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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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

Source: St Petersburg College Critical Thinking Institute
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.

Source: St Petersburg College Critical Thinking Institute
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

Source: St Petersburg College Critical Thinking Institute
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 viewpoints/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 vs Arrogance
- Perseverance vs Laziness
- Autonomy vs Conformity
- Confidence in Reasoning vs Distrust
- Integrity vs Hypocrisy
- Empathy vs Narrow-minded
- Courage vs Cowardice
- Fair-mindedness vs 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%)
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%)
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”

“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.

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

Paramedics and educators should STOP and ensure they are using standards of thinking …

…to develop intellectual traits of critical thinking that provide a GREEN light to …

The Standards of Critical Thinking

The Elements of Reasoning

The Intellectual Traits of Critical Thinking

… and CAUTION while applying elements of reasoning …

… establish sound, appropriate, patient care practices throughout their career.

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


Time to Proceed