborators suggest their interactions were positive and productive. Their ongoing collaboration on this publication is further evidence of their success at interdisciplinary collaborations.

2.4.4 Limitations

The primary challenge for this program was the language barrier. The language of instruction was in English, which was expected by the granting agency. We accounted for variations in English language proficiency by moderating the rate of speech in the video presentations, using captions on the videos, and preparing transcripts. While not an immersion experience, the grant gave participants an opportunity to hear English spoken by those with high proficiency and learn new English vocabulary. Adult Uzbeks have highly varied proficiency levels in English, which was a challenge in this program. Nearly all participants relied on high-proficiency colleagues or translation software to complete their assignments. Future initiatives could be improved by implementing a language proficiency test to screen for eligibility or place participants into different groups.

This case study reveals a shortcoming with Uzbekistan's decree to learn English. The former president's resolution explicitly addressed the younger generation, "*In order to radically improve the system of teaching the younger generation in foreign languages...*" (Uzbekistan National News Agency, 2012). If the government continues to pressure faculty to publish in Q1, international journals, many of which print in English (Kuteeva and Mauranen, 2014), faculty and adult learners in Uzbekistan need English language education. The resolution rightfully has a forward stance with preparation of young people through education. However, the omission of adult education in this resolution is somewhat surprising given the inclusion of adult education when Uzbek became the official language (Hasanova, 2016). A gap exists for mid-late career professionals who aspire to contribute to Uzbekistan's national initiatives and international aims but have had no to limited formal English instruction.

Overall, language development in the Central Asian region requires educational reform, teacher education, and curriculum development (Bahry et al., 2017). There aren't enough English teachers in Uzbekistan to teach everyone, and too many of the English teachers learned English in Uzbekistan and have never had an immersion experience with native English speakers. It is remarkable, really, at the English proficiency that prevails in the country. For example, 37% of Uzbek students believe they are equally able to discuss their academic and professional interests in both Uzbek and English (Bezborodova and Radjabzade, 2021). However, the English teachers often lack discipline-specific vocabulary (personal communication with English teachers at three universities) that would be beneficial for their students. Despite Uzbek governmental decrees and motivation to teach and

learn, several challenges impede success. These include insufficient government funding, insufficient pre- and in-service teacher training, slow implementation of new teaching methods, high cost of textbooks, low availability of instructional technology, shortage of skilled teachers, low pay for teachers, and limited English application opportunities outside of school (Hasanova, 2016). Indeed, the needs are great for adult learners in Uzbekistan.

2.4.5 Future considerations

By the end of the grant period, we had a more realistic understanding of the research expectations in Uzbekistan. Further, from our US vantage point, it seemed unrealistic for Uzbek HEIs to increase the amount of research expected, to publish that research in international journals, and to publish that research in English while maintaining varied teaching loads. In-person delivery would have allowed for greater audience analysis and adaptation during the program. However, the virtual platform proved to be a benefit when travel restrictions were in place. The time difference between Uzbekistan and Iowa is 11 or 12 h, depending on daylight savings time. There is very little overlap when meetings can reasonably be held. Virtual platforms facilitate international collaborations (Heaster-Ekholm, 2020) with their on-demand characteristics, access to support, and quality goals. Zhang (2020) argued for the online delivery of English language learning communities using the ADDIE model, which shows an integration of teaching and learning methods related to the current case.

2.5 Final remarks

This case represents opportunities for faculty to extend educational outreach initiatives to international, adult learners. The country of Uzbekistan is rapidly advancing all sectors of their society to be competitive in a global marketplace. Their needs for professional development are vast and their interest in elevating research is important. They recognize the value of English language learning and international, higher education opportunities, while maintaining national pride. Many Uzbek HEIs are eager to engage in professional development with US institutions, specifically. As future scholars pursue collaborative, international projects, the experiences presented here prompt ideas of how to adapt, improve, or avoid issues. We were pleased that our proposal was selected; we appreciated the interactions with colleagues from TIIAME-BB; we valued the international collaboration and experiential learning; we are aware of improvement opportunities; we are hopeful that participants realized new insights from their participation. Changing mindsets and impacting academic culture is challenging, especially in international setting. Some elements of the transformative learning theory (TLT) in the context of adult and young adult education could be considered (Mezirow, 1991) for improvement of this program.

This article should be a helpful reminder to policymakers that international academic ranking uses quality assessment metrics that require the use of the English language. While useful and commonly used, it necessarily misses the local and regional cultural context and

constraints. It could be argued that international metrics and rankings could be improved by, e.g., incorporating country-based rankings and the impact of scholarly output in official languages other than English.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

Ethics statement

Ethical approval was not required for the study involving humans in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants or the participants' legal guardians/next of kin in accordance with the national legislation and the institutional requirements.

Author contributions

TC: Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing. JK: Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The authors declare that no Gen AI was used in the creation of this manuscript.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2025.1523886/full#supplementary-material>.

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