

Perceptions of Critical Thinking

Is Critical Thinking Important to Employers and Employees
- A Local EMS example ?

Narrowing the Gulf Conference 2010

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March 18, 2010

First...What is Critical Thinking?

St Petersburg College is using a working definition of CRITICAL THINKING as the active and systematic process of:

- Communication
- Problem-solving
- Evaluation
- Analysis
- Synthesis
- Reflection

both individually and in community to

- Foster understanding
- Support sound decision-making and
- Guide action



What is Critical Thinking?

...an **ongoing** process to gather and work through information, **explore** possibilities, and use **rational** thinking.

...common themes emerge
gathering, processing, **considering** all possibilities, **rational** decision-making, learned knowledge, and **exploration** of information.

Why is Critical Thinking Important in the Workplace?

Critical thinking in the workplace:

- **Medical** - evaluating patients' symptoms
- **Technology** – problem-solving software/engineering solutions
- **Counter-terrorism** – synthesizing intelligence to predict future events
- **Criminal justice/fire science** – analyzing the scene – whodunit?
- **Government** – solving problems like hurricane relief
- **Education** – reflecting on student success resulting from your teaching
- **Business** – analyzing information to detect trends; ethical decisions
- **Journalism** – communicating fairly

St. Petersburg College Assessment Rubric for Critical Thinking

Identification - What is the problem?

Research - Need information about the problem, history, and possible solutions.

Analysis - Examine closely to better understand it.

Application - Use moral “we should” principles to find best solution for problem

Decision-Making - Choose best moral solution and justify it

Evaluation - Consider options without prejudice or bias – did we make the right choice?

Reflection - Step back and look at decision objectively and honestly

A Local 2009 EMS Study

- Perceptions from employers and employees
- Qualitative, phenomenological study
- 19 potential employers
- Employees from any of these agencies
- Anonymous, online questionnaires
- Responses compared to Critical Thinking model and to each other

Questions of the Study

- How do participants define critical thinking?
- How important is critical thinking to the profession?
- What type of program did participants prefer/ attend (e.g., proprietary, hospital-based program, community college, vocational technical institution)?
- Was the program attended and completed, a certificate or associate degree program?
- Did the education and training program provide (adequate) critical thinking education in the curriculum?

Richard Paul Model of Critical Thinking

Model used to address critical thinking:

- Use *standards* of thinking and...
- ...apply them to *elements of reasoning*
- ...to develop *intellectual traits*

The Standards of Thinking

Clarity – is what we are asking clear?

Significance – is this really important to the issue?

Precision – do we have specific details?

Completeness – do we have all relevant details?

Accuracy – is our information true and correct?

Fairness – have we considered other view points/ info?

Relevance – how does this relate to the problem?

Breadth – have we looked at this from all viewpoints?

Logicalness – does all of this make sense?

Depth – have we looked into all aspects of problem?

The Elements of Reasoning

Purpose – why is this problem being addressed?

Concepts – are the theories/concepts used justifiable?

Inferences – are conclusions logical and sound?

Implication – do we understand what is being stated and the consequences?

Questions – have we addressed the complexity of the problem?

Assumptions – are we sensitive to the what we are saying?

Points of View - are we sensitive to other viewpoints?

Information - are our sources credible and do they address the issue?

Intellectual Traits

Humility	<i>vs</i>	Arrogance
Perseverance	<i>vs</i>	Laziness
Autonomy	<i>vs</i>	Conformity
Confidence in Reasoning	<i>vs</i>	Distrust
Integrity	<i>vs</i>	Hypocrisy
Empathy	<i>vs</i>	Narrow-minded
Courage	<i>vs</i>	Cowardice
Fair-mindedness	<i>vs</i>	Unfairness

Richard Paul Model of Critical Thinking

The *Standards of Thinking* must be applied to the *Elements of Reasoning* in order to develop the *Intellectual Traits* that will establish the foundation for life-long critical thinking.

Why Critical Thinking is important to the EMS profession?

All employers in study believed it was important...

...as an **essential** skill for assessment, evaluation, and addressing situations encountered in the prehospital work environment.

...to develop a plan and **engage** other health professionals in substantial **dialogue**.

Findings of the Local EMS Study

Why Critical Thinking is important to the EMS profession?

Most employees (87.5%) in the study **agreed** CT had **value**...

...in responding **appropriately** to medical problems

...in working through **options** and solutions

...in an **ongoing** learning process

Type of EMS School Employers Preferred?

- **Community College** (50%) – accreditation
- **Community College** or **Vocational Technical Center** (25%) – cost and accreditation
- **Any** program with **comprehensive** education (25%)- no preference

Type of EMS School Attended?

EMS employees reported they attended:

- **Community College** (62.5%)
- **Private (proprietary)** school (25%)
- Vocational Technical Center (12.5%)

Degree or No Degree?

EMS employers reported they preferred their employees to have:

- Degrees to **prepare** students better for the prehospital work environment (62.5%)
- Neither - **No difference** in degree vs. non-degree (25%)
- **No preference** (12.5%)

Degree or No Degree?

EMS employees believed the benefit of having a degree:

- Depends on **school effort** to bridge curriculum (37.5%) – **cohesive, meaningful** courses
- Made no difference (37.5%) – all offer the same education
- **Had benefit** (12.5%) – more comprehensive
- No preference in degree *vs* non-degree (12.5%)

Do EMS Education Programs Provide Adequate CT Education?

EMS employers reported they believed:

- **Some** programs do provide enough and some do not (25%)
- Some programs **do not** provide enough (25%)
- Not sure (25%)
- **Yes** programs do provide enough (12.5%)
- **Sometimes** programs provide enough (12.5%) – depends on **instructor(s)**

Do EMS Education Programs Provide Adequate CT Education?

EMS employees believed:

- **Not enough** CT was provided (37.5%)
- **Some** programs do and some do not provide (25%)
- School did provide **enough** CT education (25%) – with use of **scenario-based practice**
- Did not answer (12.5%)

Recommended Changes in CT Education for EMS Programs?

These recommendations included offering more:

- **hands-on scenarios** – working through problems
- hands-on scenarios with **repetition** and **variations**
- **comprehensive** support courses (anatomy, physiology, and pharmacology) to strengthen understanding of course work
- **student-centered dialogue** with interaction to engage student groups

Recommended Changes in CT Education for EMS Programs?

- **integration** of all course work (clinical, field, and lecture) into presentations - put it all together
- group projects with **team-based** approach
- **critical thinking** processes **throughout** the program – progress from “step-by-step” limitation
- stronger learning **foundation** by integrating all course work – (strong emphasis on this)

What are we doing for CT Education in our classrooms?

- How do you **implement** CT in your program?
- How do you **evaluate** your courses?
- Are your assessments **challenging**?
- Does your course work **prepare** students for the workplace?

Question Complexity-

How do we question our students?

- Are there any... yes/no ?
- How important is... simple answer
- How many... simple answer
- What are the... have to name them
- What considerations... complex
- What strategies would you... more complex
- What implications would we... more complex

Why-Driven Enrichment

“Give me a list and I will forget it”

“Tell why and how and I will remember forever”

Source: Elling, B., Elling, K.M., & Rothenberg, M.A. (2002). *Why driven EMS enrichment*. Albany, NY: Delmar – Thompson Learning.

“Make it Click”

“Thinking and Linking”

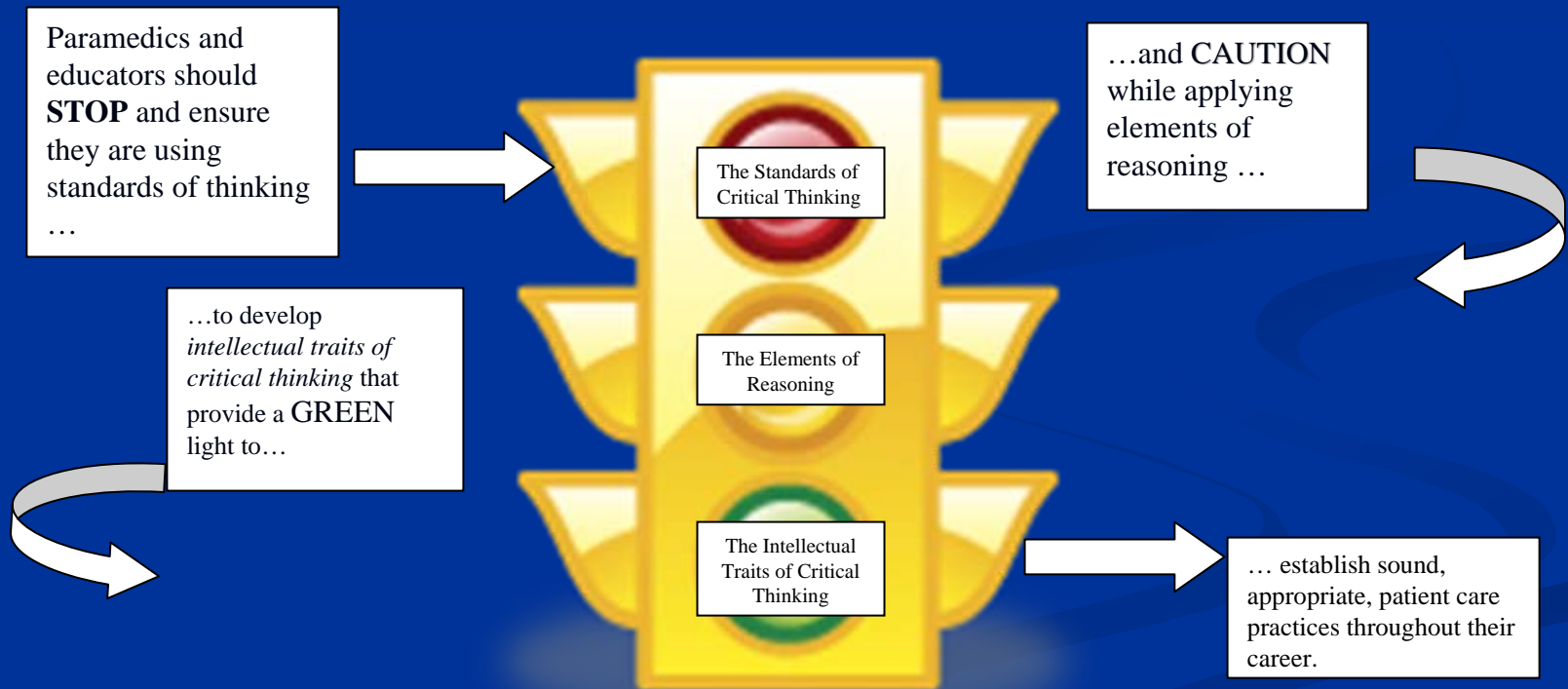
what **linked** to why you need to know this and how it applies?

“Active Learning”

participating **while acquiring** knowledge and skill.

Source: Limmer, D. & LeBaudour (2005). *Active learning manual: EMT-B*. Upper Saddle River, NJ: Pearson Education.)

STOP Light Approach to Paramedic Critical Thinking (Can we apply this to general education ?)



Note: (Based upon the Richard Paul Model of Critical Thinking)

Summary

- **Implement** CT in your program
- **Evaluate** your courses for CT content
- **Assess** students in a challenging environment
- **Prepare** students for the workplace

References

- Elling, B., Elling, K.M., & Rothenberg, M.A. (2002). *Why driven EMS enrichment*. Albany, NY: Delmar – Thompson Learning.
- Limmer, D. & LeBaudour (2005). *Active learning manual: EMT-B*. Upper Saddle River, NJ: Pearson Education.)
- Paul, R. W., & Elder, L. (2006). *The miniature guide to critical thinking concepts and tools (4th ed.)*. Dillion Beach, CA: The Foundation for Critical Thinking.
- Paul, R. W., & Elder, L. (2002). *Critical thinking: Tools for taking charge of your professional and personal life*. Upper Saddle, NJ: Prentice-Hall.
- Paul, R. W., & Elder, L. (2003). Critical thinking: Teaching students how to study & learn (part III). *Journal of Developmental Education*, 26(3), 36-37.
- Paul, R. W., & Elder, L. (2005). *A guide for educators to critical thinking competency standards: Standards, principles, performance indicators, and outcomes with a critical thinking master rubric*. Santa Rosa, CA: Foundation for Critical Thinking.

Time to Proceed

