MEDICAL EDUCATION IN THE INFORMATION AGE:

Engaging learners and creating change across the continuum

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learn well

Objectives

- Discuss innovative effective education practices.
- Define metrics/surrogate markers to assess retention and behavior change.
- Describe practice settings where learning translation to behavior can/should/does occur.

OpportunitiesandChallengesduringaPandemic

Opportunities

- Increasedattendance&engagementfor virtualactivities
- Engageabroaderdiversityoffacultyand learnersfromremotelocations
- Innovationsineducationaldelivery
- Necessitytoevolve=investmentinCME
- Usetheadditionalflexibilityaffordedby ACCMEtooffereasyandmoreefficient activityapprovalsandsupport

Challenges

- Innovation&changearedisruptive
- Moredemandingeducationaldesignand delivery
- Staff,faculty,andlearnersmorestressed
- Somelearnersskeptical;non-participatory learnersareaproblem
- Zoomfatigueisreal
- Planningamidstuncertaintyabout financials(commercialsupportandpricing models)

Innovative Effective Educational Practices

1. Fundamentals of learning
2. Case-based learning
3. Team-based learning
4. Adaptive learning
5. Best practices for faculty

.Fundamentals of Learning

WHO HERE IS A BELOW-AVERAGE DRIVER?

WHAT FRACTION OF PHYSICIANS CONSIDER THEMSELVES AT LEAST AVERAGE IN THE CARE THEY PROVIDE?

What'sHOldingusBack?

- Manypeoplearecomplacentaboutandhavedifficulty identifyingtheirownareasforgrowth

- Itisnearlyimpossibletosurmisewhatyoudonotknow

- Wearepoorassessorsoftheextentofourowndeficits

- Practicetypesandlearningneedsareextremelydiverse— thereisnostandardcurriculumforcliniciansinpractice

MasteryLearning

- Carefully designed and managed curricula
- Engaged learners and teachers in effortful activities
- Assessments with actionable feedback and steps towards constant improvement

- Knowledge
- Skill
- Better patient care practices
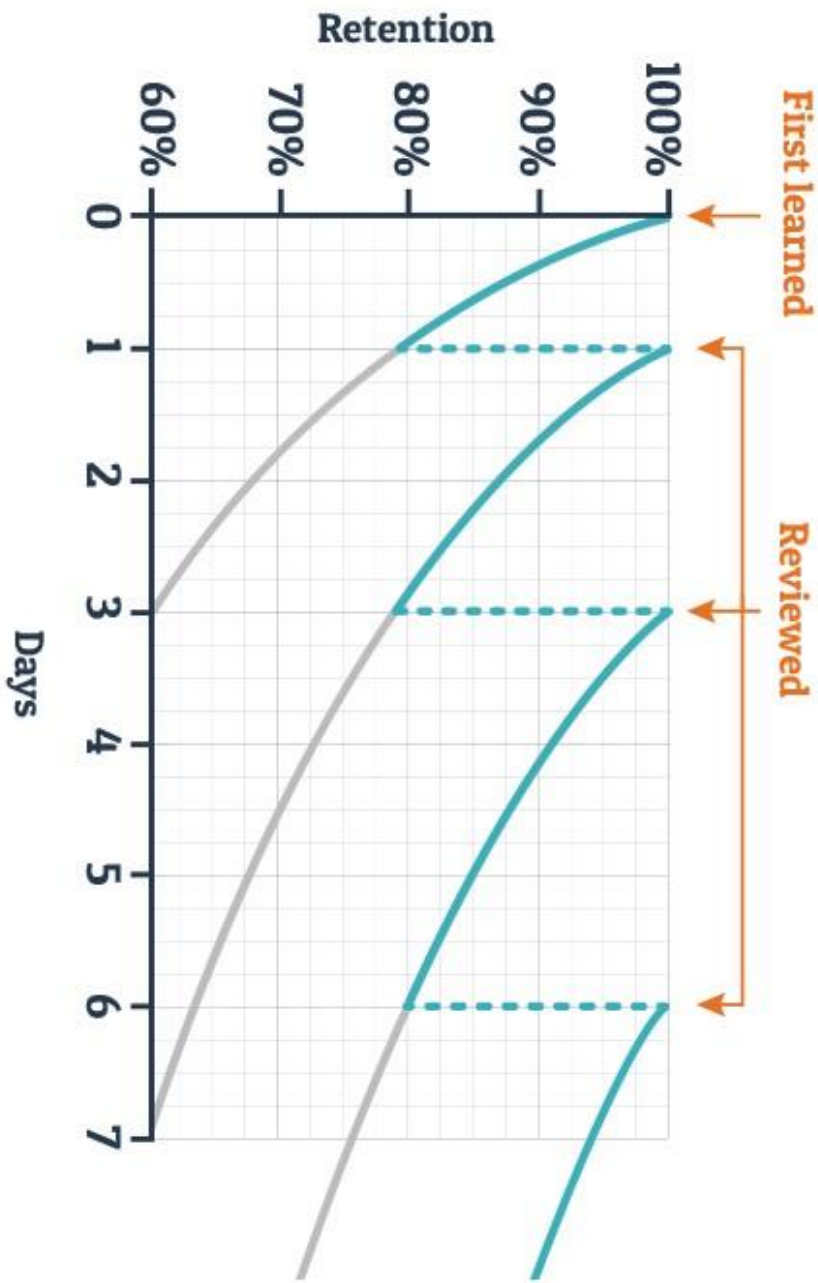- Improved patient outcomes
- Lower healthcare costs

McGaghie WC, Barsuk JH, Wayne DB. Adv Med Educ Pract 2017;8;393-4

LearningcanbeTransformative

Engagement

Relationships

Self-Awareness

Improvement

Change

BetterHealth

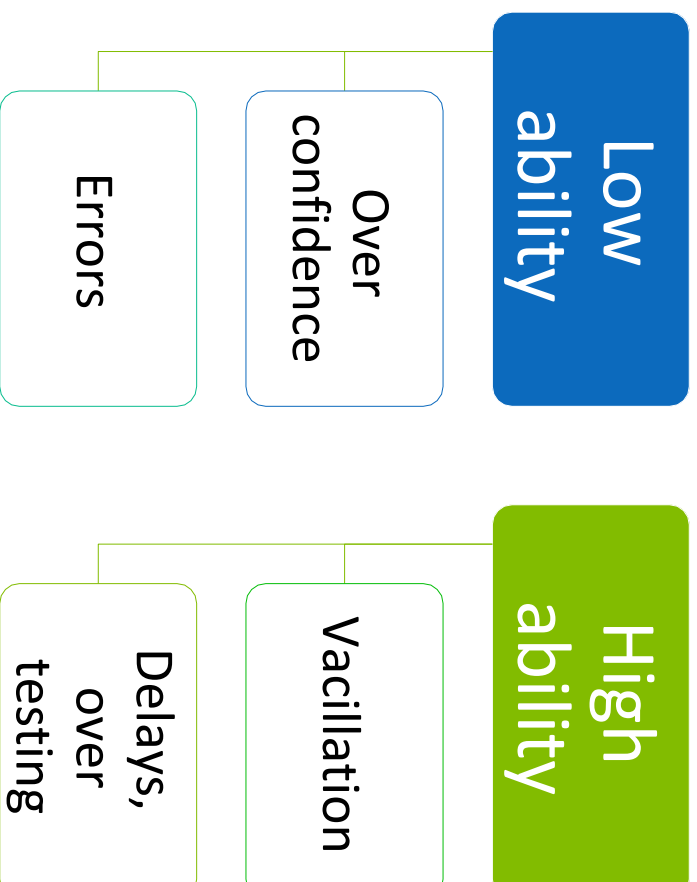# ImportanceofAssessment

- Learnersadaptlearningapproachestocontextinwhichlearning occurs

- Threebasicapproachesidentified

  - Surface(memorization)

  - Deep(comprehensionandapplication)

  - Strategic(adaptedtoexpectations)

- Teachingmethodsinfluencelearners'approachtodeeplearning –canbepositiveornegative

- Educationofcompetentphysiciansrequires"substantialchanges inteaching,curriculumand,particularly,assessment…"

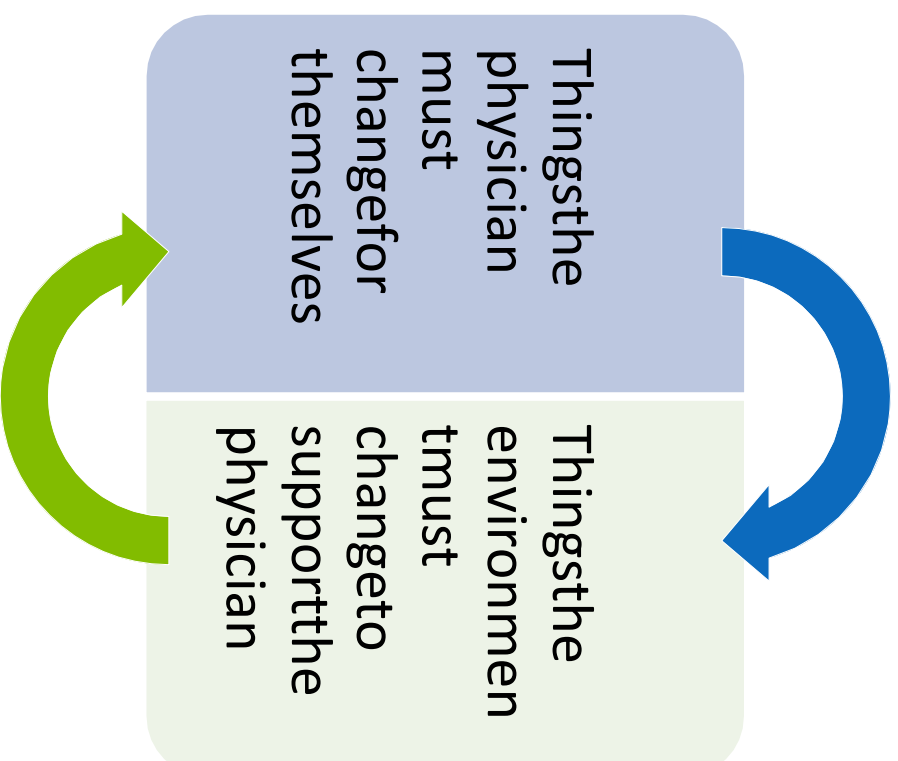NewbleDI,EntwistleNJ:Medical Education1986;20:162-175

Typical Forgetting Curve for Newly Learned Information

Retention

100%
90%
80%
70%
60%

First learned

Reviewed

Days

0 1 2 3 4 5 6 7

Impact of poor self-awareness

Low ability
- Over confidence
- Errors

High ability
- Vacillation
- Delays, over testing

What needs to change?

Things the physician must change for themselves

Things the environment must change to support the physician

HOW DO WE BECOME MORE SELF AWARE?

Curiosity &
Humility

.Case-BasedLearning

SocialLearning

Sociallearningtheoryholdsthatlearning

- isacognitiveprocessthattakesplaceinasocialcontext
- canoccurpurelythroughobservationordirectinstruction
- canoccurintheabsenceofmotorreproductionordirect reinforcement

Somepowerfulquestions

- CanIrunthiscasebyyou?
- Canyoucomelookatthiswithme?
- Idon'tknowthis.Doyou?
- Whatdoyouthink?

BarrierstoLearnerEngagement

- Lackoftime/competingdemands
- Distraction/lowattentionspan
- Fatigue
- Poorself-awareness/over-confidence
- Ambivalence/lackofmotivation
- Groupmentality

Creating Engagement

- Engage the heart, the mind, and with others
- Interesting, meaningful, achievable goal
- Individualize the offering
  - Build on prior learning
  - Personalized comparative feedback
- Make it collaborative
- Make it efficient
- Make it rewarding
  - Goal oriented, fun, positive

SmallCooperativeGroupsOnline

- Learningisactive,andskills developedthroughinteraction withtheenvironment constructivism)andothers sociallearning)

- Expectedskillsets
  - teamplayer
  - goodcommunication
  - abilitytoworkvirtually

- Synchronousorasynchronous
- Parallelvs.associativevs. cooperative
- Wheneffective
- Positiveinterdependence
- Createscomparisonand reflection
- Sharedachievement
- Relationshipdevelopment

AttributesofEngagingGames

- Clearandconsistentrules
- Cleargoal
- Clearrationale
- Missionconnectedtoanddependentonyourability
- Plentyofsupport
- Lotsofpositivefeedback
- Sharedexperience

Team-Based Learning.

Dinner

Sweetpotatoes

Wholemilk

Breadrolls

Leeks

Whippingcream

Meat

Celeryandcarrots

Packageofcubedstuffing

Pumpkinpiemix

FreshBerries

Pieshells

Frozengreenpeas

Cloves

A different world…

- Staggering rate of change of expected knowledge and skills

- specialties and >100 subspecialties in medicine
  - Growing depth, less breadth

- Increasing variety of health care professions with specific expertise
  - In 1900 ratio of physician:non-physician was 1:3, now it's 1:20

- Increasing interdependence

DefinitionofaTeam

- Asmallgroupofpeople...
- Withcomplementaryskills...
- Whoarecommittedtoacommonpurposeandapproach, forwhich...
- Theyholdthemselvesmutuallyaccountable

Teaming is a VERB

Teaming is teamwork on the fly—coordinating and collaborating, across boundaries, without the luxury of stable team structures.

Teaming is especially needed when work is COMPLEX and UNPREDICTABLE.

Maslow'sHierarchyofHumanNeeds

Self-actualization

Esteem

Love and belonging

Safety needs

Physiological needs

None of us want to look:	It's easy to manage for individuals:
Ignorant	Don't ask questions
Incompetent	Don't admit weakness or a mistake
Intrusive	Don't offer ideas
Negative	Don't critique the status quo

EfficiencyFocused	ImprovementFocused
Leaders have the ANSWERS	Leaders set DIRECTION (strategy)
STABLE work processes are put in place	TENTATIVE work processes provide a starting point
IMPLEMENTING CHANGE is a huge undertaking	CONSTANT SMALL CHANGES are a way of life
Feedback is ONE-WAY	Feedback is TWO-WAY
Employee judgment is DISCOURAGED	Employee judgment is ESSENTIAL
Fear (of the leader) is NORMAL	Fear inhibits EXPERIMENTATION, ANALYSIS, and PROBLEM SOLVING

"It is ironic, indeed, to realize that a football team spends 40 hours per week practicing teamwork for those 2 hours on a Sunday afternoon when their teamwork really counts. Teams in [healthcare] organizations seldom spend 2 hours per year practicing, when their ability to function as a team counts40hoursperweek."
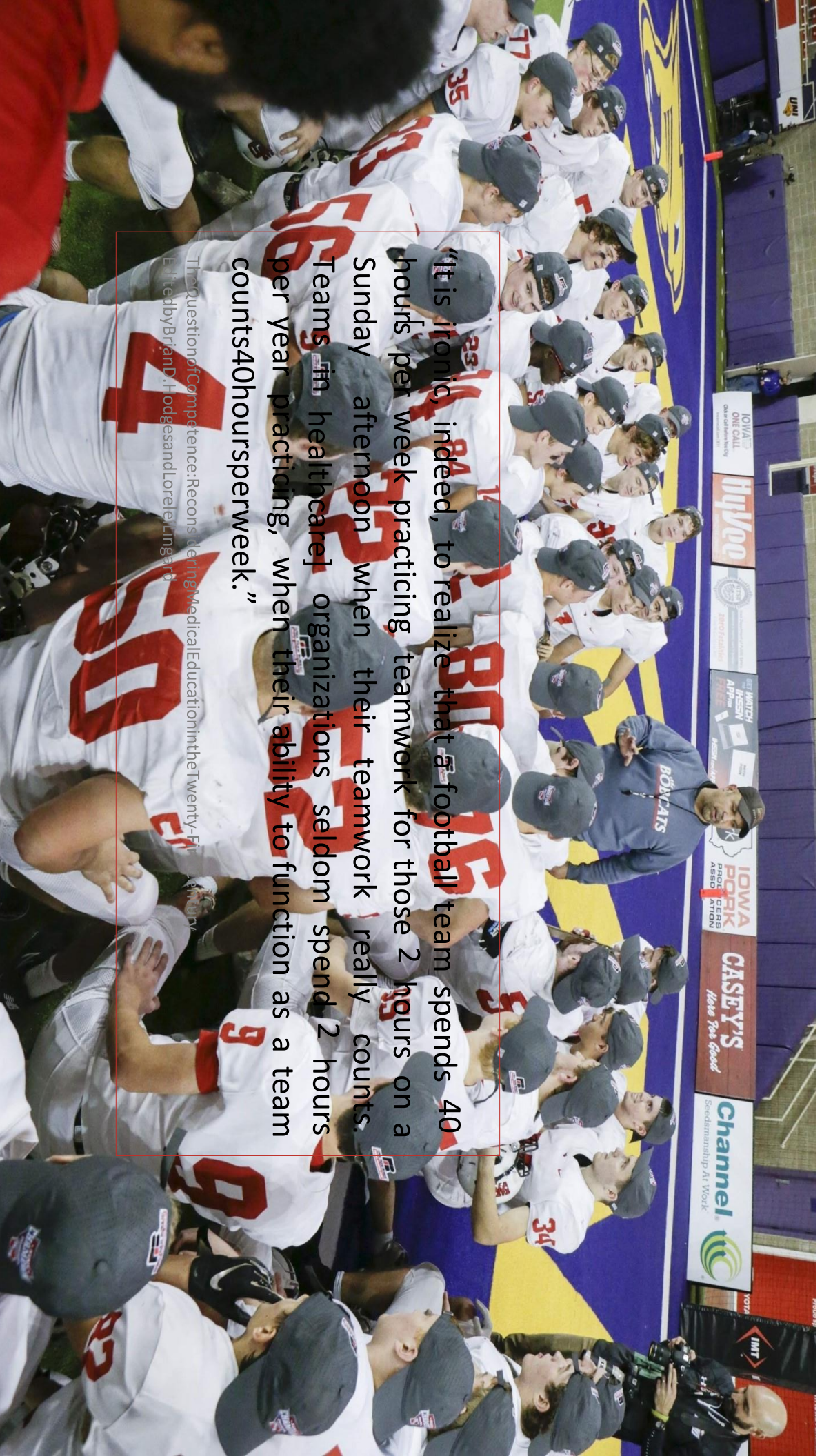
PsychologicalSafety

Psychologicalsafetyisabelief thatonewillnotbepunished orhumiliatedforspeakingup withideas,questions,concerns, ormistakes .

IT'SESSENTIALTOTEAMING.

Whatgetsintheway?

Why teams fail

- Inadequate communication
- Lack of team infrastructure
  - Goals, roles, process
- Authoritarianism & hierarchies
- Lack of psychological safety
- Inadequate attention to people and their needs
  - Fixed mindset

HierarchyandPsychologicalSafety

Mean Psychological Safety

	4.8	5	5.2	5.4	5.6	5.8	6	6.2	6.4
Physicians									
Nurses									
RespiratoryTherapists									

N=1100clinicians

Nembhard,I.andEdmondsonA.C.(2006).Makingitsafe:Theeffectsofleaderinclusivenessandprofessionalstatusonpsychologicalsafetyandimprovementeffortsinhealthcareteams, JournalofOrganizationalBehavior.
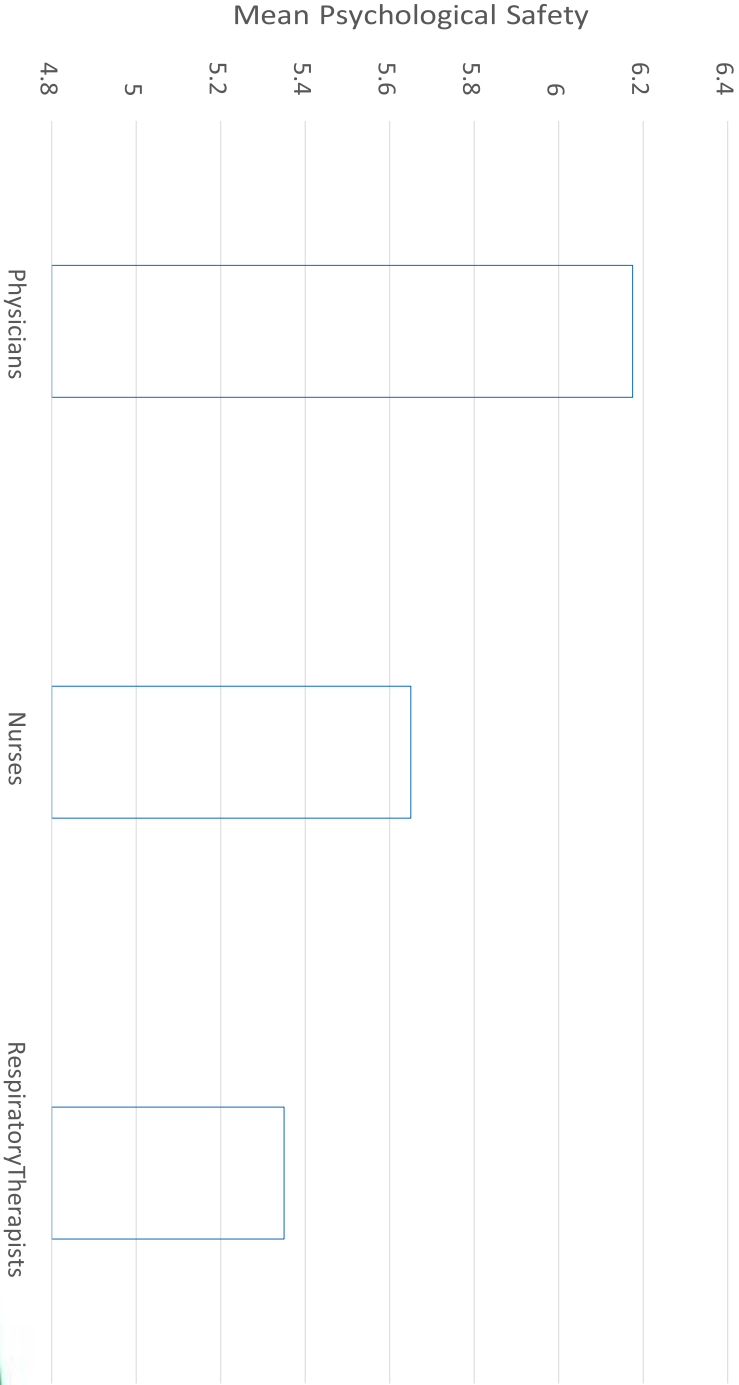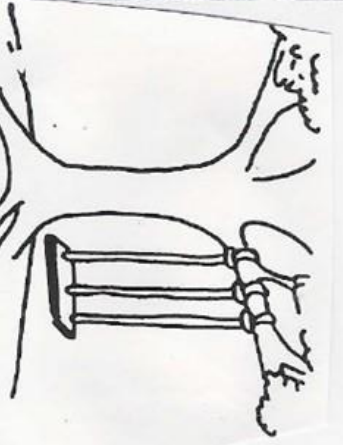
As proposed by the project sponsor.
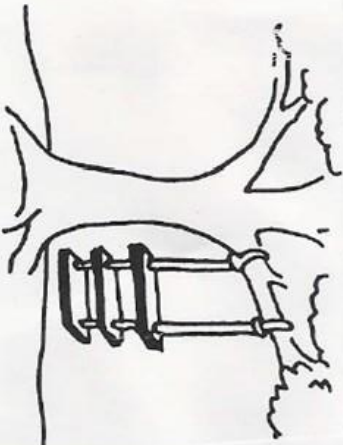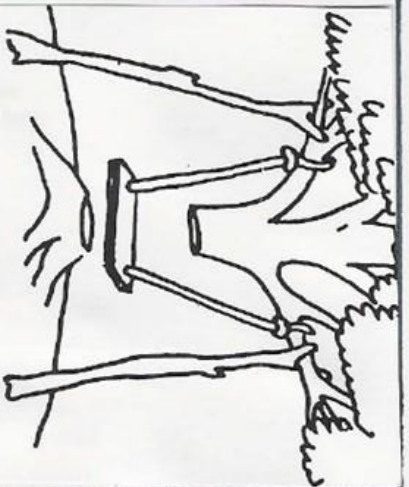
As specified in the project request.

As designed by the senior analyst.

As produced by the programmers.

As installed at the users site.

What the user wanted.

WhyDiversity isImportant

Acknowledgeandmovebeyond:

- Implicitbias
- Hierarchiesoftrust

"I'm afraid I'm going to have to let you go, Phillips. You're just not fitting in around here."

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Leading the Learning Organization

VISION
Set a clear direction that engages hearts and minds

CULTURE
Model and reward beliefs that make it safe for learning

TEAMING
Institute and support team-based processes

- Team goals
- Team roles
- Team norms

Key approaches to deploy

- Maximize consistency of the team
- Create a communication vehicle and approach
- Rotate leadership
- Ensure the team knows what their colleagues are capable of
- Solicit input from team members, and listen
- Assign, delegate, ask for and share the load
- Set goals that are bigger than a single patient's outcome
- Resolve difficulties efficiently
- Check in periodically on function as a team
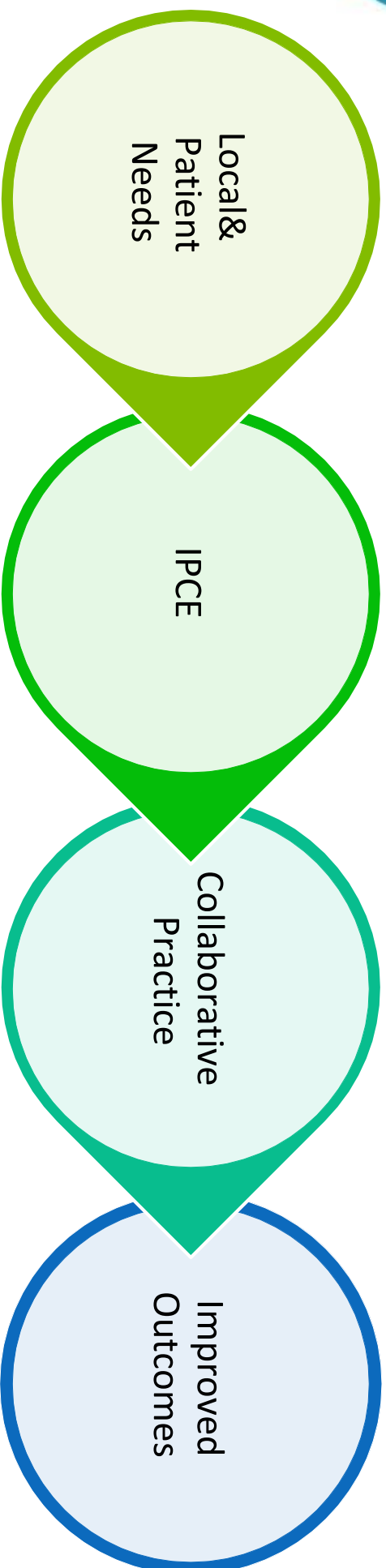- Do other things together (learn together, socialize, eat)

InterprofessionalContinuingEducation(IPCE)

Whenmembersfrom twoormore professions learnwith,from,and abouteachothertoenable effective collaboration and improvehealth outcomes .

IPCE

Local&
Patient
Needs

IPCE

Collaborative
Practice

Improved
Outcomes

JointAccreditation

- Single pathway for accreditation to provide interprofessional continuing education (IPCE) of the health care team through one, unified application process, fee structure, and set of accreditation standards.

- Offer interprofessional education (25% minimum)

- Offer single professional education

- Offer "credit" to physicians, pharmacists, nurses, PAs, optometrists, social workers, psychologists, dentists, dietitians, and athletic trainers

- Offer IPCE credit

.AdaptiveLearning

Educationaltechnologiesareadvantageousin providing:

- safe,controlledenvironmentsthateliminaterisktopatients
- enhanced,realisticvisualizationandproblemrepresentation
- authenticcontextsforlearningandassessment
- instructiontailoredtoindividualorgroupneeds
- efficientlearnercontroloftheeducationalexperience
- repetitionanddeliberatepractice
- uncouplingofinstructionfromplaceandtime

EducationalTechnology

- Effective&Efficient
  - Individualized
  - Adaptive
- Social
  - Connectedness
  - Comparative

- Fun
  - Games
  - Newinsights
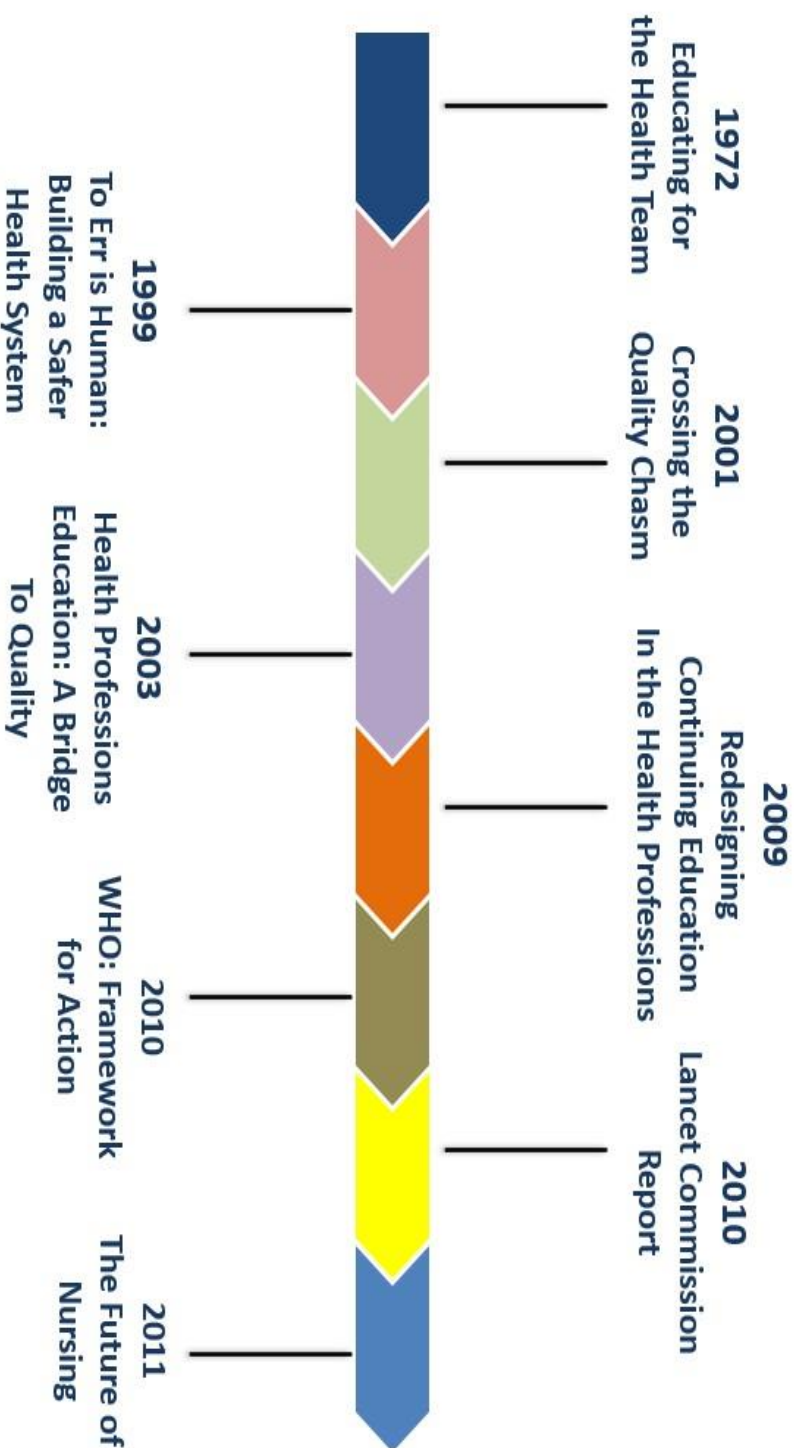- Data
  - Informative
  - Seamless

AdaptiveSpacedEducation

Personalizesthecontentandspacingof
thespacededucationcourseforeach
learner

- Example–
  - Learnerreceivetwospaced
    educationquestionseveryday.
  - Incorrect→repeated2weekslater.
  - Correct→repeated6weekslater.
  - Correcttwiceinarow→itemis
    retired&isnolongerrepeated.
  - Learnerscompletetheprogramwhen
    allareretired.

• Advantages:
- Reducestheunnecessary
  repetitionofmastered
  material.
- Turnsthespacededucation
  courseintoagame.
- Measuresnotonlywhat
  physiciansknow,buthow
  welltheylearn .

IncreasedEfficacywithOnlineLearning?

- Evidencesuggeststhatonlinelearningismoreefficient
  - Gainsinknowledge,skills,andattitudesoccurfasterthanthroughtraditional instructor-ledmethods.
  - Improvedefficiencyisincreasesmotivationandperformance.

- Onlinelearningismoreflexible
  - Canaccommodatediverselearningstyles

- Online learnershavedemonstrated
  - Increasedretentionrates
  - Betterutilizationofcontent
  - Betterachievementofknowledge,skills,andattitudes

HistoryofAppealsforCollaborativePractice

1972
Educating for
the Health Team

2001
Crossing the
Quality Chasm

2009
Redesigning
Continuing Education
In the Health Professions

2010
Lancet Commission
Report

1999
To Err is Human:
Building a Safer
Health System

2003
Health Professions
Education: A Bridge
To Quality

2010
WHO: Framework
for Action

2011
The Future of
Nursing

1. Continuing education is a professional respo
2. Learning can be fulfilling, can bring people tog effectively improve and change performanc
3. Practice environments and burdens on clinic dramatically; learning environments have
4. Most clinicians can and need to improve, but poor self-awareness.
5. To be effective, learning needs to be increasi include periodic comparative performance, group-learning, and allow data to be aggrega technology can help.

Learning
Technology
Convenient
Effective
Social
Fun
Data

Strategies for Faculty

Competencies

- Administration
  - AdministrativeSkills
  - LeadershipSkills
  - LearningEnvironment

- Well-being

- EducationalTheory/Practice
  - Feedback
  - Scholarship
  - Professionalism
  - LearnerAssessment
  - ProgramEvaluation
  - Remediation
  - ClinicalTeaching
  - ScienceofLearning
  - LearnerProfessionalDevelopment

Psychological Safety and Accountability

PSYCHOLOGICAL SAFETY

	low	high
low	ApathyZone	ComfortZone
high	AnxietyZone	LearningZone

ACCOUNTABILITY
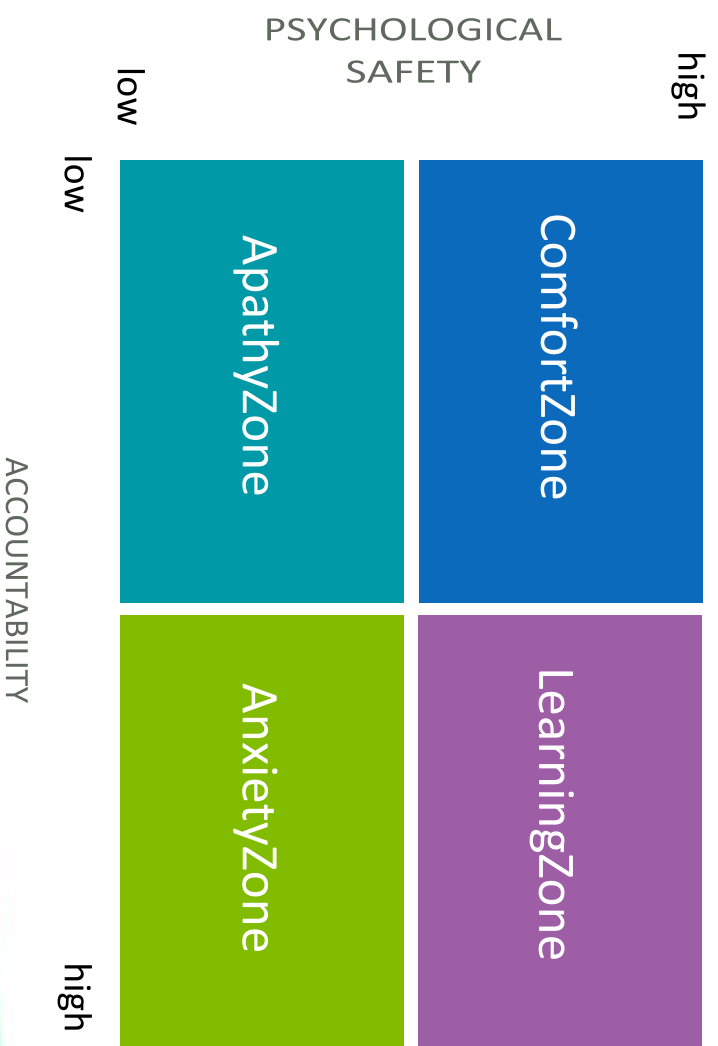
Summary

- Teaming and collaborative practice
  - Improve the wellbeing of the individuals
  - Improve the performance of the team
  - Improve health outcomes for our patients
- Teaming can be successfully engineered
  - Even in healthcare!
- Teams that learn together perform together

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