De-stressing through innovation and variety

the role of curiosity and creation in academics

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disclosures

• I have no financial associations to disclose
quiz

• what are the top two reasons for dissatisfaction among academic physicians?
• list one way to enhance creativity of faculty and trainees
• how might outside interests influence job satisfaction?
• how could involvement in the arts lead to faculty renewal?
what is creativity?
what is creativity?

• relatively new concept—prior to Enlightenment, creation was only done by The Creator
what is creativity?

- produce something useful that has not previously existed

Glauderer, 2009
what is creativity?

- in the arts, something new but not necessarily useful
what is creativity?

• requires one to TOLERATE UNCERTAINTY
different types of creativity

- artistic
- organizational
- investigational
role of creativity in medicine

- do we encounter new things every single day?
role of creativity in medicine

• do we always know how to deal with them?

???????
artistic creativity and medicine

• clearly many MDs are creative or interested in the arts
  – organized art societies
  – exhibitions (Art Days, annual show of artistic works by all members of BUSM)
  – orchestras
  – creative publications
innovation
innovation

• innovation has been defined as creativity with a purpose
innovation

• is there a special role for creativity in education?
in medicine?
innovation

• is everyone innovative?
• can creativity or innovation be learned?
innovation

• programs to teach innovation exist in other disciplines, esp business
innovation training

• proven to improve thinking skills and performance

• focus on divergent thinking and problem solving
innovation training in medicine

• pilot program at UT Houston Medical School-”Innovative Thinking”
‘required’ creativity

- University of Bristol, UK
- med students are required to submit creative work of any type
‘required’ creativity

• a core requirement for all students
‘required’ creativity

• ‘the good doctor can synthesize the technical and the humane’

• artistic endeavors may expand ‘emotional intelligence’
details of Bristol program

• 2nd year—part of a 4 week course on “Whole Person”
details of Bristol program

- 2nd week of course, seniors stage a play on living and dying with cancer, discussed in tutorial groups along with paintings, poems

Med Ed Online 2010, Thompson T
details of Bristol program

• ‘free writing’—about patient encounters or personal stories

Med Ed Online 2010, Thompson T
details of Bristol program

• in final week, each must submit a work for critique, some shared, some performed

Med Ed Online 2010, Thompson T
details of Bristol program

• all submissions are critiqued
  — authenticity
  — not technical skill

Med Ed Online 2010, Thompson T
Results

– 2 to 5 desultory submissions per year (of 250)
Results

—mostly very positive comments

• a few prefer to keep their artistic side separate, resent invasion of this sanctuary

• a few don’t see the point
Results

evaluations are the most challenging part
Training the Eye

• annual elective at HMS
  –linking art to the ‘art’ of physical diagnosis
Training the Eye

- each session accompanied by gallery tour, directed discussion of selected works of art
Training the Eye

• examples of topics
  • line and symmetry in the cranial nerve exam
  • patterns in the skin exam
  • form in pulmonary pathophysiology
Training the Eye

• ‘Contour in imaging’
  – 30 minute gallery session
  – 20 minute drawing exercise
  – 40 minute tutorial on mediastinal contours
gallery exercise

- gallery discussion leaders are art historians and art educators
  - experts in guided discussion
drawing exercise

• students position around 3D work
drawing exercise

• students are given a pencil, paper and drawing support board
drawing exercise

• every 45 seconds, students leave their drawing and move one position clockwise and take up a different drawing
drawing exercise

• helps even those who ‘can’t draw’ to contribute
drawing exercise

• viewing from many angles emphasizes appreciation of contour
imaging tutorial

• ‘blank’ CXR on paper (mediastinum removed)
imaging tutorial

- white chalk crayon, students draw the mediastinum from memory
imaging tutorial

• 4 cases and discussion (PS, cardiophrenic mass, AP window mass, enlarged aorta)
imaging tutorial

• students are given another ‘blank’ and asked to draw the mediastinum again
why emphasize creativity?

• opens up a reflective space
• allows students (and teachers) to see a situation from another point of view
• enhanced experiential learning
• reflective practice
uncertainty

• trying something new—RISKY
uncertainty

• creative endeavors don’t always work
uncertainty

• giving up control is hard
uncertainty

• unexpected results can be VERY rewarding!
uncertainty

- too much emphasis on structure leads learners and teachers to depend on rigid algorithms
uncertainty

• life and patients often don’t follow rules
uncertainty

• need to be able to manage in a situation where nothing is known for sure
creativity vs rote

• teach someone where the tip of a PA line should be on CXR
creativity vs rote

• challenge someone to explain WHY this is true
creativity vs rote

• encourage someone to wonder HOW it got there and WHAT will happen when it moves
creativity vs rote

• gives the learner the ability to deal with new situations from a deeper level of understanding
questioning mind

• how do you find a good teaching case?
  – read a lot of images as fast as you can?
  – generate a lot of RVUs?
  – wait for someone to tell you ‘this is a great case’?
curiosity

• KEY element for educator and for learner
  – if you are not curious about cases, knowledge will be superficial
questioning mind

• how do you REALLY find a good teaching case?
  – QUESTION everything!
  – look for things about every case that make you go hmmmmmmmmm!
  – search for more information
wandering catheter case

• example of a case that became more complex and valuable the more it was investigated
  —finding superlative cases requires a CURIOUS mind!
wandering catheter case

- initial images: catheter fragment
wandering catheter case

- investigation of old images on PACS—PINCHED catheter!
wandering catheter case

- searching old film jackets
JACKPOT!!!
what makes teaching fun?

• knowing more than the leaners?
• impressing them with how smart you are?
• using lots of unfamiliar terms?
• generating lots of bullet points?
what REALLY makes teaching fun?

• probing for WHY they don’t get it!
• wondering what mistake they are making!
• wondering if YOU are making a mistake instead of them!
• constantly searching for a new way to explain — (creative)
burnout
burnout

- risk for all in stressful jobs
  - radiology in particular
  - increased emphasis on productivity (factory)
  - bean counting
burnout

• how do you recognize it?
burnout

• how do you recognize it?
  –lack of pleasure in work (emotional exhaustion)
burnout

• how do you recognize it?
  – depersonalization (cog in the wheel)
burnout

• how do you recognize it?
  – decreased feelings of accomplishment (nothing I does matters)
burnout

• how common is it?
  – almost universal, but often transient
  – published numbers vary
  – 50% to 90%
productivity
productivity

• emphasis on ‘productivity’, use of business practices like Six Sigma
productivity

- emphasis on ‘productivity’, use of business practices like Six Sigma
  - attempt to decrease error and increase output
productivity

• emphasis on ‘productivity’, use of business practices like Six Sigma—standardization can stifle our most creative minds

R Gunderman, 2011
productivity

- emphasis on ‘productivity’, use of business practices like Six Sigma
  - ERRORS are often the most fruitful opportunities for creativity and innovation to occur

R Gunderman, 2011
MISTAKES
I don’t mind learning from my mistakes. I just don’t want to earn a PhD.
productivity

• “Creativity is not just a matter of making new things at work but making work itself new and better”, R. Gunderman
burnout and wellness

• is lack of ‘burnout’ enough of a goal???
burnout and wellness

• an expanded view concerns actual wellness, not just lack of burnout
burnout and wellness

• ‘wellness’ is not well defined
burnout and wellness

• ‘wellness’ implies a focus on self—counter to ACGME professionalism competency that requires residents to put their own needs secondary to those of patients
one wellness program

• Behavioral Medicine and Family Medicine, William Beaumont Hospital, Sterling Heights, MI

Eckleberry-Hunt, 2009
one wellness program

• defining wellness
  – dynamic, ongoing process
  – self-awareness
  – healthy choices
  – balanced lifestyle

Eckleberry-Hunt, 2009
one wellness program

• physical
• intellectual
• spiritual
• emotional
• social

Eckleberry-Hunt, 2009
one wellness program

• wellness—being able to leave work behind
  – maintaining/developing outside interests
  – valuing relationships
  – caring for self as well as others

Eckleberry-Hunt, 2009
academics is in trouble

• physician satisfaction is at an all-time low
academics is in trouble

• old paradigm:
  – medical school faculty could enjoy ‘the element of repose, the quiet pursuit of knowledge, the friendship of books, the pleasures of conversations and the advantages of solitude” (Arnold Rice Rich, Johns Hopkins)
academics is in trouble

• recent survey of academic faculty find over 40% are considering leaving

SR Lowenstein, 2007
academics is in trouble

• main issues
  – balancing work and family
  – lack of empowerment
  – lack of recognition for clinical work or teaching
  – lack of a community

SR Lowenstein, 2007
the stress is REAL

• how can creativity help?
  – empowerment (you are in control)
  – satisfaction
  – recognition
  – intellectual engagement
example of an empowering creative project

• problem: want to revisit anatomy during radiology rotation
example of an empowering creative project

– dissection is too expensive, logistics
– funds are extremely limited
– how can we give students a 3D experience without spending a lot of money?
innovation requires you to be open to new ideas wherever you see them
how could we use this idea?

• instead of snowman, pelvis!
building the heart
building the heart

total cost < $100
share your ideas!

• pelvis lab was presented recently at annual BU Educational Innovation conference as a workshop

• email within two weeks:
  – SPH project to teach genital anatomy as part of course on STDs
building the GU system
building the GU system
building the GU system

not only beautiful,
but testing knowledge at a higher level than simple recognition
Summary

• burnout and job dissatisfaction are rampant, with common complaints including lack of control and lack of reward
• creativity and innovation provide control and reward, and can be enhanced through assigned projects, mentoring, training in problem solving
• fostering outside interests can also help and may enhance reflection and human connections
• artistic involvement in particular may help in problem solving and fostering innovation
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