

## **Progressive Educational Actions in a Post-Soviet Republic: Meaningful Collaborations and Empowerment**

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### **Abstract**

As the last Soviet republic to become an independent nation, Kazakhstan has worked diligently to transform and develop its educational system including systemic changes related to decentralization, financing changes, and the shift to a credit system. A professional health sciences education workshop delivered in Kazakhstan exemplifies progressive educational approaches. Attendees were educators from universities across Kazakhstan. The workshop was the product of collaboration between educators in the United States and Kazakhstan. Team-based learning was both a pedagogic method and topic of the workshop. Technology played a central role in the workshop, as it was integral to workshop development, collaboration, and evaluation. Furthermore, technology became a key content area of the workshop, as the educators presented advances in technology and specific tools to aid in the education of future medical professionals in Kazakhstan. In the months following the workshop, attendees embraced the challenge to take what they have learned back to their own universities by telling their stories. Using the collaborative learning approach and technological tools from the workshop, the attendees' spirit of sharing reflects the dynamic development of education in Kazakhstan in the post-Soviet era.

**Keywords:** Kazakhstan, professional development, health sciences, collaborative learning, mixed methods, information and communication technologies

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## Introduction

A former Soviet Republic, Kazakhstan achieved liberation in 1991 and entered into a period of transition and reform. Although the nation achieved independence, the ensuing period carried sequela such as governmental crises, crime, corruption, economic strife, and social tensions (Silova, Johnson, & Heyneman, 2007). Weakening social cohesion and fragmentation within the society began to increase throughout the Central Asian republics (International Crisis Group, 2001). Kazakhstan, however, appears to have persevered in its transition to an independent nation state. Relative to other Central Asian republics, Kazakhstan experienced economic success (International Crisis Group, 2003a). Although money spent on education as a proportion of GDP declined a sharp 50% after independence and the proportion remains low relative to Organization for Economic Co-operation and Development (OECD) averages, stronger economic conditions provide more money to invest in education (Silova et al., 2007; World Bank, 2012). Notably, Kazakhstan launched an effort to make new, significant investments in education, seemingly understanding the economic value of education. This effort was marked by a priority shift and supported economically through appropriations for new initiatives. Kazakhstan has worked diligently to transform and develop its educational system including systemic changes related to decentralization, financing, and the shift to a credit system (Ministry of Education and Science of the Republic of Kazakhstan, 2009). The aim of this paper is to exemplify progressive educational approaches through the story of a professional health sciences education workshop delivered to a community of health educators in Shymkent, Kazakhstan in 2011.

## Background and Context

Inherited from the Soviet System of health professional training, the Kazakh system remained largely unchanged from independence through 2004 (Kulzhanov & Rechel, 2007). Through that time, it appeared to be plagued with three major problems: poor training quality; poor investment in educational buildings, facilities, and educational technology; and an immature system for regulating education. The Kazakhstan health system is unique and remains in a transitional period, and it is necessary to provide context by discussing the Kazakh system for training healthcare personnel. Because the topic of health sciences education intersects two systems, higher education and healthcare, we will discuss the intersection of both systems and review developments related to decentralization, financing, and the credit system.

The Kazakh health professional education system experienced structural changes in addition to the policy reforms discussed in the next section. Consistent with medical education reforms, in 2007 the health sciences education system narrowed its focus from eight to five educational areas: general medicine, dentistry, pharmacy, nursing, and public health (Katsaga, Kulzhanov, Karanikolos, & Rechel, 2012). Despite this concentration, the number of institutions engaged in training health professionals increased. In the period from 2007 through 2009, the number of medical universities decreased by one to seven while the number of nursing colleges increased by seven to 57 (Katsaga et al., 2012). The policies and systems guiding this growing number of institutions became increasingly important.

**Decentralization.** Health professional education in Kazakhstan seems consistent with the general national education policy. In the 2000s the nation witnessed a period of decentralization in the management and finance of education (OECD, 2007; Ministry of Education and Science of the Republic of Kazakhstan, 2009). To this end, the medical universities of Kazakhstan have attained greater autonomy (Katsaga et al., 2012). They now have greater authority to budget and manage their own resources relative to the system under Soviet control.

**Financing.** Poor investment in educational facilities remained problematic post-independence. A five-year program sought to improve Kazakh health services through a better distribution of financing and training healthcare personnel throughout the country (Ministry of Health, 2004). Training of healthcare personnel is especially critical in Kazakhstan because the poor primary care services and poor access to outpatient pharmaceuticals are viewed as principal causes of the overuse and overcrowding of hospitals (Kulzhanov & Rechel, 2007). Having more, better-trained personnel at the outpatient level consequently may reduce overcrowding and right the system. An additional development brought increased numbers of students but threatened the quality of education of health professionals. In an effort to increase revenue, the universities began accepting self-funded tuition for medical students. The immature university regulatory system allowed this to occur. Consequently, the admission requirements for the self-paid students decreased substantially, affecting the quality of students and medical education itself (Kulzhanov & Rechel, 2007).

**Shift to Credit System.** Progressive systemic changes are evident in the shift to a credit system. The first stage was Kazakhstan's decision to implement a major reform to the structure of its educational system by adopting the Bologna Process of the European Union (OECD, 2007). The Bologna Process establishes Bachelor's degrees, Master's degrees, PhDs, and medical degrees around core standards such that degrees are comparable with the European Higher Education Area, allowing faculty and students to move between systems with accepted qualifications. An important step was the introduction of the credit system in 2008, which provided students and faculty with academic mobility to other institutions throughout Kazakhstan and the world (Ministry of Education and Science of the Republic of Kazakhstan, 2009). The credit system was particularly important to health professional education because it will allow academic mobility, laying a foundation for collaboration and innovation. In addition to academic mobility, educators began to realize the meaning of the European Credit Transfer and Accumulation System (ECTS) requirements, as well as its relationship to curriculum design, implementation, and outcomes in Kazakhstan and abroad.

**Health System Developments.** Simultaneously, development was underway in the Kazakh healthcare system. The Health Sector Technology Transfer and Institutional Reform supported by the World Bank sought to facilitate health reform by bringing international best practices to Kazakhstan (Kuhlzhanov & Rechel, 2007). Medical education reform was salient to the project. In addition, transformations commenced in 2005 through the National Program of Health Care Reform and Development for 2005-2010. The Ministry of Health was accountable for implementing the program with five chief responsibilities: reform and develop the health delivery system, including primary care, epidemiological services, and health promotion; improve the health management system; maternal and child health; oversight of the construction and opening of 100 hospitals in areas of need; and reforming medical and pharmaceutical education through training and retraining of health personnel (WHO, 2007). The most recent iteration of reform is the State Health Care Development Programme for 2011-2015 "Salamatty Kazakhstan." To achieve a better health system, the plan explicitly calls for improving medical and pharmaceutical education along with other calls such as strategic planning, a superior regulatory structure, and implementation of innovative technologies (Katsaga et al., 2012). These developments in healthcare in addition to developments in higher education provided the impetus to further the progressive education movement in Kazakhstan.

### **The Professional Health Education Workshop**

The movements presented an opportunity to capitalize on successes within the Kazakh system of health professional education, foster collaboration, and encourage innovation in health education. Thus, the University of Nebraska-Lincoln partnered with the South Kazakhstan

State Pharmaceutical Academy to develop and deliver a week long workshop to medical educators in Kazakhstan in the fall of 2011. The specific topics of the workshop were teaching strategies, professional practice, credit systems, and an introduction to research. The workshop rested on the notion of making learning alive and engaging. The workshop design grew out of the desire to develop learning communities and maintained a learning approach consistent with professional standards for staff development (Ingvarson, 1998; Birman, Desimone, Porter, & Garet, 2000). Its essence was to build on the past and empower participants, and it gave attendees the tools to maximize the usefulness of print and electronic resources—to identify potential best practices and find evidence to value practices. The educators would then have the skills to lead the implementation of best practices, and develop and sustain their efforts from the workshop.

Overall, the approach and content of the workshop departed from current Kazakh practices. In many respects, attendees experienced a steep learning curve, as the workshop challenged attendees to critically examine and re-think their current practices. Participants engaged in much of this work in small teams through a sense making process through group discussion in their native language. Participant learning was supported by three main strategies: inquiry-based learning, collaborative learning, and technology (e.g., cloud-based file sharing and communication) to facilitate collaboration.

### **Developing the Workshop**

In developing the professional development workshop, we relied on an existing English for Special Purposes program led by one of the Kazakh team members (co-author, Samofalova) as a model format. The content, however, was a negotiated product of the international collaboration, as both the U.S. and Kazakh based teams brought perspectives on what the workshop should teach. Furthermore, although the workshop supported a national initiative, we strived to tailor the workshop so that attendees could relate what they learn to their own institutions. Tailoring the workshop in this manner required continual negotiation and collaboration between U.S. and Kazakh team members. The Kazakh team provided essential input to contextualize the content.

Clearly, delivering a workshop internationally provides unique rewards with respect to collaboration and cross-cultural sharing. However, it also presents challenges with regard to developing the workshop collaboratively, delivering the workshop, and appreciating differences among cultures. Using information and communication technologies (ICTs) and engaging in formative in addition to summative evaluation techniques mitigated these concerns. We recognized the ICTs would assist us in developing the workshop internationally but also in fostering international collaboration among teams and workshop attendees (Bishop & Bruce, 2005). Technology included cloud-based file sharing (e.g., Dropbox), email, and internet video conferencing (e.g., Skype). Cloud-based file sharing lent the ability to collaborate, share files and co-author documents. The workshop developers from the U.S. and Kazakhstan communicated in English. Nevertheless, all workshop documentation including readings, surveys, and content required translation into Russian for delivery. Cloud-based file sharing was critical to this effort. File transfer occurred immediately and ensured a common repository for documentation. We maintained frequent communication through email and videoconferencing. Frequent contact allowed for rapid development between the international teams. Furthermore, the tested technology would later serve as communication link between the onsite instructors and team members in the U.S. during the workshop. Based on our positive experiences, we shared and used the tools with workshop attendees. For example, the medical educators had access to a cloud directory with articles and other workshop material.

### **Theoretical Framework**

In developing and delivering the workshop, we drew from theories of progressive education, namely Dewey and Vygotsky. Dewey's philosophy of education centers on the idea that education is learned from interactive experiences (Hansen, 2007). With this view, the workshop presented an opportunity for participants to share their own stories, both learning from each other and also themselves through recounting their experiences. In addition, Dewey (1938) also advocated for attention to indirect education. With the indirect approach, educators focus on the environment of teaching and learning to provide the necessary conditions and environment for learners to work (Hansen, 2007).

Likewise, Vygotsky's theory of education was prominent throughout the workshop—the integration of internal aspects of learning with the social interaction was integral to the workshop and setting (Bruning, Schraw, and Norby, 2011). Namely, the workshop sought a collaborative learning environment, connecting attendees with each other through sharing their experiences and instructors with attendees. The environment itself (Figure 1) further facilitated collaborative learning, as attendees sat in teams around a common table with shared computer equipment (due to resource limitations). In addition, by collaborating with students the instructors were able to guide the construction of meaning and knowledge. Much of this occurred through a scaffolding process in which learners are able “to solve a problem, carry out a task or achieve a goal which would be beyond unassisted efforts” through the instructor “‘controlling’ those elements of the task that are initially beyond the learner's capacity” (Wood, Bruner, and Ross, 1976, p 90).

Finally, literature from the field of community informatics provides a theoretical framework for this study. As noted, information and communications technologies (ICTs) were a critical component to the workshop development, delivery, and content. In the workshop, attendees learned about internet sources for literature research (e.g., Google Scholar) and internet-based tools for collaborating with one another and students (e.g., online surveys, Skype, and Dropbox). Community informatics is an emerging field that focuses on enabling communities with ICTs (Gurstein, 2004). ICTs facilitate collaboration, creativity, and learning and appear to be a vital component to progressive education (Bishop & Bruce, 2005). A recent study by McCredie and Pirani (2012) investigated information technology collaborations in higher education. Their synthesis of their findings with others suggests the following salient components of successful collaboration (McCredie & Pirani, 2012): skilled leadership that is willing to compromise and communicate well, governance and project structures that lead to good decision processes, members that share the vision and important need for collaboration, and adequate financial and technical resources. As applied to education, these factors can enable the information technology (e.g., internet-based communication and collaboration tools) that facilitates collaborative learning projects. The application of technology to collaboration and learning suggests a link between ICTs and progressive education; our paper examines the extent to which these tenets are true in practice.

### **Evaluating the Workshop**

The focus of this mixed methods evaluation study is the professional medical education workshop delivered to a community of medical educators in Kazakhstan. The workshop evaluation was guided by several research questions:

1. What were the expectations of medical educators before the workshop?
2. How did the medical educators participating in the workshop describe the needs of medical education graduates?

3. What results emerge from comparing the qualitative responses of medical educators to their quantitative responses before and after the professional workshop?

### Methods

We applied mixed methods design for both the formative and summative evaluation of the professional development in medical education workshop. Mixed methods research designs combine both quantitative and qualitative data (Creswell & Plano Clark, 2011). The specific type of mixed methods design for this study was a convergent parallel design whereby the researcher implements the quantitative and qualitative strands concurrently (QUAN + QUAL = converge results). Figure 2 presents the mixed methods procedural diagram for the study. In this design, the strands receive equal priority and remain independent during analysis, and the researcher then merges the qualitative findings and quantitative results for an overall interpretation (Creswell & Plano Clark, 2011).

In this study, quantitative data from surveys was used to understand participant's needs and readiness to learn in addition to engage in valuing of the workshop. The qualitative data from open response survey items concomitantly allowed us to explore participants' expectations and feedback concerning the workshop. Mixing then occurred during interpretation by comparing qualitative findings to the quantitative results, which allowed us to draw conclusions from both strands (Creswell & Plano Clark, 2011).

In general, our selection of a mixed method design appears consistent with evaluation designs used within healthcare. Numerous mixed methods evaluation studies appear within the general corpus of healthcare literature and specifically related to healthcare education (e.g., Miller and LaFramboise, 2009). In addition, X called for mixing methods within studies of ICT (Ginger, Kehoe, & Khanal, 2010). However, the design choice seems to be unique in its application to formative and summative evaluation. The rationale for a mixed methods approach to this study is that merging quantitative and qualitative data yielded a more a more complete understanding of the participants' needs and a more thorough evaluation of the workshop than would be obtained by using either type of data independently (Bryman, 2006). In addition, it served a pragmatic purpose by allowing the workshop developers to collect formative information rapidly through an online survey and subsequently adjust the workshop. Mixed methods research allowed for a more complete understanding of the nuances or participant needs within a short time frame, which was critical to this weeklong workshop.

**Participants.** Healthcare educators from across Kazakhstan participated in the weeklong professional medical education workshop. Forty-eight professionals attended the workshop. Response rates for surveys were generally high, with over 75% of attendees completing the survey.

**Data Collection.** The workshop attendees responded to surveys that contained both quantitative and qualitative items. We administered the surveys through Qualtrics online survey software. Medical education specialists in Kazakhstan translated the original English version of the survey into Russian. The data collection occurred through three separate surveys: the workshop readiness survey, the medical skills survey, and the summative survey. The workshop readiness survey included 1) open-ended questions asking about the attendees' backgrounds and learning goals and 2) a quantitative scale that assessed how attendees see themselves as educators. The medical skills survey contained open-ended questions that assessed attendees' perspectives of the necessary skills for future graduates, their thoughts about designing the next generation education system, and a quantitative scale that assessed attendees' perceptions of their own medical education experiences. Finally, the summative survey consisted of four assessments: 1) a quantitative scale on attitudes about teaching and

learning, 2) a quantitative scale on attitudes concerning group work, 3) an open question to assess important points learned, and 4) an open question to assess suggestions for a more engaging workshop. The combination of quantitative and qualitative items in the surveys provided rich information to refine the workshop and evaluate its outcomes.

**Data Analysis.** We analyzed the qualitative data using MAXQDA Version 10 (VERBI GmbH, 2011). Qualitative analysis consisted of coding responses to open question and identifying themes. In addition, we analyzed quantitative data by exporting from the Qualtrics survey tool into SPSS Version 20 to obtain descriptive statistics. Next, we merged the strands by examining the qualitative findings and quantitative results together for interpretation at the formative and summative stages.

**Validation.** Two strategies, triangulation and prolonged engagement, supported the validity of the findings. In triangulation, multiple methods and multiple investigators provide substantiating evidence (Creswell, 2013). The use of multiple investigators supported validation within the qualitative strand of the study. Investigators consisted of specialists in education, Kazakh medical education, and methodology. In this respect, the investigators were able to work through a process of sharing findings and perspectives from each investigator's worldview. The investigators, three of whom observed or presented at the professional development workshop, reviewed themes for accuracy and completeness. This process is consistent with prolonged engagement and persistent observation whereby researchers have extended contact within the field in order to decide what is salient (Creswell, 2013).

## Results

Because each survey involved a mixed methods analysis and utilization of the findings occurred at different time points (i.e., before, during, and after the workshop), the following section covers formative and summative evaluation separately. For each evaluation component, we present the results of the integrated analysis of quantitative and qualitative strands. The presentation of qualitative findings includes all themes and key qualitative codes, following a convention of italicizing codes.

### Formative Evaluation

Focusing the initial surveys on the needs and perceptions of attendees helped to ensure the workshop content was relevant, targeted, and applicable. As such, the formative evaluation rapidly provided information to direct the workshop. Soliciting what attendees hoped to learn and what questions they would like answered yielded five themes: faculty considerations, core concepts in teaching and learning, methods of teaching, how to assess student learning, and changing the system: credit education. Table 1 presents the themes and corresponding codes. Faculty considerations included developing *faculty skills* and "*payment to the faculty.*"

In addition, attendees hoped to learn about core teaching and learning concepts, such as the *cognitive aspects of learning*. They also wanted help to enhance students' "*motivation,*" with particular regard to "*individual student's work.*" Attendees saw *student study skills* as critical to their medical education. The next theme, professional development of teaching methods, is integral to applying these core concepts to education. Specifically, attendees' interests included methods of innovative teaching of "*group learning*" and "*project-based learning*" and saw benefit of "*educational technologies*" to their professional development in these areas. An additional theme was, how to assess student learning? Much of this discussion centered on "*competency-based education.*"

Finally, attendees were interested in changing the system through credit education. To do so, attendees hoped to learn about “*modular education*,” “*academic mobility*,” and *teaching language* within this system. This finding is consistent with the 2007 introduction of the Bologna process to health education in Kazakhstan (Kulzhanov & Rechel, 2007). However, it indicates that medical educators need more information about these changes. Fortunately, participants seem eager to learn. In the quantitative readiness scale, participants most endorsed a desire to learn new skills, with a mean of 96.08 ( $s = 6.86$ ) on a scale of 100. Writing appeared to be moderately challenging for participants. In general, the scale results indicated attendees enjoy teaching and are eager to learn. This disposition combined with the participant desires revealed through the themes provided a solid foundation to tailor the workshop to meet the needs of medical educators in Kazakhstan.

Assessing perceptions concerning medical skills was a key component of the formative evaluation. Professional understanding and self-evaluation provided a measure of the participant pool that would allow us to better gauge the extent to which the workshop closed gaps as intended. In a scale that assessed attendees’ impressions of their own professional education experience, the highest endorsed characteristics were that it was useful, interesting, meaningful, valuable, important, and relevant (see Table 3). These experiences contribute to the medical educators’ current thoughts about medical education.

Consequently, four themes emerged from analysis of qualitative items in the medical skills survey (see Table 4). These themes reflect the issues most important among the attendees. First, the education system should support the future needs of graduates through a “*credit system*” and *outcome focus*. The second theme was that the skills necessary for graduates include medical skills and other critical skills, such as “*communication skills*.” Third, participants felt students need a commitment to life-long learning. Graduates will need ongoing *professional development*. To foster this desire for continuing education, students need to develop their skills to “*study independently*.” Finally, in addition to skills, future graduates need certain personal characteristics. Attendees felt that characteristics such as *ethics, leadership, professionalism, and civic-mindedness* would be beneficial for students and help ensure a successful career. Clearly, the medical educators attending the workshop understood what future graduates need for success in light of their own experience; they merely needed help to foster these skills and characteristics in students.

### Summative Evaluation

The summative evaluation revealed important information about participant perspectives on medical education and the workshop itself. The evaluation included a quantitative assessment of perspectives on teaching and learning (see Table 5). Interestingly, the lowest scored item ( $\bar{x} = 2.47$ ,  $s = 0.84$ ) was: Medical students should spend more time reflecting on ideas than mastering skills. The responses to this item were generally neutral, but responses to other items were favorable. Attendees indicated agreement to strong agreement (i.e., mean response 4.0 or higher on a five-point scale) with six items: 1) the student’s role in learning should be active and initiatory, 2) intrinsic motivation is the key to productive learning, 3) discussion of medical cases and inquiry should receive major emphasis in the typical school day, 4) medical education subjects should be taught in an integrated fashion, 5) medical education classes should be primarily problem-focused, and 6) medical students should be given more time to discuss ideas with each other. The means (with standard deviations in parentheses) for these items were 4.75 (0.44), 4.59 (0.61), 4.41 (0.84), 4.13 (0.91), 4.13 (0.79), and 4.06 (0.88).

Responses to the items suggest that the medical educators generally favored cooperative and inquiry-based learning methods that focus students’ attention on solving authentic problems. Consistent with these results, attendees indicated a favorable disposition

to group discussion and group work, as presented in Table 6. Consistent with inquiry-based learning and scaffolding methods, attendees responded favorably to items concerning directing the group and posing questions that encourage thinking. In fact, participants appeared to embrace group work to the point that they requested more group work in the workshop itself.

The thematic analysis related to important points learned in the workshop yielded four themes (see Table 7). Attendees noted that they learned: 1) core concepts in teaching and learning, 2) changing the system: credit education, 3) professional development of teaching methods, and 4) ways to maintain the focus on outcomes.

**1. Core concepts in teaching and learning.** The attendees' comments regarding core concepts of teaching and learning concerned the role motivation in learning, engaging students in learning, and developing "students' cognitive independence."

**2. Changing the system: credit education.** Regarding changing the system to a credit education model, attendees described their most important take away points: innovative information technologies in credit systems, quality control, academic mobility, and key components of the Bologna program.

**3. Professional development of teaching methods.** The theme of professional development of teaching methods referred to exposure to pedagogic methods that were novel for them. For example, an attendee cited one of the most interesting points as "team-based learning and problem-based methods and their key elements." In addition, many of the comments related to specific technology tools they were exposed to during the workshop. The tools mentioned by attendees included Dropbox type file sharing systems, anti-plagiarism software, word clouds to display key words, Internet chats, and mobile platforms (e.g, smart phones, tablet computers, and personal digital assistants).

**4. Ways to maintain the focus on outcomes.** The theme of maintaining the focus on outcomes concerned both the value of assessment and its techniques. For example, an attendee described the most important point learned in the workshop as "assessment integration" into the educational process and commented on classroom-based action research methods, particularly the application of "mixed investigation methods in education."

Overall, the themes and codes related to important points learned overlapped considerable with what participants hoped to learn in the workshop, as collected in the formative stage. Furthermore, the thematic findings were consistent with our goals and what we hoped the Kazakh medical educators would learn through the workshop.

Table 8 describes attendees' suggestions for a more engaging workshop. Some of the medical educators desired more "*specific examples*" and more discussion of *academic mobility*. In addition, they and as students in the workshop desired to experience learning through more "*small groups*" and "*innovative educational methods.*" Interestingly, many of the educators also desired *better technology* within the workshop classroom, requesting for "better provision with PCs" and "internet access." The introduction of the Bologna Process, which examined information technology provisions, among other criteria, led to additional computer equipment in medical universities in Kazakhstan (Kulzhanov & Rechel, 2007). However, it seems that the medical educators need more technology tools to facilitate learning.

## Discussion

Through the workshop, we directly applied the notion that ICTs and collaboration were imperative to advancing medical education in Kazakhstan. Kazakh medical education has been transforming from a traditional top-down pedagogic style to a student-involved progressive model. The Kazakh workshop sponsors called for professional development of collaborative and inquiry-based methods. Furthermore, they wanted to foster collaboration among Kazakh educators. The American team concurred with this approach. A highly interactive, collaborative workshop served several purposes. It allowed the attendees to experience the approach to learning and it facilitated networking among the educators, developing relationships that we hoped would continue long after the workshop. Developing capacity in this manner enhances the sustainability of workshop outcomes.

In general, the findings of the workshop evaluation were consistent with this conceptualization. The findings indicate that the professional medical education workshop successfully grew bilingual collaboration and culture. This was enhanced through technology tools, inquiry-based learning, and collaborative learning. Participants learned about the use of technology to find current resources (e.g., literature searching), engage in classroom assessment (e.g., online survey tools) and to collaborate (e.g., internet communication and cloud file sharing) within their institution and across institutions. As teams, the attendees worked through practical problems, such as developing competency-based medical education and assessment of students' individual work. The attendees' work was in small teams to facilitate learning and develop networks to build sustainable capacity for progressive medical education. Finally, the workshop appeared successful in the empowerment of participants to lead at their schools by providing a forum for educators to connect with other experts and leverage technology resources to grow and advance in medical education at their own setting.

The workshop emerged as a training of trainers and leaders of best-practices in their respective institutions. In this respect, the educators were able to carry what they experienced back to their educational institution and lead changes there, building on the collaboration and ICT tools used in the workshop. The collaboration begun at the workshop supported an overall workshop goal to not only effect at the level of the individual attendee but the level of the health education system. Building collaborations is critical to empower the community of educators (Ritzo, Nam, Bruce, 2009). To ensure sustainable effects following the initial program, the Kazakh team communicated lessons learned and their own stories through six universities in Kazakhstan and the national Ministry of Health.

The educators attending the workshop appeared to embrace innovative teaching methods, specifically citing team-based learning and the use of ICTs in medical education as salient points from the workshop. The results of the evaluation indicate that they learned new approaches and desired their use in their own lifelong learning, which likely bodes well for its eventual implementation. Furthermore, Kazakh higher education now recognizes and encourages diverse teaching styles, a stark contrast to pedagogy under Soviet control, which was marked by stern lectures and note taking with little interaction among students and professors (Heyneman, 2009). Thus, the attendees' dissemination of their newfound skills in a receptive Kazakh higher education environment may be more likely to promote systemic changes in health professional education.

Despite the apparent successes, a challenge is sustaining connectivity among Kazakh medical educators, collaboration, and supporting ongoing professional development. This is aggravated by a lack of technology, ICT support, and infrastructure. Fortunately, Kazakhstan may be particularly ready to implement ICT. Gomez and Camacho (2011) studied who uses information and communication technologies (ICT) through public access venues, such as libraries, telecenters, and even cybercafés. They found that youth in Kazakhstan

demonstrated significantly higher than average use of libraries and telecenters. (Note: Gomez & Camacho (2011) define a telecenter as a public, non-profit service providing computer access along with other services for community development). Moreover, college-level users in Kazakhstan had a particularly high usage rate of all access venues. As these young people develop and enter healthcare training programs, they may already be quite familiar with ICT, expect it, and use it regularly. Having educators armed with the appropriate ICT tools and progressive pedagogy will likely support their readiness to educate the next generation of health professionals.

Limitations of the evaluation study include the lack of pre-post data to examine change in participants knowledge, skills, and abilities. Rather, the evaluation focused on a comparison of what was needed to what participants indicated the workshop delivered. An additional limitation relates to the short-term nature of the evaluation. Although anecdotal evidence indicates ongoing work and sustainability, an additional study is needed to examine the long-term systemic effect of the workshop.

### **Conclusion**

Developing and delivering an international workshop on professional medical education required close collaboration between teams in the United States and Kazakhstan. By leveraging technology, we were able to collaborate better and implement a mixed methods formative and summative evaluation. The medical educators attending the workshop were interested developing their skills as faculty, developing their teaching methods, assessing student learning, and changing the medical education system. Results indicate they were open and eager to learn. Applying this information immediately allowed us to guide the workshop and ensure relevance. The summative evaluation indicated that attendees had desirable perspectives on teaching and learning. Analysis of what the attendees learned revealed considerable commonality with what they wanted to learn, as indicated in the formative phase. This paper may be of interests to professional health educators seeking to implement progressive educational strategies. In addition, individuals developing and delivering professional development workshops may benefit from the discussion of new technology implementation and the description of a mixed methods approach to formative and summative workshop evaluation. Furthermore, it describes cross-cultural educational development in central Asia. In addition, it appears to be a unique mixed methods approach to workshop formative and summative evaluation (Harnisch, Creswell, & Guetterman, 2012).

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APPENDIX

Table 1. *Readiness Themes: What Do You Hope to Learn and What Are Two Questions You Would Like Answered?*

Faculty considerations	Concepts core to teaching and learning	Changing the system: credit education	How to assess student learning?	Professional development of teaching methods
<ul style="list-style-type: none"> <li>• faculty skills</li> <li>• payment to faculty</li> <li>• sharing the expertise</li> </ul>	<ul style="list-style-type: none"> <li>• cognitive aspects of learning</li> <li>• motivation</li> <li>• student study skills</li> <li>• individual student work</li> </ul>	<ul style="list-style-type: none"> <li>• academic mobility</li> <li>• credit education system</li> <li>• modular education</li> <li>• educational process</li> <li>• student input in curriculum development</li> <li>• teaching language in credit system</li> </ul>	<ul style="list-style-type: none"> <li>• assessment</li> <li>• improve student evaluations</li> <li>• obtaining feedback</li> <li>• competency-based education</li> <li>• professional competency</li> </ul>	<ul style="list-style-type: none"> <li>• group learning</li> <li>• Innovative teaching methods</li> <li>• interactive methods</li> <li>• project based learning</li> <li>• self-learning</li> <li>• educational technologies</li> </ul>

Table 2. *Attendees' Self-perceptions as an Educator from the Workshop Readiness Assessment*

Item ( <i>n</i> = 40)	Mean	SD	Min	Max
I would enjoy an opportunity to learn new skills	96.08	6.86	79	100
I like to read	92.55	12.71	51	100
I enjoy learning with other people	90.95	13.18	50	100
I enjoy teaching	90.80	14.80	28	100
Learning gives me a feeling of accomplishment	86.28	15.15	49	100
Learning is easy for me	78.30	26.58	8	100
Writing is challenging*	28.28	35.13	0	100
New subjects scare me*	25.23	31.71	0	100
I have trouble learning*	14.88	22.06	0	97

Note: Items are in reference to an overall statement: "Describe yourself as you see yourself as an educator." Respondents selected the level of truthfulness of each statement from *False* (0) to *True* (100). \*Item should be reverse-coded.

Table 3. *Attendees' Self-Impression of Their Professional Education Experience*

Item (n = 28)	Mean	SD	Min	Max
Useless (1): Useful (7)	5.64	1.83	1	7
Uninteresting (1): Interesting (7)	5.54	1.77	1	7
Meaningless (1): Meaningful (7)	5.54	1.88	1	7
Worthless (1): Valuable (7)	5.29	2.03	1	7
Theoretical (1): Practical (7)	4.68	1.79	1	7
Inexpensive (1): Expensive (7)	4.68	1.93	1	7
Concrete (1): Abstract (7)	4.61	1.87	1	7
Easy (1): Difficult (7)	3.54	1.93	1	7
Exciting (1): Boring (7)	2.36	1.39	1	5
Relevant (1): Irrelevant (7)	2.11	1.34	1	6
Important (1): Unimportant (7)	1.93	1.49	1	7

Note: In this semantic differential scale, respondents provided a comparative response to which of the above anchors for each item seemed most characteristic of the impression they have of their professional education experience.

Table 4. *Medical Skills Themes: What Do Future Graduates Need*

The education system should support the future needs of graduates	Skills necessary for graduates include medical skills and other critical skills	Students need a commitment to life long learning	In addition to skills, future graduates need certain personal characteristics
<ul style="list-style-type: none"> <li>• credit system</li> <li>• outcome focus</li> </ul>	<ul style="list-style-type: none"> <li>• communication skills</li> <li>• skill building</li> <li>• competency</li> </ul>	<ul style="list-style-type: none"> <li>• professional development (continuing ed for students)</li> <li>• study independently</li> </ul>	<ul style="list-style-type: none"> <li>• importance of ethics</li> <li>• continuous improvement</li> <li>• leadership</li> <li>• professionalism</li> <li>• civic-mindedness</li> </ul>

Table 5. *Perspectives on Teaching and Learning as a Medical Education Professional from the Summative Survey*

Item (n = 32)	Mean	SD	Min	Max
The student's role in learning should be active and initiatory	4.75	0.44	4	5
Intrinsic motivation is the key to productive learning	4.59	0.61	3	5
Discussion of medical cases and inquiry should receive major emphasis in the typical school day	4.41	0.84	1	5
Medical education subjects should be taught in an integrated fashion	4.13	0.91	1	5
Medical education classes should be primarily problem-focused	4.13	0.79	1	5
Medical students should be given more time to discuss ideas with each other	4.06	0.88	1	5
Medical students need class time to discuss the meaning and purpose of what they are learning	3.91	0.59	3	5
Medical student behavior and student interest are closely connected	3.91	0.82	1	5
Cooperative work and group projects should predominate	3.81	0.47	3	5
More time should be devoted to scientific independent research	3.75	0.80	1	5
The major purpose of assessment ought to be self-assessment	3.63	0.87	1	5
Whole-class teaching should be kept to a minimum	3.28	0.99	1	5
Medical students should play an active role in curriculum planning	3.03	1.03	1	5
Medical students themselves ought to help decide what they should study	3.03	0.78	1	4
Protocols of diagnostic and treatment will contribute little to real learning	2.88	0.71	2	4
Medical students should spend more time reflecting on ideas than mastering skills	2.47	0.84	1	5

Note: Respondents selected their level of agreement with each statement from *Strongly Disagree* (1) to *Strongly Agree* (5).

Table 6. *Participants Dispositions about Group Discussion and Group Work from the Summative Survey*

Item	<i>n</i>	Mean	<i>SD</i>	Minimum	Maximum
Persists/finds alternatives when the group is stuck	32	89.31	7.74	68	100
Supports the group when there is frustration	32	87.00	18.93	1	100
Energizes the group with new ideas	32	85.88	13.12	49	100
Poses questions to engage thinking	32	80.53	13.55	41	100
Monitors for accuracy and precision	32	79.16	21.98	18	100
Clarifies ideas, concepts, or terminology	32	77.78	18.94	21	100
Edits with care	32	69.53	25.90	11	100
Read articles with understanding and empathy	32	69.50	25.40	7	100

Note: Respondents indicated their disposition about each item using a slider to indicate agreement from 0 to 100.

Table 7. *Summative Themes: Important Points Learned*

Concepts core to teaching and learning	Changing the system: credit education	Professional development of teaching methods	Ways to maintain the focus on outcomes
<ul style="list-style-type: none"> <li>• ethics</li> <li>• engaging students</li> <li>• motivation</li> </ul>	<ul style="list-style-type: none"> <li>• academic mobility</li> <li>• credit education system</li> <li>• modular education</li> </ul>	<ul style="list-style-type: none"> <li>• group learning</li> <li>• innovative teaching</li> <li>• project-based learning</li> <li>• educational technologies</li> <li>• informational and communications Technology (ICT) in education</li> </ul>	<ul style="list-style-type: none"> <li>• assessment</li> <li>• assess individual student work performance</li> <li>• professional competency</li> </ul>

Table 8. *Summative Themes: Suggestions for a More Engaging Workshop*

Additional content	Ways to facilitate learning
<ul style="list-style-type: none"> <li>• specific examples</li> <li>• academic mobility</li> </ul>	<ul style="list-style-type: none"> <li>• small groups</li> <li>• innovative educational methods</li> <li>• Better technology</li> <li>• more practice</li> </ul>

Figure 1. Images from the workshop setting



Figure 2. The mixed methods procedural diagram of the study presents the general procedures and output throughout the study.

