



# SURMEPI

Stellenbosch University Rural Medical Education Partnership Initiative

## E-learning of evidence-based health care (EBHC): Which e-learning components are necessary for successful EBHC e-learning?

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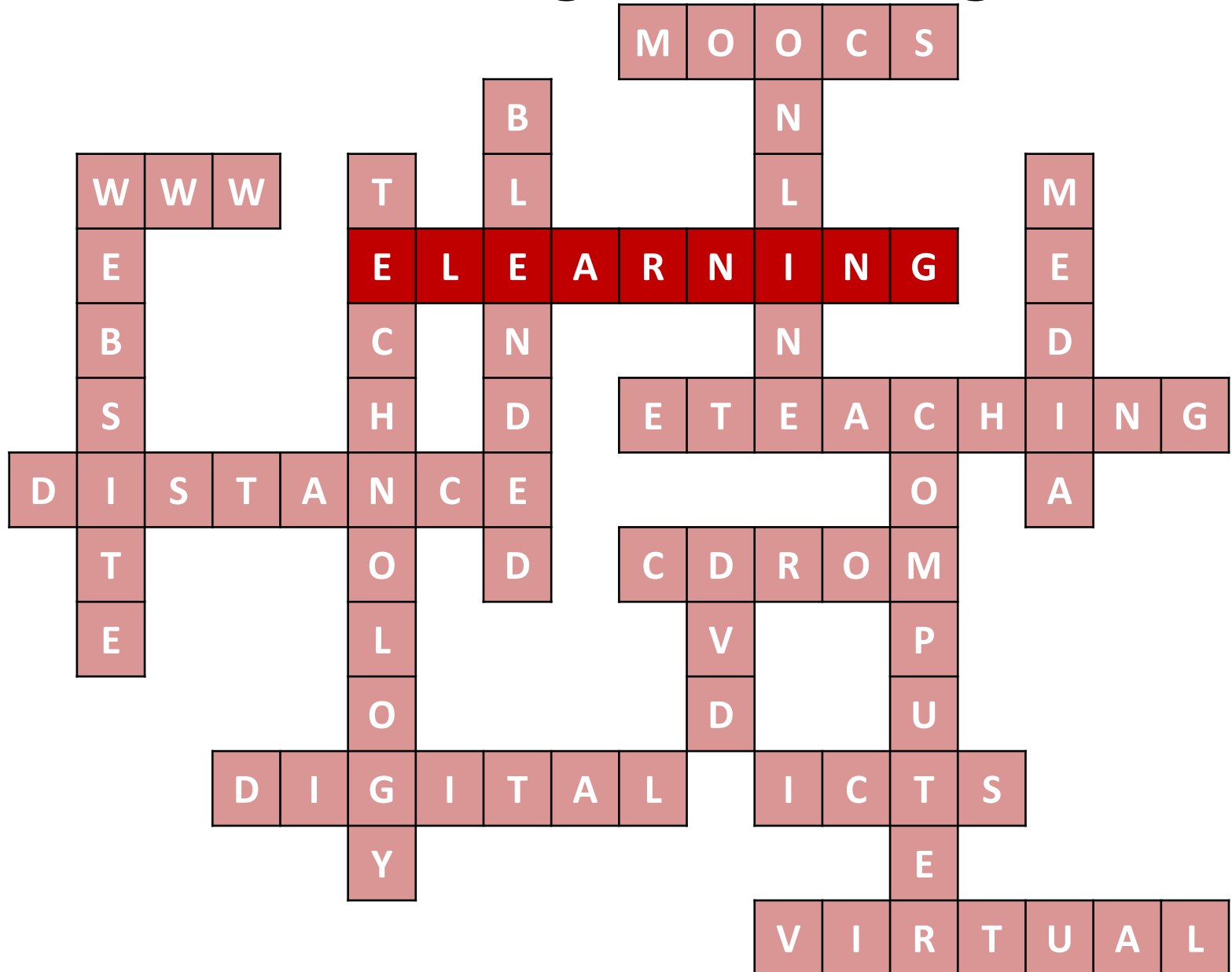
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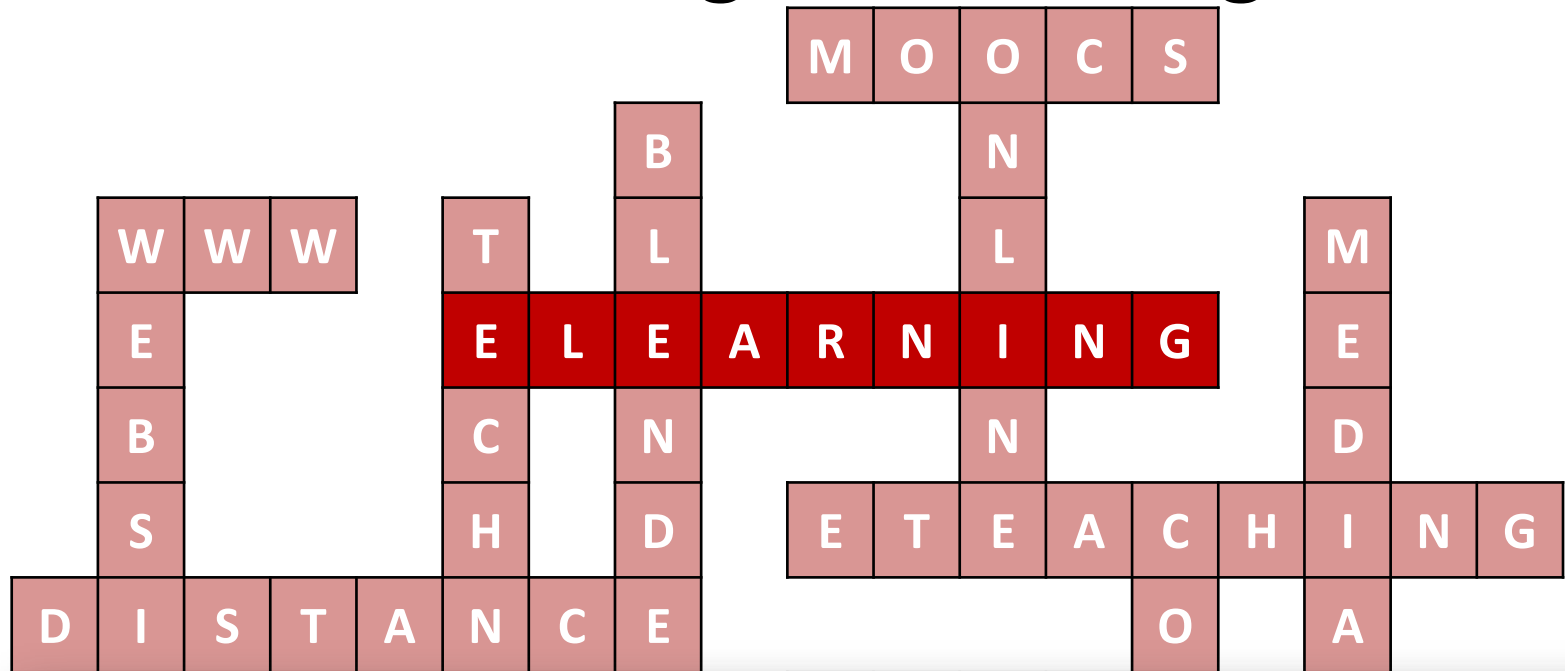
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# EBHC teaching and learning



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THE CAMPBELL COLLABORATION

## Protocol for a Systematic Review: E-learning of Evidence-Based Health Care to Increase EBHC Competencies in Healthcare Professionals

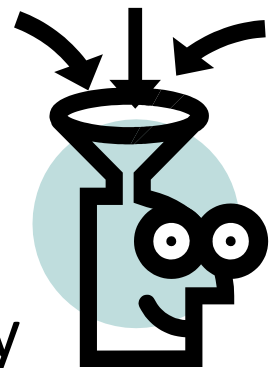
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## Aim:

To describe EBHC e-learning intervention components and to identify the distinctive components of effective interventions

## Methods:

- Systematic review according to standard Campbell methods
- Pre-specified data extraction sheet
  - Informed by logic model
  - Documenting all intervention components
  - Documenting delivery of interventions
- Not able to pool data due to heterogeneity
- Matrix of all intervention components
- Identified and described components distinctive to intervention group of effective interventions



# Results (n=22)

<b>Participants</b>	Undergraduate health care professionals: 7 studies Postgraduate health care professionals: 4 studies Practising health care professionals: 11 studies
<b>Intervention and comparison</b>	E-learning vs. no intervention: 7 studies E-learning vs. face-to-face lectures or workshops: 10 studies E-learning vs. other types of e-learning: 6 studies
<b>Outcomes</b>	EBHC knowledge: 17 studies EBHC skills: 14 studies EBHC attitudes: 12 studies EBHC behaviour: 4 studies
<b>Studies</b>	RCTs: 12 studies Cluster RCTs: 7 studies Quasi RCT: 3 study
<b>Countries</b>	UK: 4 studies USA: 4 studies Norway, Canada: 2 studies each Japan, Germany, The Netherlands, Australia: 1 study each UK and The Netherlands, Australia and Malaysia, Australia and Hong Kong: 1 study each LMICs (Argentina, Brazil, DRC, Congo, India, Philippines, South Africa, Thailand): 1 study Philippines: 1 study

# Results

	Pure e-learning vs. no learning (n= 3)	Blended learning vs. no learning (n= 4)	Pure e-learning vs. face-to-face learning (n=6)	Blended learning vs. face-to-face learning (n=4)	Pure e-learning vs. blended learning (n=3)	Pure e-learning vs. pure e-learning (n=3)
EBHC knowledge	>	>	=	=	</=	
EBHC skills	>	>	=	=	</>	=/>
EBHC attitude	>	>/=	=	>		
EBHC behaviour		>/=		>		
Risk of bias						
Selection bias	?	+	?	?	?	-
Detection bias	?	+	?	?	?	-
Attrition bias	-	-	-	-	?	?









# Summary

- All effective interventions were multifaceted
- Distinctive components of effective interventions:
  - Recorded PowerPoint presentations
  - Recorded tutorials
  - Access to online site with teaching materials
  - Mobile learning at the bedside
  - Clinical activities/assignments
  - Access to clinical tutor/facilitator
  - Asynchronous discussion lists

Multifaceted

Revision

Integrated

Blended

Interactive

# Limitations

- Unable to pool data in meta-analysis
  - No subgroup analysis
- Results based on descriptions of interventions
- Poor reporting of interventions in some studies
- High risk of attrition bias in included trials
- EBHC behaviour assessed in 4 trials only

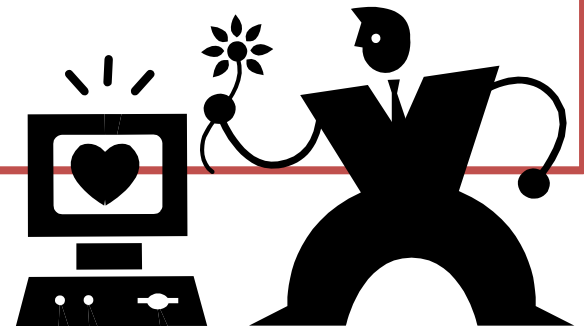


# Bottom line

- E-learning of EBHC is an effective strategy to increase EBHC knowledge and skills
- BUT e-learning is not a panacea
- Same principles apply as for traditional EBHC learning:
  - Multifaceted, integrated, interactive learning best

## Future research:

- Compare various e-learning/blended learning strategies
- Long-term assessment of outcomes esp. behaviour
- Explore educational context
- Studies in LMICs





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