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Training Gaps and Application of Soft Skills in Ugandan Health Sciences Education: A Cross-Sectional Pilot Study.

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ABSTRACT

Background:

Soft skills such as communication, emotional intelligence, professionalism, and teamwork are critical for effective health care delivery. Yet training in these domains remains limited in diploma programmes across sub-Saharan Africa, particularly in health sciences education. This pilot study examined gaps between confidence, perceived importance, and training frequency of soft skills; identified trainee-suggested priorities; and explored their application in clinical practice.

Method:

A cross-sectional mixed-methods pilot study was conducted among allied health trainees in Uganda. Quantitative data were analysed using descriptive statistics, bootstrapped confidence intervals, and paired samples tests. Qualitative responses were thematically analysed to capture experiences of applying soft skills in practice.

Results:

Trainees reported high confidence and perceived importance (means 3.9–4.6), but lower training frequency (means 3.5–3.8). Importance exceeded training by the largest margin, while confidence was consistently lower than importance. Communication, emotional intelligence, professionalism, ICT, and safeguarding emerged as priority areas. Clinical narratives confirmed application of soft skills in counseling, teamwork, and professionalism, but highlighted challenges in emotionally demanding encounters such as breaking bad news.

Conclusion:

Findings reveal a training shortfall relative to both confidence and perceived importance. Trainees value and attempt to apply soft skills, yet curricula provide limited structured opportunities for practice and reflection. This mismatch underscores the need for curriculum reform to strengthen graduate readiness for patient-centred care.

Recommendations:

Curricula should embed structured soft skills modules, emphasising communication, emotional intelligence, professionalism, ICT, and safeguarding. Faculty development is needed to enhance role-modeling, while policy alignment with the WHO Africa frameworks will ensure sustainability. Future research should replicate and expand this pilot to validate findings and explore long-term outcomes.

Keywords: *Soft skills; Training gaps; Competency-based education; Health sciences education; Uganda; Mixed-methods pilot study; Communication and professionalism; Curriculum reform.*
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BACKGROUND

Healthcare practice today requires more than technical proficiency. Soft skills such as communication, teamwork, empathy, ethical reasoning, and problem-solving are increasingly recognised as essential for safe and patient-centred care (Dietl et al., 2023; Kämmer et al., 2024; Moropa et al., 2025). In Uganda's resource-constrained health system, where patient volumes are high and infrastructure is limited, the absence of these interpersonal skills can undermine both care quality and system resilience (Fuchshuber & Greif, 2022; Kabunga et al., 2025).

Although global frameworks advocate competency-based education (Rhoney et al., 2024; Williams et al., 2025) and interprofessional collaboration (IPEC, 2023), health sciences curricula in Uganda remain largely focused on

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biomedical knowledge and procedural training. Opportunities to systematically develop communication, empathy, and teamwork are scarce (Kiguli et al., 2014). As a result, graduates are often less prepared for interpersonal demands, as evidenced by MESAU consortium findings on assessment gaps in communication and professionalism (Kiguli et al., 2014) and graduate skill deficits in interpersonal domains (Mubuuke et al., 2014). Recent evaluations reinforce this picture. For instance, Indian medical trainees reported challenges in adapting to competency-based medical education (CBME), including time constraints, burnout, and coping with numerous competencies (Bhagat et al., 2025), while Makerere University's CBME curriculum was found to assess most competencies but under-represented domains such as communication, leadership, and reflective practice (McKenzie-White et al., 2022).

Similar concerns have been documented across Africa. South African medical trainees report insufficient communication training, Nigerian pharmacy trainees highlight teamwork gaps, and regional reviews confirm limited emphasis on reflection and interpersonal skills (Odongo & Talbert-Slagle, 2019; Swinfen et al., 2022; Mohammed et al., 2022). Collectively, these findings from global frameworks, local Ugandan evaluations, and regional African studies highlight a persistent gap between technical training and the interpersonal competencies required for patient-centred care.

Educational theory offers guidance for addressing these gaps. Kolb's experiential learning cycle emphasises the importance of practice and reflection in skill acquisition (Kolb, 2014), while Bandura and Walters (1977) highlight the role of modeling and peer influence in shaping professional behaviour. Together, these perspectives underscore that soft skills cannot be acquired passively; they require structured opportunities for practice, reflection, and guided role-modelling. This theoretical grounding also justifies the use of mixed-methods approaches, which combine quantitative measures of training gaps with qualitative insights into lived experiences (Creswell & Plano Clark, 2017).

This study contributes to the limited evidence base on soft skills training in African health sciences education. It integrates quantitative measures of confidence, perceived importance, and training frequency with qualitative accounts of trainee priorities and clinical application. It was guided by the following research questions:

1. What gaps exist between confidence, importance, and training frequency of soft skills?
2. What topics do trainees suggest for a soft skills course?
3. How do trainees describe successful applications of soft skills in clinical settings?

METHODS

Study Design

This was a cross-sectional convergent mixed-methods pilot study conducted among allied health trainees in Uganda. Quantitative and qualitative trainee data were collected concurrently and analysed to identify training gaps and application of soft skills (Creswell & Plano Clark, 2017).

Study Setting

The study was conducted at Fort Portal College of Health Sciences, located in Fort Portal Tourism City, Western Uganda. This government-aided institution is situated adjacent to Fort Portal Regional Referral Hospital. The college offers allied health diploma programmes, including Clinical Medicine and Pharmacy.

Participants

Eligible participants were diploma trainees in clinical medicine or pharmacy, aged 20-28 years, enrolled in the second or third year of study. First-year trainees, those outside the age range, and those unwilling to provide consent were excluded.

Sample size determination

A total of 39 trainees were conveniently sampled from the eligible population. This sample size was guided by pilot study recommendations (Bujang et al., 2024), which suggest a minimum of 30 participants to adequately assess the reliability of instruments. Consistent with guidance on pilot studies, the emphasis was placed on feasibility and generating preliminary insights rather than statistical power (Ying et al., 2025; Montgomery, 2025). A sample of 39 achieved acceptable reliability ($\alpha \geq 0.7$) for bootstrapped confidence intervals.

Data collection

Structured questionnaires captured demographics, quantitative measures of soft skills training, and application. Qualitative data were obtained through open-ended responses on trainee perceptions of training gaps and professional practice.

Bias control

Convenience sampling was a limitation, mitigated by anonymous questionnaires, bootstrapping (2,000 resamples), and independent dual coding of qualitative data.

Data Analysis

Quantitative data were analysed using descriptive statistics and bootstrapped confidence intervals (2000 resamples)

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(LaFlair et al., 2015). Reliability was acceptable to excellent across constructs (α = 0.79–0.90; Table 1). Qualitative responses were thematically analysed using Braun and Clarke's six-step framework (Braun & Clarke, 2006), supported by AI-assisted coding for initial theme identification and language refinement (Costa & Bryda, 2025; Northeastern University, 2025). Findings from both strands were integrated to provide a convergent interpretation.

Table 1. Reliability Statistics for Confidence, Perceived Importance, and Training Frequency Scales

Construct	Cronbach's Alpha	Item–Total Correlation Range	Alpha if Item Deleted Range	Interpretation
Confidence	0.79	0.27 – 0.60	0.75 – 0.79	Acceptable
Perceived Importance	0.84	0.31 – 0.71	0.80 – 0.84	Good
Training Frequency	0.90	0.49 – 0.76	0.88 – 0.90	Excellent

Ethical Considerations

Permission was obtained from the Principal of Fort Portal College of Health Sciences, and informed consent was secured from all participants in line with international best practice (Wu et al., 2019)

RESULTS

Participant flow and demographics

Of the 50 trainees approached, 41 consented to participate. Two were excluded (one first-year trainee and one who declined consent), leaving 39 eligible participants. Thirty-nine were confirmed eligible and completed the questionnaire. The final sample comprised 22 males and 17 females, aged 20–28 years (M = 23.0, SD = 1.83). Nineteen were in their second year and 20 in their third year of study. All were enrolled in diploma programs in clinical medicine and community health (51.3%) and pharmacy (48.7%). Nearly all participants (97.1%) expressed interest in a dedicated soft skills course. Participant flow is summarised in Figure 1.

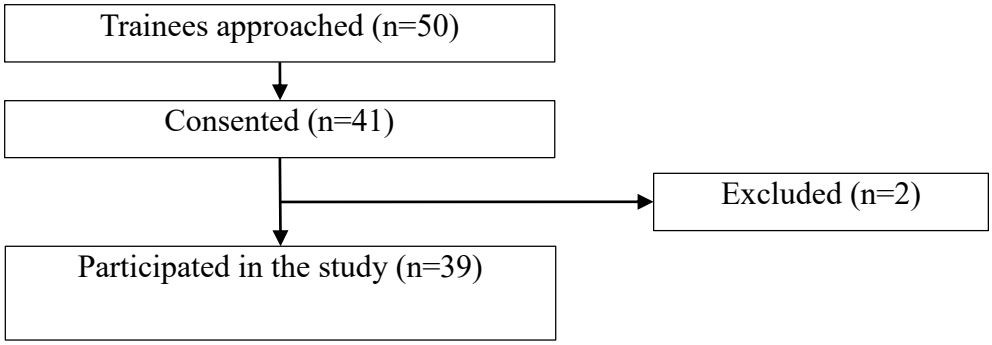

Figure 1. Participant flow

Training Gaps

Trainees reported high confidence and perceived importance across soft skill domains (means 3.9–4.6), but lower training frequency (means 3.5–3.8). The largest shortfall was in communicating clearly with patients, where importance (4.59) exceeded training frequency (3.56) by 1.03 points (Table 2). At the aggregate level, gap variables (Table 3) confirmed that importance exceeded training by 0.57 points on average, confidence was modestly higher than training (0.23), and confidence was consistently lower than importance (–0.34). Paired comparisons (Table 4) showed that importance exceeded training with a large effect size (d = 0.89), confidence was modestly higher than training (d = 0.40), and confidence was significantly lower than importance (d = –0.79).

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Table 2. Confidence, perceived importance, and training frequency across ten soft skill domains (N = 39)

Soft Skill Domain	Confidence Mean (SD) [95% CI]	Perceived Importance Mean (SD) [95% CI]	Training Frequency Mean (SD) [95% CI]
Communicating clearly with patients	4.03 (0.67) [3.82–4.23]	4.59 (0.50) [4.46–4.72]	3.56 (0.99) [3.28–3.87]
Listening actively to others	4.18 (0.68) [3.97–4.36]	4.36 (0.71) [4.15–4.56]	3.69 (0.83) [3.44–3.95]
Showing empathy in clinical situations	4.05 (0.89) [3.74–4.33]	4.00 (0.83) [3.77–4.26]	3.69 (0.98) [3.41–4.00]
Managing emotions in stressful situations	3.67 (0.84) [3.44–3.90]	4.21 (0.98) [3.90–4.49]	3.49 (1.05) [3.15–3.79]
Working effectively in a team	3.87 (0.80) [3.62–4.11]	4.23 (0.93) [3.95–4.46]	3.82 (1.10) [3.51–4.13]
Resolving conflicts with peers/supervisors	3.62 (0.96) [3.31–3.90]	4.03 (0.78) [3.79–4.23]	3.49 (1.02) [3.18–3.82]
Demonstrating professionalism in clinical settings	3.92 (0.90) [3.67–4.18]	4.44 (0.72) [4.15–4.67]	3.77 (1.27) [3.38–4.15]
Managing time and responsibilities effectively	3.85 (0.99) [3.54–4.13]	4.23 (0.87) [3.97–4.46]	3.82 (0.97) [3.51–4.10]
Adapting to changes in clinical environments	3.90 (1.02) [3.59–4.18]	4.08 (0.90) [3.79–4.33]	3.54 (1.02) [3.18–3.87]
Reflecting on personal strengths and weaknesses	3.67 (0.96) [3.38–3.95]	4.00 (0.95) [3.69–4.28]	3.59 (0.99) [3.28–3.87]

Note: All values are based on 2000 bootstrap samples and a fixed random seed of 2025. Means are reported with standard deviations in parentheses; 95% confidence intervals are bias-corrected and accelerated (Bca)

Table 3. Gap variables comparing confidence, importance, and training frequency (N = 39)

Gap Variable	Mean	SD	Minimum	Maximum	Bootstrapped 95% CI (BCa)
Confidence – Training Frequency	0.23	0.58	-0.9	1.7	[0.05, 0.39]
Importance – Training Frequency	0.57	0.64	-0.2	2.2	[0.38, 0.75]
Confidence – Importance	-0.34	0.43	-1.6	0.4	[-0.48, -0.21]

Note. Positive mean differences indicate that the first construct scored higher than the second (e.g., confidence > training frequency). Negative mean differences indicate that the first construct scored lower than the second (e.g., confidence < importance). Bootstrapped confidence intervals are bias-corrected and accelerated (BCa) based on 2000 resamples, and a fixed random seed of 2025.

Table 4. Paired samples results for confidence, importance, and training frequency (N = 39)

Pair (Variables)	Mean Difference	SDdiff	95% CI of Difference	t(df)	p	Cohen's d	Spearman's ρ	p (ρ)
Confidence – Importance	–0.34	0.43	[–0.48, –0.20]	–4.99(38)		–0.79	0.67	
Confidence – Training Frequency	0.23	0.58	[0.04, 0.41]	2.48(38)	0.02	0.40	0.63	
Importance – Training Frequency	0.57	0.64	[0.36, 0.78]	5.53(38)		0.89	0.53	.001

Note. Positive mean differences indicate the first construct scored higher than the second; negative mean differences indicate the first construct scored lower. Cohen's d was calculated using the mean difference divided by the standard deviation of the difference scores. Effect sizes are interpreted as small (≈0.2), medium (≈0.5), and large (≈0.8). Spearman's ρ reports the strength of association between constructs.

Suggested priorities

Trainees highlighted communication, emotional intelligence, professionalism, time management, ICT, sexual harassment prevention, clinical reasoning, and health promotion as desired training topics. Communication and emotional intelligence were most frequently emphasised. The distribution of suggested priorities is presented in Table 5.

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Table 5. Suggested training topics identified by trainees

Theme	Description	Illustrative quotes
Communication and counseling	Patient communication, counseling, and conflict resolution	"Communication skills, problem solving, professionalism"; "Patient counseling, management of ethical dilemmas"
Emotional intelligence & stress management	Managing emotions, empathy, and confidence building	"Managing emotions in stressful situations"; "Confidence building"; "Emotional intelligence"
Professionalism and ethics	CPDs, ethical dilemmas, SOPs, professionalism	"Training on professional development through CPDs"; "Handling ethical dilemmas"; "Developing SOPs"
Time and task management	Organising workload, prioritising tasks	"Time management"; "Managing time, resolving conflicts"
Digital and technical skills	ICT, software, telemedicine	"ICT"; "Software skills"; "Telemedicine, how to operate online medical business"
Sexual harassment & sexuality education	Addressing sensitive issues professionally	"Sex harassment"; "Sex education"
Clinical reasoning & diagnostics	Diagnostic analysis, CT scan, anaesthesia	"Diagnostic analysis"; "Investigating the diagnosis"; "The use of CT scan"
Health promotion & patient safety	Infection prevention, health promotion, and first aid	"Infection prevention"; "Health promotion"; "Team building, offering first aid"

Clinical application

Trainees described applying soft skills in patient counseling, emotional support, teamwork, professionalism, and ICT integration. Narratives illustrated both successful applications, such as counseling patients and coordinating care, and challenges, particularly in breaking bad news and managing distressed patients. A few trainees reported no successful use of soft skills. Illustrative examples are summarized in Table 6.

Table 6. Examples of clinical application of soft skills

Theme	Description	Illustrative quotes
Patient communication & counseling	Educating, clarifying, and counseling patients on safe medication use	"Counseling the patient on proper use of drugs"; "Explaining… how to take prescribed medication."
Emotional support & empathy	Calming distressed patients, supporting grief, and managing emotions	"Calming patients down," "Counseling a depressed patient," "When the patient was dealing with her emotions."
Breaking bad news	Delivering difficult information sensitively	"Breaking bad news"; "Informing caretaker… their relative had died."
Professionalism & workflow	Documentation, record-keeping, organising clinical work	"Recording patients information"; "Filling patients data into the computer system."
Digital and technical integration	Using ICT for SOPs, dispensing, and record-keeping	"Dispensing drugs using a computer"; "Used a computer to develop SOPs."
Teamwork & managing difficult situations	Coordinating care, handling challenges in wards/OPD	"Managing patients at OPD"; "Attending to patients at emergency ward"
Clinical reasoning & learning	Seeking information, reviewing diagnoses, building judgment	"Searching diagnosis of common diseases"; "Clinical review and drug prescriptions"
Gaps in the application	Instances of limited or no use of soft skills	"I have never successfully used a soft skill in a clinical setting."

Across all three research questions, the findings reveal consistent gaps between confidence, perceived importance, and training frequency of soft skills (Tables 2–4). Trainees identified communication, emotional intelligence, and professionalism as top priorities for further training (Table 5) and described both successful and challenging applications of these skills in clinical practice (Table 6). Overall, the preliminary results highlight a training shortfall relative to both confidence and importance. As a pilot study, these findings are preliminary and intended to guide future scaling and curriculum development.

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DISCUSSION

The study examined gaps that exist among trainees' confidence, perceived importance, and training frequency of soft skills; identified topics trainees suggest should be included in a soft skills course, and explored how trainees describe situations in which they successfully applied soft skills in clinical settings.

Training Gaps

The study revealed consistently high confidence and perceived importance across soft skill domains, yet training frequency lagged behind both. The largest shortfalls were observed in communicating clearly with patients and managing emotions, underscoring a mismatch between value, competence, and training exposure. These findings echo recent work highlighting that soft skills remain underdeveloped, poorly assessed, and insufficiently integrated into curricula despite their recognized importance (Fuchshuber & Greif, 2022; van den Beuken et al., 2025). Similar challenges have been reported in India, where medical trainees adapting to CBME faced time constraints, burnout, and difficulty coping with numerous competencies (Bhagat et al., 2025). Across Africa, curricula similarly emphasise biomedical knowledge at the expense of interpersonal competence, leaving trainees with limited structured opportunities to practice communication and emotional management (Mubuuke et al., 2020). Kolb's experiential learning cycle emphasises repeated practice and reflection as essential for skill mastery (Kolb, 2014), yet the low training frequency suggests trainees are not consistently afforded such opportunities. Bandura and Walters' (1977) social learning theory similarly highlights the importance of modeling and peer influence, but the data indicate limited structured role-modeling within current training environments. This gap is particularly concerning in resource-constrained settings where interpersonal competence often compensates for technological or systemic limitations.

Training priorities

Trainees identified communication, emotional intelligence, professionalism, time management, ICT, clinical reasoning, health promotion, and sexual harassment prevention as urgent priorities. Communication and emotional intelligence were most frequently emphasised, reflecting their centrality to patient care and teamwork. These priorities align with competency-based education frameworks (Rhoney et al., 2024; Williams et al., 2025) and IPEC's 2023 core domains, emphasising curricula that integrate interpersonal and digital skills (IPEC, 2023). Evidence from Makerere University's CBME evaluation reinforces this need, showing that while most competencies were assessed, domains such as communication, leadership, and reflective practice were under-represented (McKenzie-White et al., 2022). This extends African evidence by foregrounding emotional intelligence and ICT integration as critical domains (Shaw et al., 2025; Prosen & Ličen, 2025). Calls for sexual harassment prevention highlight the importance of preparing health professionals to navigate sensitive ethical and cultural challenges, consistent with accredited training programmes that emphasise safeguarding and professional conduct (Almegewly et al., 2025). Importantly, the emphasis on ICT skills reflects the growing digitalisation of health systems in Uganda and beyond, suggesting that curricula must evolve to integrate both interpersonal and technological competencies.

Clinical application and contribution

Narratives confirmed that soft skills are applied in practice but are inconsistently supported by curricula. Trainees described successful demonstrations in counseling, teamwork, and professionalism, but also reported challenges in emotionally demanding encounters such as breaking bad news or managing distressed patients. Unlike earlier African studies that primarily documented perceived training gaps (Mubuuke et al., 2020), this pilot study captures the application gap, where trainees articulate both successful exhibitions and failures to apply soft skills. Comparable challenges were reported in India (Bhagat et al., 2025), while African curricula continue to emphasise biomedical knowledge at the expense of interpersonal competence (Mubuuke et al., 2020). This duality reflects Kolb's (2014) experiential learning cycle; without structured opportunities for practice and reflection, trainees struggle to translate awareness into performance. Bandura and Walters' (1977) social learning theory further explains these gaps, as limited exposure to role models may hinder confidence in emotionally demanding encounters. By quantifying the training shortfall and contextualising it with lived experiences, this study extends African evidence and offers actionable insights for curriculum reform and policy alignment with regional competency-based education frameworks (WHO, 2024; WHO, 2025). As a pilot, the findings are preliminary but provide a foundation for scaling interventions, informing policy, and guiding future research into sustainable integration of soft skills in health education.

CONCLUSION

This pilot study identified consistent gaps between confidence, perceived importance, and training frequency of soft skills among diploma trainees in clinical medicine and pharmacy. While trainees valued and expressed confidence in domains such as communication, emotional intelligence, and professionalism, structured training opportunities were limited. Suggested priorities – communication, emotional

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intelligence, ICT, and safeguarding – reflect both global competency-based education frameworks and local contextual needs. Clinical narratives confirmed the application of soft skills in practice but revealed challenges in emotionally demanding encounters. Overall, the findings underscore a training shortfall and provide preliminary guidance for curriculum reform to strengthen graduate readiness for patient-centred care.

Generalisability

These findings are limited to one institution and a small sample, but they reflect challenges reported in other African health sciences programs. Replication across multiple settings will be needed to confirm broader applicability.

Limitations

The findings are exploratory, based on a modest sample size (N = 39) from a single institution, which limits generalizability. Reliance on self-reported measures may introduce social desirability bias, and the cross-sectional design precludes causal inference. While bootstrapping enhanced statistical strength, the study was not powered for inferential generalisation. Qualitative data were limited to short written responses, which may not capture the full depth of trainee experiences.

Recommendations

1. Address the identified training shortfall by embedding structured soft skills modules into diploma programmes, emphasising repeated practice, reflection, and role-modeling opportunities.
2. Focus training on communication, emotional intelligence, professionalism, ICT, and safeguarding, as highlighted by trainees.
3. Equip Tutors and clinical supervisors to model and reinforce soft skills, bridging the role-modeling gap identified in the findings.
4. Replicate the study across institutions to validate the observed gaps and explore long-term outcomes of soft skills training.
5. Engage curriculum developers and regulatory bodies to embed soft skills as core competencies, aligning with WHO and IPEC frameworks while addressing local contextual needs.

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List of abbreviations

BCa – Bias-corrected and accelerated
CBME – Competency-Based Medical Education
CI – Confidence interval
CPD – Continuous professional development.
FPCOHES – Fort Portal College of Health Sciences
IPEC – Interprofessional Education Collaborative
MESAU - Medical Education for Equitable Services to All Ugandans
OPD – Outpatient department.
RQ – Research question.
SDdiff – Standard deviation difference
SOPs – Standard operating procedures.
UHPAB – Uganda Health Professions Assessment Board

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Conflict of interest

The authors declare no conflicts of interest. The perspectives presented in this paper are solely those of the authors and do not necessarily represent the official policies or positions of Enabel, FPCOHES, or UHPAB.

Author contribution

The study was conceptualized by MO, who also conducted data cleaning and analysis. GK collected the data, after which GK and MW collaboratively drafted the initial manuscript. HA and KB provided critical feedback on the first draft, and MO offered further input during the revision process. All authors read and approved the final manuscript and agree to be accountable for the integrity of the work.

Data availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request and with approval from FPCOHES. No publicly archived datasets were generated or analysed during the current study.

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Martin Okoed is a digital transformation and learning innovation specialist with experience in ICT integration, professional development, pedagogy, and institutional development. His work and research focus on digital

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