

# Survey-based experiential learning as a means of raising professional awareness: a new educational approach for developing healthcare settings

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## Research Article

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# Abstract

**Background** This study outlines key aspects of professional development among health professionals in low- and middle-income countries (LMIC). LMICs need support in developing their continuing medical education, and non-technical skills (NTS) that have been neglected in this respect. Given the nature of NTS, educational methods should be used experientially. This study aims to explore an interactive educational approach to increase NTS among health care professionals in an LMIC setting.

**Methods.** Key NTS concepts were identified and these directed the selection of research-based surveys. A series of workshops was designed in which a survey-based experiential approach was developed. The educational process followed a pattern of individual reflection, small group discussion and relating the concepts to the local practice in a wider group.

**Results.** An approach to increase NTS in LMIC settings emerged in iterative development through conducting workshops with health care teams in the Balkans. The topics could be grouped into individual, team, and organisational dimensions. The approach can be described as survey-based experiential learning involving steps in recurring interaction with participants. The steps include identifying concepts in individual, team and organization dimensions and contextualising them using experiential learning on the individual and group levels.

**Conclusion** An overarching approach has been developed that addresses NTS in an LMIC setting. The survey-based experiential learning approach can be beneficial for raising professional awareness and the development of sustainable healthcare settings in LMICs.

## Background

Low-and middle-income countries (LMICs) need support in developing their continuing medical education. This study presents an interactive educational method aiming to strengthen non-technical skills (NTS) in health care teams. Foreign Aid and donor organisations focus primarily on technical skills and equipment in LMIC. However, they are rarely adapted to the local context and thus miss the aim of sustainable health care development. This study addresses the need to develop strategies for learning NTS in continuing medical education in the context of LMICs.

To improve health care results and meet the Millennium Development Goals (United Nations) suitable support should be provided to LMICs (Ruelas et al., 2012). In order to enhance the local professionals' capacity to identify needs and priorities, external support from aid agencies and other partners should be matched to local conditions (Ruelas et al., 2012). While considerable efforts have been made to strengthen the clinical skills in LMIC, little has been done to enhance NTS (Scott et al., 2016).

Clinical skills usually focus on technical aspects and practical procedures, requiring specialised training and practice. These are necessary skills for health care professionals. However, in order for these skills to be used in an optimal way, NTS are fundamental (Flin & Maran, 2004). In settings with limited resources,

NTS are crucial for making full use of limited assets and collaborating effectively in teams. Consequently, scholars have emphasised the need to support health care development in LMICs in areas other than specific clinical expertise and short-sighted monetary support (Eade, 2007; Gebreamlak & Pain, 2016; Nicolaides et al., 2018).

NTS are defined as cognitive and social skills, such as decision-making, planning, situation awareness, leadership, teamwork and communication (Scott et al., 2016). Between 50% and 80% of errors in high-risk professions can be due to professional's behaviour related to NTS (Scott et al., 2016). Poor team communication is frequently mentioned as a risk for surgical patient (Lingard et al., 2004). NTS educational efforts are often directed toward surgery, anaesthesia, or emergency medicine (Flin & Maran, 2004; Gebreamlak & Pain, 2016; Scott et al., 2019). However, in other health care areas NTS initiatives are scarce. In many LMIC settings, training in teamwork and communication exists, but a coherent NTS training programme is generally lacking (Scott et al., 2016). Ideally, efforts in this direction should include lifelong learning not only for physicians but also for all health professionals in an interprofessional manner. Given the characteristics of NTS, this learning should be developed through active engagement.

Despite the importance of NTS in these settings little research is available, and no context-specific NTS educational tools have been found in a literature review (Scott et al., 2016). Given the nature of NTS, such tools should be developed experientially. Experiential learning theory (ELT) was presented by Kolb (Kolb, 2015) as an approach for sustainable educational development to strengthen lifelong learning and learning organisations. In such an approach, NTS is interwoven in a dialectic interplay of experience and reflection. The experiences consist of authentic problems, direct work life experiences and small groups of colleagues sharing and reflecting on work life experiences (Highhouse, 2002). In response to the lack of coherent NTS training programmes, this study aims to explore an interactive educational approach to increase NTS among health care professionals in an LMIC setting.

## Methods

In a bilateral capacity building and research project, an educational approach tackling the core principles of professional development among health professionals in the Balkans was supported by the Swedish county council of Östergötland. The overall goal of the project was to develop sustainable, safe, and efficient health care in the Balkans through increased professionalisation of NTS.

Research-based surveys on NTS were used for experiential learning in a series of workshops to increase professional awareness. Two two-day workshops were conducted between May 2018 and March 2019, including participants from three regions. The first workshop was conducted in Montenegro and the second in Bosnia and Herzegovina. The workshops were initiated based on the perceived needs identified in the dialogues between participants and the research team. They were planned in collaboration with local organisations and adjusted for the local cultural and political context.

A research team consisting of four persons with different academic backgrounds (medicine, nursing, cognitive science, and education) planned the content and the approach. A series of research-based

surveys on NTS aspects were selected (Table 2). We decided not to lecture but instead to provide an active collaborative contextualisation of the content in interaction with the participants. We planned for consecutive workshops to deepen the understanding of aspects of NTS and establish sustainable development. Before and after every workshop, the research team refined and analysed the contextualised concepts in preparation for the following workshop, considering a balance between concepts and the needs and development of the participants. This process formed the core of the approach.

## Context and participants

Twenty-nine participants with different professions from the three university hospitals in Sarajevo (Bosnia and Hercegovina), Pristina (Kosovo) and Podgorica (Montenegro) participated in the workshops. The participants were part of a long-term regional training programme (Glad Mattsson & Mattsson, 2020) focusing on health professionals in urodynamics and child surgery (Table 1)

Table 1 Demographic data of the participants.			
		Workshop 1	Workshop 2
Age M(SD)		48 (8.5)	47 (8.9)
Gender (n)	Male	7	11
	Female	8	18
Profession (n)	Physician	8	14
	Nurse	7	15
	Managers	3	3**
Country (n)	BiH*	3	13
	Kosovo	11	12
	Montenegro	1	4
*Bosnia and Herzegovina			
** Since the managers were physicians, the total number of participants is not changed			

## Surveys and content of the workshops

The surveys were used as educational tools to exemplify NTS concepts, such as situation awareness, decision-making, leadership, teamwork, and communication. These surveys (see table 2) were based on established and validated instruments. In this study, NTS consist of cognitive and social skills concepts, including decision-making, leadership, communication, and teamwork.

The surveys were translated by professional translators independently, with two translators for English–Albanian and two for English–Bosnian/Serbian. During the workshops, four translators were engaged for simultaneous translation between participants and researchers.

## **The survey-based experiential learning approach**

The interactive educational approach to NTS education, survey-based experiential learning (SBEL), was designed to use personal and group reflection on research-based NTS concepts.

### **Individual relation to the concepts**

First, the selected concept was introduced by one of the researchers. Then, the selected survey was handed out to each participant, who was given time to reflect and respond on an individual basis.

### **Contextualisation in small groups**

The next step was to form small groups with five to eight members pertaining to similar contexts. The purpose of this step was to share, discuss and reflect on the different understandings of the concepts and how they were used in the participants' daily work environments and organisation.

### **Contextualising in the larger setting**

The third step was conducted together with all workshop participants. The small groups shared and discussed their perspectives of the concepts in relation to a broader perspective, both geographically and from point of view of the health care organisation. One of the researchers moderated the discussion to direct the participants' reflections toward similarities and differences.

### **Long-term development of professional awareness**

The fourth step involved two parts occurring after the workshop: i) the individual's implicit long-term conceptual understanding of and reflection upon the concepts and experiences of each participant individually or from the work groups and ii) the researchers' continued synthesising of the contextualised understanding, which was then presented during the next workshop.

Ethical approval was granted by the ethical committee Pristina University (ref nr. 4963 5th of July 2019).

## **Analysis**

Data consisted of observation of discussions, team interaction, groupworks and field notes, post workshop conclusion and reflection among the research team. We did not use survey outcomes *per se* in this study. The workshop content and activities were analysed and categorized into three dimensions used to provide further structure.

## **Results**

Table 2  
Categorisation of professional dimensions in the workshop content

Survey	Professional dimensions addressed			Workshop		References
	Individual awareness	Teamwork	Organisation	WS1	WS2	
The Johari window model	X	X		WS1	WS2	(Luft & Ingham, 1961)
Learning Style Questionnaire (LSI)	X	X		X		(Honey & Mumford, 1992)
Individual Development Plan (IDP)	X		X	X	X	Specifically designed for the study
Team Performance Observation Tool (TeamSTEPPS)	X	X	X	X		(Baker et al., 2010)
Team member exchange quality scale (TMX)	X	X		X		(Seers, 1989)
Interprofessional education collaborative (IPEC)	X	X	X	X	X	(IPEC, 2016)
Kolb's lemon exercise, experiencing and thinking	X			X		(Kolb, 2015)
Evaluation of the teamwork workshop	X	X	X	X	X	Specifically designed for the study

The workshops were work-intensive, focusing on the participants' active reflection on topics related to their contexts and sharing of experiences. Three dimensions emerged in the analysis of content and activities: the individual, team, and organisation (ITO). An overarching mapping of the different surveys in relation to ITO dimensions is presented in (Table 2).

The individual dimension was addressed by all the surveys and tools. When using tools such as the Johari window and Learning style questionnaire (LSQ), each participant shared his or her understanding of the concepts on a personal level. Individuals reflected on the possible use and wording of LSQ and Johari's exercise, and it was evident that the nurses in particular were eager to reflect on and interpret their perceptions of the concepts. The participants became aware of how their personal strengths and limitations related to teamwork and patient care.

The individual's role and responsibility were addressed through three surveys: individual development plan, interprofessional education collaborative (IPEC) domain descriptions and the TMX scale. These

surveys focused on the individual's role, one's role in a team, perspectives on working as a team and working in a multi-professional team. In general, individuals shared the same view that working as a team is much easier and safer for both the patient and the professionals. The concepts of role and responsibility led to exchanges of ideas, which, according to the participants, clarified individual roles and responsibilities.

The team dimension was observed both in topics and activities. An important setting for developing the participants' awareness of the concepts was the small group with familiar colleagues. Once the participants' individual professional awareness on the topics was addressed, they shared experiences and understanding with colleagues in the small group setting. This interaction led to reflections in the small group on how the subject was perceived. Communication, teamwork, and reflection were important skills for professional and competent clinical practice. Sharing opinions with participants with the same profession was favoured, even if they belonged to different organisations. Both nurses and doctors were eager to discuss the concepts with colleagues of the same profession. Senior colleagues led the discussions.

TeamSTEPPS, TMX scale and IPEC addressed the team level of professional development. Concepts were related to changing health care needs and optimisation of the knowledge available in the organisation. According to the participants, traditional individual-oriented teaching should be extended by problem-based learning. Statements from IPEC domains were related to the professionals' roles and responsibilities and sharing of responsibilities related to patient treatment. The team should be considered a safe zone since mutual agreement on the patient's treatment is reached by the group, and the responsibility should be shared by the team. Discussion on the readiness to take over colleagues' responsibilities in the case of emergency and to organise the work according to the available resources included several ideas, such as regular meetings to discuss tasks and engage patients and families in the treatment.

The concept of communication was evident in most of the surveys. Here, both content and interaction patterns were addressed: nurse–nurse, nurse–physician, physician–physician and communication directly with the patient.

The organisational dimension was expressed in topics and in discussions in which the participants' various settings were compared. In the first workshop, the participants were introduced to an organisational example from Swedish health care. It was emphasised that change processes require time and adjustments. This information allowed the research team to adjust the curriculum for the workshops. Specifically, more emphasis was given to the practical application of NTS in the participants' local contexts. For example, the participants were invited to contrast their own experiences with the presented Swedish health care setting.

In the second workshop, three managers presented their organisational settings in more detail. The presentation focused on history, the current situation, and changes since the last workshop. In addition, a site visit was planned, but unfortunately it had to be cancelled. Following the organisation presentation,

participants discussed organisation and management in the full group setting. According to some group discussions, hierarchies in the workplaces was a challenging factor when establishing teamwork practices. This included both the organisation structure as well as informal roles and gender structures. In some cases, the organisation and political management structures were not supportive of interprofessional teamwork. While the participants expressed an interest in collaborating with other clinics/institutions, they lacked organisational support in the form of formal policies.

To support the long-term contextualisation, the second workshop started with a recapitulation and discussion of NTS concepts. Both understandings of the concepts and explicit observations of the concepts in one's own workplace were addressed. The participants had developed awareness of the concepts and provided numerous examples and experiences. Some of the participants' ideas were transformed to examples: establishing protocols and guidelines, having regular meetings and support group discussions with the members of the multi-professional team. Another aspect of long-term contextualisation was the research groups' increased awareness of the participants' understandings of interprofessional teamwork and challenges in the clinics.

The presentations from the three local organisations (above) were an important part of the long-term contextualisation. To further emphasise the concepts of communication and shared understanding of the local organisations, the participants were divided into three groups and asked to present their understanding of the organisations. Variations in understandings of the same organisations contributed to increased organisational awareness.

## **Discussion**

Overall, the findings suggest that NTS are important for professional sustainable development. Through a deeper understanding, individual reflection and team discussions, the participants saw ways this could be seen and introduced into the local organisation. Previous efforts to introduce NTS concepts in LMICs have often been developed in high-income countries and not adjusted to the context of LMICs (Scott et al., 2016). To the best of our knowledge, this intervention is the first to introduce NTS through all ITO dimensions and this intervention is the first to experientially make use of existing experiences of the participants to enhance a broad range of NTS into an LMIC context.

### **Using SBEL approach in a LMIC setting**

The health care services in LMICs are increasingly interested in creating possibilities for continuing education so that the services that are offered are efficient and reliable (Ruelas et al., 2012). Efforts in this direction should target lifelong learning, not only for physicians but also for all health professionals in an interprofessional manner.

SBEL involves an explicit educational approach to using surveys. Established instruments were used, not primarily for gathering data but rather for initiating reflection and discussion, inducing a shared experience in relation to the participants' contexts. The SBEL educational approach was found to have



the advantages of presenting solutions or concepts as well as stimulating continuing professional development on several organisational levels. It was modelled with consideration of the participants' existing knowledge and practices, supporting the structure of the health care services. The necessity of shaping the interventions to the local context has been addressed in global education research (Gebreamlak & Pain, 2016), thus making this intervention innovative in terms of providing a long-term teaching solution in LMICs.

We sought to ensure that a broad range of relevant NTS were represented in the workshops, as this was found to be important in other contexts when teaching professional awareness and skills. This was in line with an NTS education intervention with surgical teams in Rwanda, which recommended that more staff members should participate in the NTS teaching efforts (Lin et al., 2018).

### **Individual, team, and organisation dimensions**

The identified way of structuring the range of NTS concepts into ITO dimensions proved to be supportive for organising the content into a meaningful workshop discussion. We did not seek to adjust NTS to any of the specific ITO dimensions but rather to motivate importance of understanding the dynamics of multi-professional development in an organization. The individuals in this study processed concepts by using surveys in an experiential learning manner. The Johari exercise challenged the participants into an increased individual awareness both on personal and professional levels. This awareness provided a foundation and catalysed following activities. Differences in individuals' understandings of the concepts brought different perspectives to the multi-professional team discussions.

In the small group setting, the interactive reflections on the content of the surveys and topics were supported by the research team to facilitate the understanding of how they could be applied to the local context. According to Kolb's learning theory, small group reflection is important for trustful communication in a group (Kolb & Kolb, 2011). The discussion with colleagues or professionals was facilitated by the participants' trust in each other and openness to reflect and share their experiences and ideas. Teamwork and communication skills were evident in almost every instrument. Working collaboratively with a group of different professionals with a common goal is one of the crucial factors for a functional team. Communication skills require collaborative training (Lingard et al., 2004). Reduced financial and human resources in LMICs might hinder the implementation of collaborative and teamwork practices (Gebreamlak & Pain, 2016). This study suggests that these obstacles can be mitigated through increased awareness on ITO dimensions.

In the larger setting, the participants applied their achieved awareness to the organisational level. Individuals' own interpretations of NTS were distributed among the three different ITO dimensions. A shared view on NTS can support a collective organizational awareness, and this can be reached through experiential learning activities (Kolb, 2015). The managers learned from reflecting about their organisations. They were encouraged to present information about their own organisation and to contrast it with information about the other's organisations. Flin and O'Connor (Flin & O'Connor, 2017) argue that the presence of managers (representing leadership) as participants in training efforts deepens

the discussion and dialogue by providing experience from the managerial level. Decision-making is mentioned in the NTS literature such as in the review by Scott et al. (2016). This concept was not a leading concept in our approach but was addressed in several of them such as TMX and TeamSTEPPS. The process of decision-making requires collaborative engagement and reflection which provides a critical review of its consequences (Kolb & Kolb, 2017).

### **Long term development of professional awareness**

The participants' knowledge on NTS developed between and after the workshops, based on their work practice. Consequently, the SBEL approach encouraged the individuals' implicit conceptual understandings of and reflection upon NTS in relation to their experiences. According to Kolb & Kolb (2017) the long term development of professional knowledge should be embraced in relation to the workplaces' dynamics, social and cultural contexts, which further transform these concepts.

### **The SBEL approach as an educational method**

The overall goal of the SBEL approach was to increase the awareness of NTS as an important part of professional development. It was considered an appropriate educational intervention providing holistic health care education to improve patient safety.

In this study we developed an interactive educational framework for NTS to support professional awareness in an LMIC setting. The SBEL approach was inspired by Kolb's learning theory, where the learning cycle begins with any particular action and experience, which is analysed, followed by reflection and feedback, as part of the learning experience. Kolb's theory provides a framework for planning, implementing and managing education actions (Kolb & Kolb, 2011). The approach is in line with how individuals reason and develop their understandings in relation to their professional experiences (Kolb, 2015). Kolb's theory emphasises the importance of using experiences in the learning process. The SBEL is an interactive and collaborative method, and thus, takes point of departure in the participants previous experiences. This is in line with Flin and Maran's research on NTS (Flin & Maran, 2004) who consider that the understanding of NTS concepts is weaker when taught in a group without previous clinical experience.

Some recommendations for further use of the SBEL approach can be formulated. All SBEL steps include reflection. As with any other learning initiative, SBEL requires dedication and time on the part of participants. When running an SBEL workshop, it is important to provide a safe and trustful learning environment for individuals in which they can focus on understanding the introduced concepts and express their own opinions. This is promoted here, as all participants are considered equal despite having different backgrounds, genders, experiences, and roles/positions.

As the research team monitors and moderates the workshops, the participants are mixed, and all experiences and participant contributions should be considered equally important and should be encouraged. When organisations are invited to participate, it is important that the full spectrum of team

members is included, as diversity creates a challenging and interactive learning experience. The research team needs to be flexible and adjust to the participants' development while following the ongoing change. An overall awareness of the cultural context and differences is needed to ensure a successful process and implementation. A next step would be to apply and evaluate the SBEL approach in other LMICs in order to evaluate its outcomes and sustainability in other contexts.

## **Conclusion**

The SBEL approach can be used to support professional development and NTS through research-based surveys. This approach can be applied to stimulate experimental learning in order to develop NTS and increase professional awareness of the individual, team and organisational levels in LMIC settings. It could also be used for teaching other concepts and skills of continuous medical education. The approach can encourage the development of a robust and safe health care organisation. However, it is important that considerations at the individual–team–organisation levels are taken into account among participants so that selected concepts can be tailored for the local needs.

## **List Of Abbreviations**

ITO: Individual, team, and organization

LMIC: Low- and middle-income countries

NTS: Non-technical skills

SBEL: Survey based experiential learning

## **Declarations**

### **Ethics approval and consent to participate**

Ethical Committee at Pristina University granted ethical approval (ref nr. 4963 5th of July 2019). The participants of the workshop we described in the research study are medical health professionals from Pristina and other areas, and since our collaborating academic institution, the University of Pristina, is the only institution providing ethical approvals for research studies in that location, we received approval sought an ethical review on the study from that institution.

This study was conducted while taking into consideration the ethical, legal and regulatory norms and standards for research involving human subjects in their own countries as well as applicable international norms and standards. The participants were adequately informed of the aims, any possible conflict of interest, and were capable to give informed consent.

### **Consent to publication**

Not applicable

## Availability of data and materials

Not applicable

## Competing interest

The authors declare that they have no competing interests. Ruhija Hodza-Beganovic and Peter Berggren are employees of the International Medical Program (IMP), Region Östergötland, Center for Teaching and Research in Disaster Medicine and Traumatology, University Hospital Linköping, Sweden.

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## Authors' contribution

SE; PB, RHB conceived of the idea, designed the study, and conducted the workshops. All authors participated in the analyses and manuscript writing. All authors contributed to and have approved of the final manuscript.

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