Citation # I.1

Wokabi, F.G. (?). *Critical thinking triad as a model for enhancing the quality and relevance of higher education in Kenya*. (Paper). Kenyatta University, Department of Philosophy, Nairobi, Kenya. 1-11. [PDF+]

URL

http://www.daad.de/de/download/alumni/veranstaltungen/06_11_06/Presented%20papers/Copy%20of%20Francis%20Gikonyo.pdf

Abstract

Introduction: The purpose of this paper is to show the significance of the Critical Thinking Triad in enhancing the quality and relevance of higher education in Kenya. In order to pursue this goal, it is necessary to clarify the key concepts that inform this paper namely: Education, Quality, Relevance, Critical Thinking, and Critical Thinking Triad. The analytical dimension of critical thinking involves identifying the fundamental structures or elements of any form of thinking. Thought comprises of parts namely: purposes, questions, points of view, information, inferences, concepts, implications, and assumptions. (Paul and Elder, 2001: 50). The evaluative dimension of critical thinking comprises of universal intellectual standards that are useful in assessing the quality of thought. They include: clarity, accuracy, precision, relevance, depth, breadth, logicalness, significance, and adequacy among others (Paul and Elder, 2002:98).

Quotes

-The conceptual framework that informs the paper is Paul and Elder's (2002) conception of Critical Thinking.

Referenced From

Paul, R. 1995. Critical Thinking: How to Prepare Students for a Rapidly Changing World. California: Foundation for Critical Thinking.

Paul, R. and Elder, L. 2001. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Upper Saddle River, N.J.: Prentice Hall.

Paul, R. and Elder, L.2002. Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life. Upper Saddle River, N.J.: Financial Times Prentice Hall.

Citation # I.2

Simon, J. (2011, August). Evaluation of a structured model to assist business school students develop critical thinking skills, based upon Kolb's experiential learning cycle and Paul's elements of thinking: Final Report. *Teaching Research and Development Projects: The Higher Education Academy Business, Management, Accountancy and Finance Network.* 1-21. [PDF+]

URL

http://www.heacademy.ac.uk/assets/bmaf/documents/projects/TRDG_projects/trdg_1011/r11-simon-final-report.pdf

Abstract

The purpose of this study is to show how business school students can be encouraged to develop critical thinking skills. A model is constructed integrating Kolb's experiential learning cycle with Paul's eight critical thinking elements to serve two important purposes. Firstly, Kolb's learning cycle is enhanced as students are provided with explicit guidance as to how they might transform experience using reflection into concepts, and how they might transform concepts using experimentation into new experiences. Secondly, Paul's eight critical thinking elements are given an overall structure by being located around Kolb's learning cycle familiar to many business school educators and students. The Critical Thinking Model was used by over 150 second-year undergraduate accounting students who were enrolled on a financial reporting module. The students were required to use the Model to assist in constructing an argumentative essay. Both qualitative and quantitative data was collected describing their experiences of using the Model. Whilst, some students particularly liked its clear and concise structure, others thought it too complex and highly structured. Additional attributes of the Model students liked included its usefulness in helping them study a topic in depth, visualising their thinking and assisting in researching the topic. Some students liked using concepts and theory to help them make sense of experiences, whilst other students found it difficult and time consuming to think of relevant concepts. The elements of the Model most liked by students were purpose, reasons, focus questions, implications/consequences and experiences. Whilst, elements of the Model most disliked by students were assertions and assumptions. Thinking and understanding skills were considered to be most important supported by the ability to argue logically. The Model also proved useful in helping students plan, start, identify relevant information and generally organise their assignment. However, many students felt the Model was time consuming to learn how to use, so it is recommended that the Model may be more appropriately introduced in an introductory study skills module complex and highly structured. Additional attributes of the Model students liked included its usefulness in helping them study a topic in depth, visualising their thinking and assisting in researching the topic. Some students liked using concepts and theory to help them make sense of experiences, whilst other students found it difficult and time consuming to think of relevant concepts. The elements of the Model most liked by students were purpose, reasons, focus questions, implications/consequences and experiences.

Quotes

(Many More Quotes…)

-The Model uses Richard Paul's eight elements of thinking, largely unknown in business, management, accounting and finance education.

-The approach is innovative, as it combines the two approaches of Kolb and Paul, to provide students and educators with a structure that facilitates critical thinking in any subject area. The approach captures such issues as: Tensions between thinking from real life experience and thinking using concepts to understand such experiences. Tensions between thinking using reflective observation and thinking using experimentation with ideas.

-Students were then asked to consider series of statements regarding the Critical Thinking Model and respond on a 5=-point Likert scale ranging from strongly agree through to strongly disagree. The statements were derived from the literature, mainly the attributes Kolb (1984) and Paul (Paul & Elder, 2001) use to judge the quality of thinking.

-Students found the Model useful in helping them develop logical skills by using the eight elements to better organizing their thoughts and so structuring their essay in a logical manner. These views support Paul & Elder's (2001, p. 88) recognition of logicalness as one of their 9 standards of critical thinking.

-Similarly, some students valued the Model in helping them develop their written communication skills, particularly in respect of helping them to organize their thoughts. Paul & Elder (2001, p. 85) identify clarity as the gateway standards for critical thinking as if 'a statement is unclear, we cannot determine whether it is accurate or relevant.'

Referenced From

Paul, R. (1990) Critical thinking, Binker, A.J.A. (Eds.), Rohnert Park, CA: Centre for Critical Thinking and Moral Critique, Sonoma State University.

Paul, R. and Elder, L. (2001) Critical thinking: Tools for taking charge of your learning and life (New Jersey: Prentice Hall).

Citation # I.3

Gambrell, K.M., Matkin, G.S. & Burbach, M.E. (2011, April). Cultivating leadership: The need for renovating models to higher epistemic cognition. *Journal of Leadership & Organizational Studies*. (18.3) 308-319. [NO PDF]

URL

http://jlo.sagepub.com/content/18/3/308.short

Abstract

More than ever before, people are reevaluating their lives and work as they search for deeper meaning. This “self-actualization” has only superficially appeared in leadership theory and research. This essay will discuss why adult development and higher levels of critical thinking in leadership is essential to effective leadership. The authors hypothesize that a “cultivated” aspect of leadership is currently lacking in leadership theory and research and is essential to leader and follower development. Additionally, the authors envision that impending organizations will necessitate more leaders with the ability to facilitate follower growth and development along these constructs.

Quotes

(Unavailable)

Referenced From

Paul, R. and Elder, L. (2001) Critical thinking: Tool for taking charge of your learning and life (New Jersey: Prentice Hall.

Citation # I.4

Hobaugh, C. (2010, October-December). Critical thinking skills: Do we have any? Critical thinking skills of faculty teaching medical subjects in a military environment. *The United States Army Medical Department Journal: The Education Mission of the Army Medical Department*. 48-62. [PDF+]

URL

http://www.cs.amedd.army.mil/AMEDDJournal/2010octdec.pdf#page=50

Abstract

Countless course introductions and administrative will not teach you what to think; rather you will be taught how to think." It may be declared so often as to become cliché, however, that goal is not necessarily realized for any number of reasons. Two major issues related to the definition and to the teaching of critical thinking were addressed in 2 important studies that informed my own doctoral research*: 1. Expert Consensus on Critical Thinking: The American Philosophical Association (APA) Delphi Report (1990) and 2. California Teacher Preparation for Instruction in Critical Thinking (1997).

Quotes

-The compelling study, commissioned by the California Commission on Teacher Credentialing, determined that faculty subjects were indeed confident that they understood the critical thinking concepts and were also successful in teaching. Paul states unequivocally that they were also wrong; fewer than 10% of the teachers actually taught critical thinking, could enumerate critical thinking criteria or standards required of students, or provide clear conceptions of critical thinking.

-Paul et al concluded, "it appears likely that we are now training teachers who not only have little understanding of critical thinking nor how to teach for it but also wrongly and confidently think they do."

Referenced From

Paul R, Elder L. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Upper Saddle River, NJ: Prentice Hall; 2001.
Paul R, Elder L, Bartell T. California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy Recommendations. Sacramento, California: California Commission on Teacher Credentialing; 1997. Available at: http://www.criticalthinking.org/store-page.cfm?P= products&ItemID=147&catalogID=214&cateID=132. Accessed September 21, 2010

Citation # I.5

Gardner, P., Gross, L. & Steglitz, I. (2010, June). *Study abroad & career competencies: conveying the value to employers.* (PowerPoint). CIBER: Short Term Study Abroad Conferenc*e*, Kansas City, MO. 1-38. [PDF+]

URL

http://stsa.broad.msu.edu/presentations/STSA-Unpacking.pdf (Powerpoint Presentation)

Abstract

Presentation Objectives:
-Gain insight into a mutually beneficial collaboration between study abroad and career services
-Realize some of the dynamics of student reflection in understanding their learning and building a portfolio of transferable skills
-Contextualize the demand for student reflection in light of the learning imperatives for the knowledge based economy

Quotes

-The questions we ask determine where our thinking goes. (Scriven and Paul)
-The quality of our thinking is given in the quality of our questions. (Elder and Paul)

Referenced From

-Linda Elder and Richard Paul (2002). The Art of Asking Essential Questions. Foundation for Critical Thinking (www.
-Richard W. Paul (1995). Making Critical Thinking Intuitive. Foundation for Critical Thinking.
-Richard Paul and Linda Elder (2003). How to Improve Student Learning. 30 Practical Ideas. 2nd edition, Foundation for Critical Thinking (www.criticalthinking.org).
-Richard Paul and Linda Elder (2004) The Nature and Functions of Critical and creative thinking. Foundation for Critical Thinking. (www.criticalthinking.org)

Citation # I.6

Dean, F.P. & Boose, M.A. (2004). Thinking critically about business ethics. *The Clute Institute: Journal of College Teaching and Learning*. (1.4). 1-16 [PDF+]

URL

http://www.journals.cluteonline.com/index.php/TLC/article/view/1929

Abstract

In this study, we teach students and business professionals to apply a formal process of critical thinking to the issues of business ethics. Every new scandal generates a renewed interest in business ethics, leading the news media and the public to lament the current state of affairs, sometimes asking why colleges and schools of business don't do a better job of teaching ethics. Many suggest that business owners and managers do not act as ethically as in the past. Some say that they cannot act ethically. The critical thinking skills and examples included in this study can serve to help students of business and professionals in business as they approach difficult ethical decisions.

Quotes

-Our main tool in analyzing business and the ethics that should be practiced in the business environment will be critical thinking as described by Paul and Elder (2001). Specifically, we will refer to the elements of thought that they have designated.

-The critical thinking process used here is fully described by Paul and Elder (2001a, and 2001b) Each of these books is appropriate for the use of business students. As a brief outline, and to provide a sense of the critical thinking process used here, we note that Paul and Elder describe the elements of thought as an understanding of the following items as related to the issue at hand.... more.

- Paul and Elder also require that critical thinking be evaluated by applying Universal Intellectual Standards which they define as:...

-Paul and Elder continue by contrasting Intellectual Virtues and Vices.

Referenced From

Paul, Richard and Linda Elder. 2001. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Prentice Hall. Englewood Cliffs, N. J.

_____. 2001. The Miniature Guide to Critical Thinking: Concepts & Tools. The Foundation for Critical Thinking. Dillon Beach, Ca.

Citation # I.7

Martin, R.J. and Mackenzi, L. (2007, September). The investigative research template as a tool for critical thinking. *Journal of the Communication, Speech & Theatre Association of North Dakota.* (20) 65-72. [PDF+]

URL

http://www.cstand.org/UserFiles/File/Journal/2007.pdf#page=65

Abstract

Educators and employers have increasingly recognized the link between critical thinking and conscious, informed decision making. The workforce is hungry for qualified high school and college graduates able to analyze the credibility of messages, discern the complexities of key issues and apply logical reasoning. This article presents the Investigative Research Template (IRT), an inquiry-based learning model which uses a defined framework for developing investigation skills necessary to further critical thinking in the communication classroom and in other inter-disciplinary settings.

Quotes

-Paul (1995) referred to this level of preparedness as “intellectual fitness” and explained that critical thinkers possess habits, traits, and abilities that form a “comprehensive, substantial system of thought embedded, ideally, in every aspect of their lives” (p.28).

-Paul refers to critical thinking as “…a unique kind of purposeful thinking in which the thinker systematically and habitually imposes criteria and intellectual standards upon the thinking” (1995, p.21).

-Paul argued that “accelerating change and increasing complexity—with their incessant demand for a new capacity to adapt, for the now rare ability to think effectively through new problems and situations in new ways —sound the death knell for traditional methods of learning how to survive in the world in which we live” (1995, p. 3).

-Richard Paul’s definition of critical thinking referenced earlier in this paper --“purposeful thinking in which the thinker systematically and habitually imposes criteria and intellectual standards upon the thinking”-- recognizes the need for a disciplined and logical approach to use in considering multiple opposing viewpoints.

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Referenced From

Paul, R. (1995). Critical thinking: How to prepare students for a rapidly changing world. Santa Rosa, Calif.: The Foundation for Critical Thinking.

Paul, R. & Elder, L.E. (2001). Critical thinking: Tools for taking charge of your learning and your life. Upper Saddle River, N.J.: Prentice Hall.

Citation # I.8

Squellati, R. (2011, August). Health literacy: understanding basic health information. *Creative Nursing*. (16.3) 110-114.

(PDF+)

URL

http://www.ingentaconnect.com/content/springer/crnu/2010/00000016/00000003/art00004

Abstract

Health literacy is a significant concern for Americans. Understanding health information is vital in addressing issues of access, quality, and affordability. If nurses are not able to teach patients effectively about their conditions and treatments, outcomes will be adversely affected. Providing information in ways that are appropriate for the patient's health literacy level is a step toward decreasing health disparities and increasing patient compliance. Online information can be useful to both nurses and patients

Quotes

-Critical thinking skills such as reflection, analyzing responses, and determining whether the information is logical and rational can facilitate health literacy (Paul & Elder, 2006).

Referenced From

Paul, R. W., & Elder, L. (2006). Critical thinking: Tolls for taking charge of your learning and your life (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Citation # I.9

Nies, A. (2010, November) S*elf-acquaintance and agility: a tool for personal agility.* (PowerPoint). QCon, San Francisco, CA. [PDF+ *PowerPoint*]

URL

http://jaoo.dk/dl/qcon-sanfran-2010/slides/AinsleyNies_PersonalRetrospectivesSelfAcquaintanceAndAgility.pdf

Abstract

Agenda: What is a personal retrospective?
The Approach:
Clarify the Purpose
Assess Decision-making influences
Gather Data
Distill the Learning
Transform Learning into Plans

Quotes

* Uses elements of reasoning to organize process-- not really credited.

Referenced From

Paul, Richard and Elder, Linda. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Prentice Hall,2001

Citation # I.10

Lucas, L.F.C. (2010, May). *Towards a theory on the design of adaptive transformation: A systematic approach.* (Military Paper.) School of Advanced Military Studies United States Army Command and General Staff College, Ft. Leavenworth, KS. 1-75. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA522720

Abstract

This work proposes a novel approach to military transformation, 'Adaptive Transformation,' that accounts for an inescapable reality in the current and future operational environment: uncertainty. Military planners and decision makers have to face long-term, evolutionary, and transformational changes under two major premises. First, military transformation needs to be conceptualized as a continuously evolving, self-adapting process. Second, the terms that define its desired end state need revision, as the quest for an unequivocal, well-defined end state can derail the process. 'Adaptive Transformation' benefits from complex systems theory and principles of the Art of Design. A systemic approach to tackle military transformation through the lens of complexity offers a useful intellectual approach to address transformational issues. Moreover, the Art of Design provides a methodology that seems ideally suited to tackling the complex, ill-defined problems that military transformation embodies.

A theory on the design of military transformation helps address the military planner's dilemma. An 'Adaptive Transformation Cycle', based on four cognitive spaces, encompasses at the institutional level the inner 'Adaption Cycle' that functions at the operational level. Both processes are complementary and self-reinforcing in nature, with the former providing a higher level of adaptation informed by design. The fourth cognitive space, the 'engagement space,' gives meaning to this construct, as it represents the institution's ongoing physical and cognitive interaction with the environment.

This research ends with several conclusions on the application of complexity theory and the Art of Design to military transformation, and some recommendations for military planners involved in transformational issues. Adaptive Transformation is the proposed intellectual and operational approach to adequately address Armed Forces' evolution in the 21st century.

Quotes

P. 13-A third block exploring a potential approach to transformational dynamics from a design standpoint relates to critical thinking and design theory. Relevant works are: Bryan Lawson, How Designers Think; Chris Jones, Design Methods; Paul and Elder, Critical Thinking; Karl Weick, Sensemaking in Organizations; Jamshid Gharajedaghi, Systems Thinking; Steven Johnson, Emergence; John Kotter, Leading Change; Peter Senge, The Fifth Discipline; Whitten, Bentley, and Dittman, Systems Analysis and Design Methods; Donald Schön, Educating the Reflective Practitioner; and John Heskett, Design.

Referenced From

Paul, Richard, and Linda Elder. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Upper Saddle River, N.J.: Prentice Hall, 2001.

Citation # I.11

Espositos, J. (2011, June). Research notes: a critical approach to the analysis of advertisements. *The Linguistics Journal*. (5.1) 197-219. [PDF+]

URL

http://www.linguistics-journal.com/June-2011-js.pdf

Abstract

As a means of addressing the pedagogical challenges of linking second language acquisition to critical thinking, this paper introduces a multidimensional approach to the perspective associated with Critical Discourse Analysis (CDA). After outlining the primary aims and assumptions of this perspective, which is distinguished from other forms of critical thinking, the merits of utilizing advertisements as the focus of inquiry are discussed. A three level approach to the analysis of advertisements developed for Japanese university students is then presented. In the final section, a summary of students' research findings points toward the benefits of establishing a critical perspective in the EFL classroom. These include not only the improvement of thinking and language skills, but also a better appreciation for the powerful influence of advertising in modern life.

Quotes

- In a similar way, there are also significant differences between CDA and critical thinking although they share some of the same analytical concerns. For one, textual analysis proceeds from dividing thought into its basic elements, which can then be evaluated according to intellectual standards, such as plausibility and specificity (Paul & Elder, 2001).

Referenced From

Paul, R., & Elder, L. (2001). Critical thinking: Tools for taking charge of your learning and your life. Upper Saddle River, NJ: Prentice Hall.

Citation # I.12

Macaulay, D. (2011). *Systems thinking: A foundational art for strategic leaders.* (Strategy Research Project). U.S. Army War College, Carlisle Banks, PA. 1- 28. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA547424

Abstract

The chaos and interconnected messes of the contemporary operating environment has increased the fog and friction in which strategic leaders must think and devise strategies. Today's ever increasing wicked problems have resulted in a search, by strategic leaders, for the ideal thinking model to organize, frame and ensure relevancy of thought to meet the envisioned ends. A recent model, proposed as a means of thinking and adopted by the United States Army War College frames and assists strategic leaders in applying thinking skills. It fails, however, to identify systems thinking as a foundational strategic leader conceptual competency, which would provide the required framework in order to make decisions in the future. A new model has been proposed that specifically addresses this shortfall. It provides clarity of thinking to strategic leaders and is already evident in two ways of decision making; Soft Systems Methodology and the US Army's Design. The result is a holistic understanding of the volatile, uncertain, complex and ambiguous environment which facilities quality strategic leadership thinking when devising strategies and that (can/will) benefit the entire organization.

Quotes

-Although it can be argued that critical thinking is the most important, it is proposed that systems thinking is a foundational attribute and the enabler to facilitating good critical thinking. The Paul and Elder critical thinking model, as represented in Figure 4, clearly highlights the requirement for systems thinking in clarify the concern.

Referenced From

Richard Paul and Linda Elder, ―Critical Thinking, Tools for Taking Charge of Your Learning and Your Life (Opper Saddle Rover, NJ: Prentice Hall, 2001), 103.

Citation # I.13

Henderson, L. & Dean, J.M. (2009-July). Distance learning: creating prepared learners through virtual student resource centers. *Proceedings of EDULEARN09 Conference, Barcelona, Spai*n. 1-6 [PDF+]

URL

http://faculty.ksu.edu.sa/7338/pdf/58.pdf

Abstract

Midway College in Kentucky is committed to student learning through the use of virtual classrooms as well as in-seat delivery of courses. To uphold that commitment, Midway College developed virtual student resource centers in support of education and business students. Students can now access essential online resources through visible icons in areas such as administration, infrastructures within the college and support services that provide assistance to students.

These resources include: Faculty photos and profiles, faculty/advisement and counseling for online learners, general resources (e.g. student training, syllabus, course schedule, program supplemental information, library resources, online frequently asked questions, orientation to online students, textbook information), discussion board-providing students individual advisement and/or group discussion, business office contacts and links, financial aid office contacts and links, web registration, program requirements, education department-ePortfolio Livetext information for checkpoints I, II, III and Praxis II resources available to students for their Praxis II exam.

Students pursuing their education at a distance typically juggle many responsibilities such as family and work. The intention of this virtual student resource center is to provide online and blended students accessibility to important information twenty-four hours a day and to promote student success. The center is convenient as a "one-stop" shop of information to provide novice and experienced online and blended students the support they need to succeed. The significance of this presentation is to inform participants of the advantages of how the technology of the virtual student resource center can serve as an educational resource that provides a valuable tool in distance learning to aid student support and success.

Quotes

-After exploring many current definitions of critical thinking, it was determined that the definition given by Richard Paul and Linda Elder in their text Critical Thinking: Tools for Taking Charge of Your Learning and Your Life would be adopted by Midway College.

Referenced From

Paul, R. and Elder, L. (2001) Critical thinking: Tools for taking charge of your learning and your life. 2nd Edition. Upper Saddle River, NJ: Prentice Hall.

Citation # I.14

Valenzuela, J., Nieto, A.M., & Saiz, C. (2011). Critical thinking motivational scale: a contribution to the study of relationship of critical thinking and motivation. *Electronic Journal of Research in Educational Psychology*. (9.2) 823-848. [PDF+]

URL

http://www.pensamiento-critico.com/archivos/criticalthinkingmotscaledef.pdf

Abstract

The present work reports the characteristics of an instrument measuring the degree of motivation that people possess to think critically. *The Critical Thinking Motivation Scales (CTMS*) is based on a theoretical option that affords precedence to the perspective of motivation for over the perspective of dispositions. Motivation is understood as the expectancy/value. This sound theoretical frame offers further possibilities for researching factors that affect the activation and deployment of critical thinking.... This study shows that the *CTMS* has psychometric characteristics that endorse it as a valid and reliable test. It is also a tool for the study of motivational factors of critical thinking that may be useful in pedagogic instruction and intervention.

Quotes

-Most theoreticians working in the field (e.g., Ennis,1996...Paul &Elder, 2001) consider that the deployment of this type of thinking depends on two components: skills and dispositions.

-In contrast, other authors have focused more on dispositions as attitudes or consolidated intellectual habits. (Paul, 1990)

Referenced From

Paul, R. and Elder, L. (2001) Critical thinking: Tools for taking charge of your learning and your life. 2nd Edition. Upper Saddle River, NJ: Prentice Hall.

Paul, R. (1990) Critical Thinking: What every person needs to survive in a rapidly changing world. Rohnert Park: Center for Critical Thinking and Moral Critique, Sonoma State University.

Citation # I.15

Tumlin, K.I., Linares, R., & Schilling, M.W. (2009, Fall). Student motivation and assessment of applied skills in an equine studies program. *Missouri State University Journal of Applied Learning in Higher Education.* (1.) 93-108.
[PDF+]

URL

http://www.missouriwestern.edu/appliedlearning/documents/JournalofAppliedLearninginHigherEducationPrintandOnline.pdf#page=95

Abstract

Student motivation is a universal teaching challenge. A holistic approach to assessment was developed for cognitive and psychomotor tasks in equine studies. First-year students (n=55) were either randomly provided (PR) or not provided (NP) a rubric 3 weeks prior to skills testing. The PR students earned lower total scores ($p < 0.05$) than NP students (12.8
and 17.1 ± 5.3, respectively). In individual categories, PR and NP students had similar ($p > 0.05$) pass superior scores. Third-year students (n = 7) self-rated task performance using an affective rubric and reflection exercises. Although the original goal was to promote standardization of hands-on skills, these data indicate that students are more goal-oriented
than process-oriented; furthermore, use of affective rubrics for self-assessment promoted a learner-centered approach to motivation.

Quotes

-In this study, rubrics were used as applications of universal intellectual standards (Paul & Elder, 2001) for teaching and assessment of hands-on skills.
-Critical thinking, as outlined by Paul and Elder (2002), is based on universal intellectual standards that include accuracy, clarity, relevance, depth, breadth, logic, significance, and fairness.

Referenced From

Paul, R., & Elder, L. (2001). Critical thinking: Tools for taking charge of your learning and your life. London: Prentice-Hall International.
Paul, R. P., & Elder, L. (2001). The miniature guide to critical thinking. Santa Rosa, CA: Foundation for Critical Thinking (www.criticalthinking.org).

Citation # I.16

Stone, J. (2011, September). *Questioning education: A critique of philosophy for children.* (Master of Arts in Philosophy of Education). Institute of Education, University of London. 1-86. [PDF+]

URL

http://www.jsafire.co.uk/jsafire/blog/10-11/MA-Dissertation-IOE-Sep-2011.pdf

Abstract

This dissertation sets out an insider's critique of the pedagogy of Philosophy for Children (P4C). It defends the thesis that P4C is in need of renewal, that P4C is an educative process of dialogical philosophy, that P4C would itself benefit from being the object of dialogical philosophical enquiry, and that practice in P4C would improve if participants spoke, wrote, and read both more often and more philosophically.

Quotes

-The concept of criteria (or standards) is a central component of other influential visions of critical thinking (e.g. Ennis 1996; Paul & Elder 2006).

-The contention that excellent thinking is ethical is not unique. For example, Richard Paul and Linda Elder (2006) maintain that critical thinking is fair-minded and sociocentric.

Referenced From

Paul, Richard & Elder, Linda (2006) Critical thinking: tools for taking charge of your learning and your life (Upper Saddle River, NJ, USA, Pearson Prentice Hall).

Citation # I.17

Abdi, S.H. (2008, September). *Evaluation of approaches to disability and rehabilitation in the context of Somali refugees in Kenya.* (Doctoral Dissertation*)*. School of Medicine Faculty of Health Sciences Flinders University, Adelaide, Australia. *1-98* [PDF+]

URL

http://theses.flinders.edu.au/uploads/approved/adt-SFU20080904.150115/public/02whole.pdf

Abstract

There is international concern over the refugee increase in many parts of the world and the international community is bearing the responsibility of assisting refugees with relief, rehabilitation, integration and possible repatriation programs. This has created unprecedented challenges for the international community since the amount of assistance has had to increase and resources have had to be diverted from development programs in countries with serious economic and social problems. The current study addressed important issues related to refugees with disabilities living in the Dadaab Refugee Camp Complexes in Kenya. After a pilot study to investigate the feasibility of the major study, 200 individuals with a disability were interviewed, and focus group discussions were held with individuals and groups supporting people with disabilities. The study was guided by the following research objectives: 1. To determine the prevalence of disability among Somali refugees and clarify the concept of disability as it relates to the Somali community; 2. To identify and discuss the nature and the causes of disability among the Somali refugees in Kenya; 3. To gain a picture of the basic needs, aspirations, and challenges of Somali refugees with a disability; 4. To examine and evaluate the prevailing educational and rehabilitation approaches to disability in the context of Somali refugees in Kenya; and 5. To develop a framework for a comprehensive approach to community rehabilitation relevant to refugees with a disability in Kenya. The research found that, while war in Somalia and related factors have contributed significantly to disability amongst members of the Somali community, cultural mindsets perpetuate disability and undermine the existing efforts to alleviate the conditions that people experience. Education and rehabilitation, which would be viable means of addressing the issues associated with disability, are inadequate in the refugee camps. The study acknowledges the efforts made by international agencies to help and support people with disabilities. However, it notes that more needs to be be done if the Somali refugees with disability are to live dignified and functional human lives.

Quotes

-Paul (1995) and Paul and Elder (2001) asserted that education must develop the inherent human capacity to think critically and creatively as well as develop dispositions that facilitate effective human relationships. Such an education assumes that every individual learner regardless of his/her status has an innate ability to learn which needs to be developed. It is argued that the development of these critical faculties need a conducive environment characterised by mutual respect, participation and recognition. Also, that dispositions like tolerance, intellectual honesty and empathy facilitate learning and self-fulfillment.

-The methods of instruction need to be learner-centred and suited to the individual differences that characterise the learners as much as possible. A human rights component as well as conflict resolution skills need to be included in the curriculum. A viable educational approach to intellectual rehabilitation is teaching for thinking as propounded by Paul and Elder (2001).

-Such harmful habits of thought include making generalizations that we do not have the evidence to back up, allowing stereotypes to influence our thinking, forming some false beliefs, tending to look at the world from one fixed point of view, ignoring or attacking points of view that conflict with our own, fabricating illusions and myths that we subconsciously confuse with what is true and real and thinking deceptively about many aspects of our experience. (Paul and Elder, 2001, p. xiv).

-In the context of this study, teaching for thinking as proposed by Paul and Elder would help the Somali community to interrogate and evaluate the cultural, political and religious beliefs, attitudes and assumptions that breed antagonism and discrimination and replace them with fair-minded beliefs that inform a just social coexistence....

Referenced From

Paul, R. (1995). Critical Thinking: How to Prepare Students for a Rapidly Changing World. California: Foundation for Critical Thinking.
Paul, R. and Elder, L. (2001). Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Upper Saddle, N.J.: Prentice Hall.

Citation # I.18

Handa, M.C. (2009, December). Learner-centered differentiation model: A new framework. *Australasian Journal of Gifted Education.* (18.2) 55-66. [N0 PDF]

URL

http://search.informit.com.au/documentSummary;dn=985225022615818;res=IELHSS

Abstract

The new Learner-centered Differentiation Model proposes that in order to differentiate learning experiences, the learning outcomes need to be differentiated first. Differentiated learner outcomes are the most essential part of learning experiences. They delineate student expectations. They guide the assessment process by indicating what learning is used and to what level of attainment students should aspire. Differentiated learner outcomes also guide the selection of key materials and strategies for use in classroom with gifted learners. The new paradigm illustrates how during planning stages, core and extended outcomes, core and complex content, basic and higher order processes and a variety of products need to be identified and developed in order to provide differentiated learning experiences. The new framework demonstrates creative use of cognitive technologies to enhance creative and critical thinking skills. The Learner-centered Differentiation Model allows flexibility to use an informed combination of frameworks rather than working from just one model. Using the new framework, the learner-centered units of work (both primary and secondary) encompass differentiated approaches to why students learn (outcomes), what students learn (content), how students learn (instructional and management strategies), how students demonstrate what they have learnt (evidence of learning) and where gifted students learn (learning environment

Quotes

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Citation # I.19

Roach, D., & Cochran, L. (2004, Fall). A pre-post retention approach to assess and assure learning in a business statistics course and beyond. *Journal of Business Administration Onlin*e. (3.2) 1-12. [PDF+]

URL

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Abstract

Introduction Validation of learning has long been pursued by programs that desire to confirm the transfer of knowledge (Mirchandani, Lynch, and Hamilton, 2001). Moreover, pressure from accrediting agencies has led universities and business schools to increase their attention to assessment and assurance of learning. From the perspective of the university, the assessment continuum ranges from institutional measures to program measures to course measures. While each point on this continuum uses similar methodologies and are highly dependent, each level should have a different group of stakeholders (Huba and Freed, 2000). In this paper, we describe an approach to assess and assure learning as an extension of the assessment model - at the course level.

Assessment has traditionally been a top down process, with regional accrediting bodies directing institutions on self study requirements. From the university's perspective, accreditation – not assessment – holds the most value. A loss of accreditation can result in the inability for students to receive federal financial aid funds. On the other hand, if we are truly concerned about the assurance of learning, the place to start is course based assessment. Course level assessment linked to specific learning goals builds towards the more global assessment measures for a program or even an institution (Huba and Freed, 2000). In fact, the Education Commission of the States identifies "assessment and prompt feedback" as one of five components of quality instruction (1995, 1996). This is similar to the concept of building quality into a product rather than attempting to "inspect" your way to quality.

Though the assessments we describe in this paper are developed within the context of a specific course (Business Statistics), our approach also addresses program-related learning goals. For the statistics course itself, we consider the impact of the course on student learning as it relates to both (a) the technical knowledge (content) taught in the course and (b) the ability to think and reason statistically (del Mas, 2002). We then go on to consider the impact of the course on program-related goals, specifically the development of students' critical thinking and problem solving skills.

Quotes

None Found

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Citation # I.20

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http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA483011

Abstract

The Command and General Staff College (CGSC) endeavors to instill critical thinking as a skill practiced by its graduates. To this end the college has introduced the concept of critical thinking as a class within the core curriculum. Students must take a "critical thinking test" both before and after the block of core instruction, and numerous graphic training aids line the classroom walls in an attempt to reinforce these ideas. However, it remains questionable whether or not the concepts of critical thought that are taught by the school have made their way into the course work and class structure within the college. This thesis contends that to create critical thinkers CGSC must incorporate the tenets of critical thinking throughout its curriculum and course design. It will be argued that grading rubrics for papers and tests and exam questions written to steer answers in a certain "correct" direction can, perhaps inadvertently, contradict the tenets of critical thought, yet exist within the course of study. Ideally, CGSC will stand as a seminal experience in the development of officers. An experience akin to that found in civilian graduate level education can be attained, but it will require a cultural revolution within the faculty to transition from a model based on training to a model based on education.

Quotes

MANY, MANY EXCELLENT QUOTES!! I DID NOT INCLUDE ALL

-The goal of this thesis is to address the topic of developing critical thinkers through the curriculum of the US Army's Command and General Staff School (CGSS), which is a part of the Command and General Staff College (CGSC), Fort Leavenworth, Kansas. Thus, this is thinking critically about critical thinking. As a current student at CGSS, the author brings a bias, or what Paul and Elder refer to as "egocentric thinking" to this thesis (Paul and Elder 2004, 6).

-The primary source for introducing critical thinking to the officers enrolled in the CGSS is the work of Dr. Richard Paul and Dr. Linda Elder. Their "Miniature Guide to Critical Thinking; Concepts and Tools" is distributed to every student and addressed in course work the very first week of class.

-Paul and Elder have developed a series of texts on the topic of critical thinking. These texts endeavor to assist students in becoming "a well cultivated critical thinker" (Paul and Elder 2004, 1). They have further honed this down in their "Miniature Guide" into a series of checklists and reflection points which deal directly with methods that students and faculty can utilize to make instruction in all disciplines more critically thought provoking. This fits well in the mission of CGSS. The Chairman of the Joint Chiefs of Staff (CJCS) has identified critical thinking at the heart of what he calls the "purest form" of education, and thus essential to the development of Military Officers (Department of Defense 2005, A-1).

-The trait of Intellectual Integrity states that a thinker – or writer in this case – must apply the same "rigorous standards" to his own thinking as he would apply to his antagonists' (Paul and Elder 2004, 14).

-The problems occur when our thought is contained or directed. This often times occurs when people become part of a larger body – such as the Army – and we develop what is known as 'group think' or innate sociocentrism (Paul and Elder 2004).

Referenced From

Paul, Richard, and Linda Elder. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. New Jersey: Prentice Hall, 2001.

—. The Minature Guide to Critical Thinking: Concepts and Tools. Dillon Beach: The Foundation for Critical Thinking, 2004.

Citation # I.21

Alexander, H. A. (2005). Human agency and the curriculum. *Theory and Research in Educatio*n. (3) 343-369. [PDF+]

URL

http://www.icsa.org.ir/UserFiles/File/p4.pdf

Abstract

It is generally supposed that a curriculum should engage students with worthwhile knowledge, which requires an understanding of what it means for something to be worthwhile: a substantive conception of the good. Yet a number of influential curriculum theories deny or undermine one or another aspect of the key assumption upon which a meaningful account of the good depends – that people are the agents of their own beliefs, desires and actions. This renders a significant encounter between the curriculum and substantive ethics highly problematic. In this article I explore the meeting between curriculum and human agency in four seminal curriculum theories, and offer a framework to engage the curriculum with this key concept of substantive ethics.

Quotes

- Education for self-determination implies fostering a critical stance toward subject matter, not only in the sense of reasons but of the ability to employ and assess reasons(Siegel, 1988; Paul, 1994; Norris,1992; Ennis, 1996), but also – and perhaps more importantly – in terms of the capacity to appraise quality or significance, to evaluate not only the amount of happiness one may achieve by making one choice rather than another, or the strength of the reasoning that favors that choice, but also the relative worth of the satisfaction that may be realized from making it.

-This conception of strong evaluation in the curriculum bears some resemblance to what Richard Paul has called critical thinking in the strong sense, see Paul (1990) and Paul and Elder (2000).

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Citation # I.22

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Abstract

Education in Malaysia requires 'on-going efforts towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious' (National Education Philosophy). One of the learning outcomes in 'The Curriculum Specification for English language' states that students should be able to express themselves creatively and imaginatively. Thus, teachers are encouraged to use various stimuli in order to develop learners' imagination and creativity (The Curriculum Specification for English, Form 4, p.21). However, there seems to be a gap between intention and practice. Emphasis on paper qualifications has further exacerbated the problem, creating a vicious cycle: success is measured by results in the public examinations producing even more rote learners (Ahmad, 1998). The whole focus of teaching and learning practices is on examinations and grades, with an added emphasis on covering a large amount of the syllabus; teaching is mostly done to deliver knowledge rather to derive meaning. Generally, what happens in Malaysian schools does not appear to develop creativity. In the light of the above, this study is carried out to seek an understanding of the beliefs and perspectives which teachers and students have on creativity in comparison with what is stated in the syllabus prescribed by the government. With this purpose in mind, this study examines a specific context – creativity in the ESL curriculum. Hence, a qualitative approach is used to deepen our understanding of the participants' experiences and perceptions regarding creativity. The collection of data includes questionnaires, classroom observation, students' focused group interviews and ESL teachers' interviews. The results of this study contribute to our understanding of how the present research supports, expands or contradicts existing literature, especially in relation to the culture and beliefs prevalent in present-day Malaysian secondary schools

Quotes

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Citation # I.23

Slife, B.D., Yanchar, S., & Reber, J. (?) Thinking critically about critical thinking: An introduction. Private Paper? 1-17. [PDF+]

URL

http://brentdslife.com/article/upload/critical/Thinking%20Critically%20about%20Critical%20Thinking.pdf

Abstract

Critical thinking has long been acclaimed as an essential skill for any academic or professional endeavor. Within psychology, especially, critical thinking has been consistently championed for all students and professionals (Benjafield, 1994; Bensley, 1998; Griggs, Jackson, Marek, & Christopher, 1998; Halpern, 1998; Halpern & Nummedal, 1995; Levy, 1997; Meltzoff, 1998; Smith, 2002; Yanchar & Slife, in press). Psychologists are taught early in their careers to use their research findings to critically examine common myths and urban legends as well as debunk false beliefs and advertising ploys (e.g., Tavris, 2001). Yet, in spite of this obvious emphasis, psychologists do not typically subject psychology itself to critical evaluation.

Quotes

-Perhaps most notably, recognized critical thinking theorists and researchers, such as Stephen Brookfield (1987) from education and Richard Paul (Paul & Elder, 2001) and Robert Ennis (1982) from philosophy, have emphasized a reformulation of critical thinking that moves beyond mere scientific analytic reasoning.

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Citation # I.24

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URL

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Abstract

Many significant thinkers throughout history have articulated the importance of critical thinking in education and life. Since 1980 the topic of critical thinking has been explicitly explored by scholars specifically as it pertains to educational reform. Richard Paul's views of critical thinking have had a significant impact on how critical thinking is understood today. However, to date there is not a comprehensive analysis of Paul's theory of critical thinking – an exegesis that clearly identifies and examines the structural components of his model and his general pedagogical point of view. The need for a critical analysis of Paul's work is significant for three reasons. The first is that Paul's work is widely acknowledged within scholarship on the topic of critical thinking, teaching and learning. Secondly, Paul's work experiences high visibility in instructional practices and institutional plans (accreditation reports, mission statements, and general descriptions of the concept and its importance to learning) throughout the United States particularly. Thirdly, Paul's conception of critical thinking is bold given its trans-disciplinary claims. Specifically, it is a conception that seeks to clarify the essential disciplinary claims. Specifically, it is a conception that seeks to clarify the essential conditions of what it means to think critically and infuse these concepts within practical and pedagogically sound methods for applying critical thinking within and across every domain of academia and life. The purpose of this dissertation is to conduct the first comprehensive analysis and evaluation of Richard Paul's work on critical thinking. This includes placing Paul's work in the larger discourse, succinctly describing his model and suggested applications for teaching, and outlining some of the most significant challenges facing Paul's work as an approach for educational reform. Paul's contribution to the discourse and development of critical thinking is significant because it is comprehensive and conceptually applicable to all human thinking, yet its very comprehensiveness poses a challenge. This work argues that the model requires a fresh contextualization when applied to any given field, which implies a need for professional development. Paul and his associates have pointed in the direction of those contextualizations, but a tremendous amount of work must be done for this model to flourish in any discipline and instructional setting.

Quotes

MANY, MANY QUOTES!!

Referenced From

MANY, MANY REFERENCES to Work of Paul and Elder!!

Citation # I.25

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Abstract

Organizational researchers are primarily trained in data collection techniques and the latest analytical tools, not the nuances of theory building. Our doctoral programs tend to skip over theory building perhaps because it is not a step-by-step process that can be taught like LISREL or event-history analysis. Reading major theorists and writing literature review papers is often passed off as training in theory building, even though such assignments really don't teach one how to craft conceptual arguments. (Sutton and Staw, 1995: 380)

Quotes

–Critical thinking is that mode of thinking--about any subject, content, or problem- in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. (Paul and Elder, 2001: xx; emphasis added)

Referenced From

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Citation # I.26

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Abstract

This thesis uses analytic philosophical inquiry and autobiographical narrative inquiry to identify a conception of critical thinking (CT) that is "most adaptable" for teaching History 12, and then discusses the strengths and limitations. The CT literature includes several conflicting conceptions of CT, and I use two specific types of analytic philosophical inquiry, (conceptual analysis and conceptual structure assessment), to identify which conception is "most adaptable" for teaching
History 12. After considering the degree to which each conception meets the criteria developed for the "most adaptable" conception of CT, I conclude that the Critical Thinking Consortium's (TC2) conception is the most adaptable. Of all the conceptions developed thus far, the TC2 approach is unique because it is designed solely as a pedagogical model for embedding CT throughout the curriculum of each subject and grade level.
In the second section of the thesis, I use autobiographical narrative inquiry to reflect on the strengths and limitations of the TC2 model after using the model to teach History 12 for a year. One of the foundational principles of the TC2 conception is the notion that embedding CT throughout the curriculum is a powerful way of improving understanding. I determine that this contention is accurate because students improved their knowledge of the curriculum, the epistemology of history, and the adoption of CT in their everyday lives. Furthermore, use of the TC2 conception helped improve my planning and assessment practices, and initiated a positive change of my role in the classroom.

Quotes

-Modes of Thinking: A term used by Richard Paul to describe the various disciplines, like history, literature, or mathematics. Paul believes that the disciplines should be taught as modes of thought where teachers lead students to think about fundamental problems and questions in each discipline.
-For example, in Richard Paul's 1997 study on the prevalence of CT in university and college courses, he determined that 89% of the 140 university and college professors interviewed claimed CT was a primary objective of their instruction, but only 19% could give a clear explanation of what CT was (Paul, Elder, & Bartell, 1997).
-Paul (1992) points out that the world is changing, and the damage caused by prejudice and narrow-mindedness is mounting.
-Paul argues that schools need to help students thrive in the next century by teaching them to be adaptable, and to develop the capacity to learn on the job and in their civic and social lives...Mass media and politicians constantly feed the demand for simple answers, but these problems cannot be solved unless significant intellectual development
occurs (Paul, 1992).
-Identifies the purpose for CT; to produce quality thinking that meets criteria or standards... CT differs from regular thinking because it ascribes to standards of quality thought and reasoning (Bailin et al.; McPeck, 1990; Lipman, 1988; Paul, 1992).
-Recall of information is not equivalent to knowledge; knowledge is the product of thinking and can only exist when it has been comprehended and constructed through thought (Paul, 2004).
-Richard Paul is the Director of Research and Professional Development at the Center for Critical Thinking and Chair of the National Council for Excellence in Critical Thinking. Paul is an internationally recognized authority on CT, and has published eight books and over 200 articles on the subject. Paul is the main developer of the definitions and conceptions of CT that the Foundation for Critical Thinking has developed.

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Citation # I.27

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http://web.ebscohost.com.offcampus.lib.washington.edu/ehost/pdfviewer/pdfviewer?vid=3&hid=106&sid=825a4ba9-0e78-4bee-95f9-

Abstract

Critical thinking is a pervasive academic literature term that is seldom clearly or comprehensively defined. The definitions that are available in various sources are quite disparate and are often narrowly field dependent. "Definitions tend to so broad they are not always helpful in the sense of defining a concrete entity."' For a term that is often expressed by many as crucial to solid thinking and clear expression, a more accepted, comprehensive, and clear understanding of the term seems useful. This article offers for thought and debate a brief literature review related to critical thinking. This review will be assembled by combining other sources' definitions into this article. It is readily understood that not all users of the term will wish to utilize every possible definitional aspect of critical thinking in their work and conversation; however, having a broad definition resource available for reference may be a valuable tool when the term is broached by scholars.

Quotes

-Philosopher Richard Paul and educational psychologists Linda Elder have written extensively on the subject of critical thinking. Paul and Elder define critical thinking as: "That mode of thinking as about any subject, content, or problem in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them."

-Paul and Elder emphasize "asking vital questions," "gathering relevant information," "testing well reasoned conclusions and solutions," "thinking open mindedly," "recognizing and assessing" ... "their assumptions, implications, and practical consequences" and "communicating effectively."

-Paul and Elder offer a list of what they call "elements of thought:" purpose, information, inferences/ conclusions, concepts, assumptions, points of view, implications/consequences, and questions.

-Paul and Elder suggest nine qualities that make messages optimally useful; these include: "clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness."'°

-While Paul and Elder repeatedly emphasize asking quality questions, they fail to specify what kind of questions to raise.

-Scriven and Paul explain critical thinking as a process, not an end.

Referenced From

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Citation # I.28

Koski, W.S., & Levin, H.M. (1998). Replacing remediation with acceleration in higher education; Preliminary report on literature review and initial interviews. *National Center for Postsecondary Improvement; Office of Educational Research and Improvement.* 1-58. [PDF+]

URL

http://eric.ed.gov/PDFS/ED428589.pdfKoski

Abstract

This paper present preliminary findings of the five-year research project which is examining effects of current remedial courses at the post secondary level and exploring the applicability of the accelerated schools concept as an alternative. This paper presents results of a literature review and interviews with researchers and practioners.... Successful remedial programs exhibit certain characteristics, including a time to content coursework and instruction, as well as an emphasis on problem-solving and critical thinking.

Quotes

-Critical thinking, complex problem solving, and abstract reasoning have long been the hallmark of the academically gifted, but not within the realm of possibilities for most remedial students who supposedly need to acquire "basic" skills first. Several educators have no begun to challenge that notion and claim that instruction in critical thinking can benefit all students, including remedial students. (Paul & Elder, 1994, 1997)

-Nearly every critical thinking model for remedial students emphasizes the integration of thinking skills into the academic content arena. As Paul and Elder (1994) describe it: Critical thinking is not something additional to content, but rather integral to it, something which in fact "defines" the manner in which content is organized, conceptualized, and applied by experts in the field. Content is not fragmented bits and pieces of information (which is the underlying assumption in didactic teaching) but a system with a definite set of logical relationships; and organized structure of concepts, principles, and understandings; a system that requires the asking and answering of a certain set of questions, and problems; and ultimately a disciplined mode of thinking.

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Abstract

Could not access

Quotes

Could not access

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Citation # I.30

Ring, G. (2002). *Diffusion of an innovation: The electronic portfolio project in the college of education*. (Doctoral Dissertation). Graduate School of the University of Florida, Gainsville, FL. 1-58. [PDF+]

URL

http://etd.fcla.edu/UF/UFE0000601/ring_g.pdf

Abstract

This study explored the diffusion of an innovation in the form of electronic portfolios in the Secondary Teacher Education Program in the College of Education at the University of Florida. Specifically, the study was designed to provide a model of innovation diffusion related to the implementation of e-portfolios in a college of education. In addition, the study examined the impact that developing, publishing, and maintaining web-based portfolios had on preservice teachers over the course of their master's degree program. A qualitative study was conducted to reveal the facilitators in the implementation of the innovation. The participants in this study were students enrolled in the Secondary Education Program in the College of Education at the University of Florida. The findings were drawn from an analysis of field notes, surveys, email correspondences, interviews, and student portfolios throughout the first year of the e-Portfolio Project implemented in the fall of 2000. The research findings are likely to provide the groundwork for colleges of education considering implementing a program wide innovation in the form of electronic portfolios and provide insights into the prospective teacher growth that occurs during the portfolio development process....

Quotes

-Elder and Paul (1994) add to our understanding of reflection in their series of papers written on the subject of critical thinking. Their working definition of critical thinking is the ability and disposition to improve one's thinking by systematically subjecting it to rigorous self-assessment. Persons are critical thinkers, in the fullest sense of the term only if they display this ability and disposition in all, or most, of the dimensions of their lives (e.g. as a parent, citizen,consumer, lover, friend, learner, and professional). We exclude from our concept of the critical thinker one who thinks well in only one dimension. (p. 34)

-Paul and Elder (1994) suggest: Critical thinking is not something additional to content, but rather integral to it, something which in fact "defines" the manner in which content is organized, conceptualized, and applied by experts in the field. One learns critical thinking by doing critical thinking. (p. 34)

-In their fourteen part series Elder and Paul (1995) provide a guide that helps people come to terms with the long-term nature of the developmental process of becoming critical thinkers and the basic stages through which they will pass. They make the following assumptions: (a) that there are predictable stages through which every person who develops as a critical thinker will pass and (b) that passage from one stage to the next is dependent upon a necessary level of commitment on the part of an individual to develop as a critical thinker, and it is not automatic. Regression is also possible.

-According to Paul and Elder (1995), our present approaches to critical thinking are typically unrealistic. They are not based on a realistic model of the process by which students could actually advance as critical thinkers.

-Predictably, early versions of student rationale statements did not demonstrate that our students were moving beyond what Elder and Paul (1996) describe as stage one of critical thinking: the unreflective thinker; thinkers who lack the ability to explicitly assess their thinking and thereby improve it.

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URL

http://proquest.umi.com/pqdlink?Ver=1&Exp=03-1-2017&FMT=7&DID=1691834141&RQT=309&attempt=1&cfc=1

Abstract

Community colleges across the U. S. struggle to define policies that allow them to maintain balance between the missions of open-access and academic integrity (Berger, 1997). While developmental education has long been a part of American higher education (Casazza, 1999), the surge in numbers of underprepared students combined with the depth of academic deficiencies have created challenges for community college leaders (McCabe, 2000). ^ Researchers have made recommendations based on data culled from years of research (Kozeracki, 2005). Adelman (1998) reported that reading deficiencies present a dire risk for academic failure. Many existing policies for screening and sequencing courses for under-prepared students are ineffective due to multiple loopholes (Jenkins & Boswell, 2002). Consequently, students with reading deficiencies often take college-level courses prior to, or concurrent with, remediation. ^ This research was conducted at a mid-sized, urban, community college in New England; the N = 1163 subjects were new students in fall 2006. Non-identifying transcript data were supplied by the college. The independent variables were score on the ACCUPLACER™ (College Board, 2006) reading test and participation in remediation. The dependent variable was achievement in college-level courses. There were n = 10 classes selected for analysis. ANOVA, correlation, and t-tests (Huck, 2004) were performed. The qualitative research illuminated the quantitative findings and included archival review, document analysis, and responsive interviews (Rubin & Rubin, 2005) with N = 3 subjects. ^ The investigation found that the study site's practices were inconsistent with policies. In fall 2006 there were n = 575 who tested into remedial reading but there were only n = 173 students who took the remedial course. The study revealed that under-prepared students were most likely to enroll in PSY111 or CSC101 without remediating and consequently had lower achievement than other students. The qualitative investigation revealed that remedial policies and practices were driven by pragmatic (e.g., course enrollment), not academic concerns. The data revealed that students had open-access at the cost of academic standards. ^ Potential actions stemming from this research include follow-up research and policy and practice revisions at the study site.^

Quotes

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http://gradworks.umi.com/33/35/3335056.html

Abstract

The purpose of this study was to compare two reading strategies to determine which was more effective in helping students become better college readers: a discipline-specific strategy coupled with intertextual learning materials or the general method of teaching reading instruction that teaches general reading strategies from a class text.

Data from 32 community college developmental reading students who were in their first semester of college in the fall of 2006 at the College of DuPage were analyzed in this study. This study employed a quasi-experimental design, as intact classes were used. A .05 level of significance was used for all statistical tests of the research data. Independent-samples t tests showed that students who received instruction in a discipline-specific reading strategy that teaches students to think as historians do, coupled with instruction using intertextual learning materials, scored significantly better than those students receiving only the general reading instruction from the class text. These students scored better on three of the four measures used in this study: the dichotomous score on the post treatment essay, the content score on the post treatment essay, and the intertextuality score on the post treatment essay. The fourth test was the objective test of history content given post treatment

Quotes

NO Access

Referenced From

Elder, L. & Paul, R. (1996). Critical thinking: A stage theory of critical thinking: Part I. *Journal of Developmental Education*, (20.1), 34-35.

Citation # I.33

Reed, J. H. (1998, October) *Effect of a model for critical thinking on student achievement in primary source document analysis and interpretation, argumentative reasoning, critical thinking dispositions, and history content in a community college history course.* (Doctoral Dissertation). Graduate School University of South Florida, Tampa, Florida. 1-268. [PDF+]

URL

http://www.nursing-informatics.com/PhD/JReed-Dissertation.pdf

Abstract

This study investigated the effect of integrating Richard Paul's model for critical thinking into a U.S. history course on community college students' 1) abilities to think critically about U.S. history and about everyday issues, 2) dispositions toward thinking critically, and 3) knowledge of history content. This study also examined if age (under 22, 22 and older) or gender moderated the effectiveness of the instructional method. Four sections of U.S. History 1877 to the Present participated in this one semester study. Two sections were randomly selected to serve as the experimental group and the other two sections served as the control group. The experimental group (n = 29) received approximately 90 minutes of explicit instruction distributed over the semester in using Paul's model for critical thinking to analyze and interpret primary source documents. In addition, the model was integrated into a series of assigned classroom activities. The control group (n = 23) was taught in a more traditional manner... Three major findings emerged from this study: 1) community college students' abilities to think historically and to think critically improved in a single course; 2)community college students' end of term knowledge of history content did not suffer when training in critical thinking abilities was integrated into course material; 3) age and gender did not play significant roles in developing college students' critical thinking abilities.

Quotes

MANY MANY QUOTES!!

-The California Commission on Teacher Credentialing recently completed a study of college and university professors showing that despite a large majority who stated that critical thinking is an important goal of their instruction (89%), only a small percentage (19%) could clarify what they meant by critical thinking, and an even smaller percentage (9%) actually teach for critical thinking on atypical day (Paul, Elder, & Bartell, 1997). These findings indicate that while concern about critical thinking is widespread, effective instruction for critical thinking is not occurring on a broad scale.

-College-level history courses provide rich and frequent opportunities to develop skills and dispositions needed for higher order thinking, yet instructors of introductory history courses, like faculty surveyed in the recent study by the Paul, Elder, and Bartell (1997), often fail to challenge students explicitly to develop reasoning abilities

Referenced From

Paul, R. W. (1993). Critical thinking: What every person needs to survive in a rapidly changing world (J. Willsen & A. J. A. Binker, Eds.). Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (1997). Critical thinking: Implications for instruction of the stage theory. Journal of Developmental Education, 20 (3), 34-35.

Paul, R. W., Elder, L., & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations. Sacramento, CA: California Commission of Teacher Credentialing.

Citation # I.34

Dumitru, D. (2012, March). Critical thinking and integrated programs: The problem of transferability. *Procedia - Social and Behavioral Sciences. (33.). 143-147.* [PDF+]

URL

http://ac.els-cdn.com/S1877042812001085/1-s2.0-S1877042812001085-main.pdf?

Abstract

Since 1980, when critical thinking becomes an important chapter in education, the modern perspective on critical thinking includes the issue of transferability of critical and argumentation skills. We developed an experimental design aiming at setting some light on the problem of transferable critical thinking skills. The subjects selected were students, so our research was concentrating on transferability and critical thinking skills development using integrated programs in Romanian higher education. We concluded that critical thinking skills are a complex psychological reality with different components and it is not possible that they automatically transfer to another area, once formed in a domain, and also that the integrated educational program is better than the non-integrated, lecture type, when the transfer to everyday life of critical thinking skills comes in discussion.

Quotes

-Defining the concept of critical thinking. The process of defining critical thinking requires an interdisciplinary perspective: Philosophy (Argumentation Theory and Epistemology – Dewey (1938), Ennis (1989, 1990), Glaser (1984), Paul (1997), Psychology (Critical Attitude and Critical Disposition – Glaser (1984), Ennis (1989, 1990), Paul
(1997), Education Sciences (Glaser (1984), Ennis (1989, 1990), Paul (1997).

-

Referenced From

Paul, R., & Elder, L. (1997). Critical thinking: Implications for instruction of the stage theory. Journal of Developmental Education.20 (3).

Citation # I.35

Lundell, D.B. & Collins, T. (1999) Toward a theory of developmental education:The centrality of “Discourse.” *In The Expanding Role of Developmental Education.* Morrow, GA: National Association for Developmental Education.
[PDF+]

URL

http://www.nade.net/site/documents/publications/monograph/Mono%2099/monp99.all.pdf#page=9

Abstract

This article explores implied theories of “developmental education” in a survey of representative articles from a range of disciplines. One challenge to developmental educators exists in articulating a theory of developmental education that encompasses an interdisciplinary range of institutional and individual activities. Current definitions of developmental education remain theoretically underdeveloped, and assumptions underlying many developmental education programs reflect this lack of overt theory-making. It is important to articulate theoretical foundations and to expand current definitions. This article points to the idea of “Discourse” as developed by James Paul Gee as a possible theoretical construct from which the motives and goals of developmental education can be critiqued and refined.

Quotes

-For example, theories and strategies in the development of critical thinking (Chaffee, 1992; Elder & Paul, 1996) that appear in developmental education research have the potential for further application across the disciplines.

Referenced From

Elder, L., & Paul, R. (1996). Critical thinking: A stage theory of critical thinking: Part 1. Journal of Developmental Education, 20 (1), 34-35.

Citation # I.36

Young, M. (2009, December). An analysis of a current curriculum to prepare junior level BS nurses to think critically. (Doctoral Dissertation). ProQuest/Capella University. 1-140. [NO PDF]

URL

http://gradworks.umi.com/33/59/3359600.html

Abstract

Healthcare today is practiced in a rapidly changing, highly complex environment and the informational demands placed upon nurses are great. Some have suggested that the ability for nurses to think critically has the potential to reduce medical errors that have been linked to patient death. The idea that nurses need to be taught how to think critically is so important that schools of nursing have identified critical thinking as an outcome to their education programs. This study was undertaken to examine a current sophomore level adult medical surgical curriculum for evidence of its ability to facilitate or provide opportunities to nursing students' learning the skills and habits of critical thinking. Results indicated there is little attention paid, in the sophomore curriculum, to the concept of critical thinking. Faculty continue to create curricula that are prescriptive, content driven, and teacher-centered.

Quotes

No Access

Referenced From

Elder, L., & Paul, R. (1996). Critical thinking: A stage theory of critical thinking: Part 1. Journal of Developmental Education, 20 (1), 34-35.

Citation # II.1

Feletti, Grahame. (2006) Inquiry based and problem based learning: How similar are these approaches to nursing and medical education? *Higher Education Research & Development. (12.2). [NO PDF]*

URL

http://www.tandfonline.com/doi/abs/10.1080/0729436930120203

Abstract

Inquiry based learning is evolving as another curriculum model which may help to revitalize nursing and other professions education programs in the same way that problem based learning has rejuvenated medical education in the last 25 years. This paper briefly outlines both PBL and IBL approaches, and compares their philosophies, methods and context. Inquiry based learning may be more attractive to a wider range of vocational training and professions education programs because of its flexibility in choice of methods, less emphasis on teaching specific problem solving paradigms, and less reliance on resource intensive learning experiences

Quotes

None Accessed

Referenced From

Paul, Richard.(1990) Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. Edited by A. J. A. Binker Center for Critical Thinking and Moral Critique Sonoma State University Rohnert Park. CA 94928.

Citation # II.2

Nisbet, John. (1993). The Thinking Curriculum. *Educational Psychology*. (13.3-4). 281-290. [No PDF]

URL

http://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F0144341930130306

Abstract

Over the past 20 years there has been growing interest in the idea of teaching thinking. This paper reviews the development of the idea worldwide, the supporting arguments and scepticism, the underlying constructivist psychological theories and the variety of methods and programmes used. A main distinction in approach is between those who advocate specific programmes, often based on skills analysis, and those who favour the infusion of thinking throughout the conventional subjects of the school or college curriculum. The balance of opinion supports the ‘thinking curriculum'; but this raises issues of domain specific knowledge and transfer. Recent work recognises the importance of social and affective, as well as cognitive, aspects in teaching thinking.

Quotes

No Access

Referenced From

Paul, Richard.(1990) Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. Edited by A. J. A. Binker Center for Critical Thinking and Moral Critique Sonoma State University Rohnert Park. CA 94928

Citation # II.3

Marzano, R.J. (1993, Summer). How classroom teachers approach the teaching of thinking. *Theory Into Practice*. (32.3). 154-160. [PDF +]

URL

http://6102-flannelly.eduwebs.org/course/schedule/week03/Marzano93.pdf

Abstract

Introductory Paragraph: Twenty years ago the call for the teaching of thinking was a small one made by a few individuals and organizations. Now it permeates the discussions of educational reform. For example, the National Science Board Commission on Precollege Education in Mathematics, Science, and Technology (1983), the College Board, (1983), The National Education Association (Futrell, 1987) and the American Federation of Teachers (1985) have all strongly advocated the teaching of thinking as a necessary component of school reform.

Quotes

-As important as they are, the mental habits of self-regulation and critical and creative thinking are not commonly reinforced in the classroom, at leas as reported by teachers who were polled for this study. In fact, research indicates that there use is not very common among adults. (McPeck, 1981). Yet according to Paul (1990), they are the very basis of a healthy society.

Referenced From

Paul, Richard.(1990) Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. Edited by A. J. A. Binker Center for Critical Thinking and Moral Critique Sonoma State University Rohnert Park. CA 94928.

Citation # II.4

Plath, D., English, B., Connors, L. & Beveridge, A. (2007). Evaluating the outcomes of intensive critical thinking instruction for social work students. *Social Work Education: the International Journal.* (18.2), 207-217. [NO PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/02615479911220201

Abstract

Social workers require critical thinking skills to analyse situations which present themselves in the course of professional work and in making decisions about the most appropriate forms of social work intervention. The 4-year Bachelor of Social Work degree at the University of Newcastle, Australia, introduced an intensive instructional unit on critical thinking at the beginning of the final year of the course. The Cornell Critical Thinking Test, the Ennis—Weir Essay Test and a qualitative student self-appraisal were administered to students in the fourth year of the degree prior to the intensive instructional unit on critical thinking and again after the unit had been completed. From the results it was concluded that explicit and concentrated instruction on critical thinking assisted social work students to improve their critical thinking abilities and to identify principles of critical thinking.

Quotes

No Access

Referenced From

Paul, Richard.(1990) Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. Edited by A. J. A. Binker Center for Critical Thinking and Moral Critique Sonoma State University Rohnert Park. CA 94928.

Citation # II.5

Broadbear, J.T. and Keyser, B.B. (2000, October). An approach to teaching for critical thinking in health education. *Journal of Health Education*. (70.8) 322-326. [No PDF]

URL

http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1561.2000.tb07266.x/abstract

Abstract

Teaching for critical thinking represents a vital and emerging priority in school health education. A variety of conceptions of critical thinking and approaches to teaching for critical thinking exist in the literature. This paper explores the relevance of Richard Paul's concept of critical thinking to health education. Paul's work on critical thinking has been widely disseminated and features three inter-related components called the elements of reasoning, intellectual standards, and intellectual traits. Each component appears highly relevant to health education. Paul's approach is also based on natural rather than technical language which improves its utility in learning. Unanswered questions about the approach concern the degree to which the thinking skills and traits can be transferred to health instruction and the lack of evaluation research demonstrating its efficacy. Further inquiry into the applicability and efficacy of the approach is needed.

Quotes

See Abstract-- All that I could access.

Referenced From

Paul, Richard.(1990) Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. Edited by A. J. A. Binker Center for Critical Thinking and Moral Critique Sonoma State University Rohnert Park. CA 94928.

Citation # II.6

Weinstein, M. (1990, July)Towards an account of argumentation in science. *Argumentatio*n. (4.3) 269-298. [NO PDF]

URL

http://www.springerlink.com/content/l2105k845hp1602n/

Abstract

In this article it is argued that a complex model that includes Toulmin's functional account of argument, the pragma-dialectical stage analysis of argumentation offered by the Amsterdam School, and criteria developed in critical thinking theory, can be used to account for the normativity and field-dependence of argumentation in science. A pragma-dialectical interpretation of the four main elements of Toulmin's model, and a revised account of the double role of warrants, illuminates the domain specificity of scientific argumentation and the restrictions to which the confrontation and opening stages of scientific critical discussions are subjected. In regard to the argumentation stage, examples are given to show that a general account of argumentation, as advocated by informal logicians, is not applicable to arguments in science. Furthermore, although patterns of inference differ in various scientific practices, deductive validity is argued to be a crucial notion in the assessment of scientific arguments. Finally, some remarks are made concerning the burden of proof and the concluding stage of scientific argumentation.

Quotes

No Access

Referenced From

Paul, Richard.(1990) Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. Edited by A. J. A. Binker Center for Critical Thinking and Moral Critique Sonoma State University Rohnert Park. CA 94928.

Citation # II.7

Cheak, M., Douglas, N. & Erickson, R. (2001)Three perspectives on critical thinking: Theory, research, and teaching. *American Reading Forum.* 1-25. [PDF+]

URL

http://www.americanreadingforum.org/yearbook/yearbooks/01_yearbook/pdf/02_Cheak.pdf

Abstract

Improving students' critical thinking is currently a focus of educational reform as evidenced in recently drafted national and state educational standards (NCTE, 1996). The rationale is that critical thinking skills are necessary if responsible citizens are to make informed decisions in a democracy. Critical thinking is a challenge for teachers and students that has raised questions and concerns like the following (Ogle, 1998): Will the integration of the English language arts into other content areas support students' attainment of critical thinking goals? Will assessment measures to gauge student attainment of critical thinking standards be general or content specific? I will address these questions from several theoretical perspectives.

Quotes

-Access to a variety of resources (print, technological and community) gives students opportunities to practice, experiment and master ways to synthesize information and apply knowledge to novel problems (Paul, Binker, Martin, Vetrano, & Kreklau, 1989).

Referenced From

Paul, R., Binker, A. J. A., Martin, D., Vetrano, C., & Kreklau, H. (1989). Critical thinking handbook: 6th-9th grades. Rohnert Park, CA: Center for Critical Thinking and Moral Critique.

Citation # II.8

Long, C.J. (2003). *Teaching critical thinking in western, and non-western contexts: Cultural imperialism and practical necessity.* (Paper). Sophia University, Tokyo, Japan. [PDF+]

URL

http://www.paaljapan.org/resources/proceedings/2003/long.pdf

Abstract

Critical thinking has become a focus in Japan, as reflected in recent education reform. However, ESL educators remain divided on the issue of teaching critical thinking skills. Specifically, many question the appropriateness of teaching critical thinking skills in Non-Western contexts on the grounds that they embody values and beliefs specific to Western societies. (e.g., Atkinson, 1997). For the current paper, I argue that individuals bring potential strengths and weaknesses to the critical thinking process depending on their particular culture. I reject the idea that individuals from Asian cultures are less suited for critical thinking than individuals from Western Cultures.

Quotes

- Critical thinking is "the art of thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, more defensible. (Paul, 1992)

Referenced From

Paul, R. (1992) Critical thinking: Basic questions and answers. *Think*, April edition.

Citation # II.9

Mohamad, F., Hanafiah, A., Jawanees, N., et al. N. (2010, December). *The effects of internet-assisted language learning on the development of ESL students' critical thinking skills.* (Paper) International Conference on Science and Social Research (CSSR). Kuala Lumpur, Malaysia 843-848. [Partial PDF+]

URL

http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5773904&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%

Abstract

The primary concern of the present research was to investigate the effects of an Internet-Assisted Language Learning (IALL) environment on the development of L2 students' critical thinking skills. A total of 77 students of Diploma in Hotel Management at UiTM Terengganu, Dungun Campus, Malaysia were involved in this study. This sample was divided into three groups, namely full, partial and non-IALL environments. Cornell Critical Thinking Test (CCTT), Level X, was administered as the pre-post-test to measure the development of critical thinking skills of L2 students. The CCTT scores revealed that students who were exposed to the full IALL environment improved significantly in their critical thinking skills as compared to those in the partial and non-IALL environments. When the various sub-skills were measured, the analysis showed that they improved the most in the connecting skill, an element of the higher order thinking skills. The present study concludes that using the Internet in language classrooms helps to create critical English as a Second Language (ESL) students. Thus, language teachers should not have any reservations in incorporating internet in their classrooms. The study recommends that future work should investigate whether IALL environment can also significantly help to foster students' creative thinking.

Quotes

-It is thinking about your thinking while you’re thinking in order to make your thinking better” (Paul, 1992: 1).

Referenced From

No Bilbliography Included in Partial PDF

Citation # II.10

Ashton, M.L. (2000, August). *Critical thinking for children: A dialogue of hope*. (Master's Theisis). University of British Columbia: Centre for the Study of Curriculum and Instruction, Vancouver, B.C.. 1-129. [PDF+]

URL

https://circle.ubc.ca/bitstream/handle/2429/11039/ubc_2000-0630.pdf?sequence=1

Abstract

The thesis begins with an investigation of the lineage and diverse interpretations of the term "critical thinking." It also discusses some of the more contentious issues surrounding critical thinking such as: Is critical thinking generalizable? What is the place of moral values in critical thinking? Is critical thinking biased? How is critical thinking assessed? What has to be in place before critical thinking can flourish in the classroom?... The study indicates that the young children were able to successfully make use of the critical thinking tools in a classroom setting.

Quotes

MANY, MANY QUOTES BEYOND WHAT IS IDENTIFIED HERE

-Fueled by the repercussions of the data regarding the weak higher intellectual skills of 17 year old Americans as documented in A Nation at Risk (United States Commission on Excellence in Education, 1983, p.4) critical thinking was revitalized with renewed vigor by the academic community (... Paul, 1990...)

- The transition was being made from supernatural explanations of occurrence to scientific explanations based on natural experience and reason. The central root of critical thinking had started to grow; claims and arguments were being evaluated. (... Paul, 1990)

-Socrates is perhaps best known for his method of asking "deep questions that probe profoundly into thinking before we accept ideas as worthy of belief. (Paul, 1999).

-Similarly, Freire (1968) and Paul (1982) consider students to be critical co-investigators with the teacher when they are involved in a problem-posing situation.

-Sir Francis Bacon (1561-1626) ... Advancement of Learning, could be considered one of the earliest texts in critical thinking. (Paul, 1991).

-Education philosophers, such as Paul (1993) state that: "in thinking... the world is greater than the sum of its parts, and cannot be understood merely by examining its psychological leaves, branches and trunk.

-...thus, will teachers have the "intellectual courage, humility, integrity, and perseverance to become critical thinkers themselves? (Paul, 1990).

Referenced From

Paul, R.W. (1982). Teaching critical thinking in the strong sense: a focus on self-deception, world-views and a dialectical mode of analysis. Informal Logic Newsletter, 592, 2-7.

Paul, R.W. (1990). Critical thinking handbook: K-3rd grades. Rohnert Park, CA: Center for Thinking and Moral Critique Sonoma State University.

Paul, R.W. (1992. Critical thinking: Basic questions and answers. Think. April 22. Retrieved February 5, 1999, from World Wide Web. http: //www.sonoma.edu/cthink/12library/questions.nclk.

Citation # II.11

Jones, P., Kolloff, M., & Kolloff, Fred. (2011). Creating a successful faculty professional development program devoted to critical thinking. (Paper). *27th Annual Conference on Distance Teaching and Learning. The Board of Regents of the University of Wisconsin System, Milwakee, WI. 1-7. [PDF+]*

URL

http://www.uwex.edu/disted/conference/Resource_library/proceedings/46574_2011.pdf

Abstract

Establishing a new faculty professional development program takes time and careful planning. Standards for organizing and implementing a successful faculty professional development program need to be considered. The recommendations to establish professional development opportunities for faculty are separated logically into the steps of preparation, delivery of the workshop sessions, and post-workshop checkpoints or follow-up. The critical roles played by campus administrators, key faculty, and post-workshop mentors are highlighted as vital partners enhancing the actual profession development session.

Quotes

- From the literature above, we found that faculty members needed professional development opportunities that provided training in critical thinking models, such as the Paul and Elder model.
- The goal of this program was to support faculty members in applying at least one component of the Paul & Elder model in teaching students to think critically in relation to specific course content.
-Paul and Elder promote concise models of the process of critical thinking. Their main point is that critical thinking is a skill that must be taught.
- Paul and Elder also stated that there are two essential dimension of thinking that students need to master in order to learn how to upgrade their thinking: 1. Students need to be able to identify the parts of their thinking and 2. they need to be able to assess their use of these parts of thinking.

Referenced From

Paul, R. & Elder, L. (2009) Critical thinking. Retrieved from www.critical thinking.org.

Citation # II.12

Owu-Ewie, C. (2008. June). *Enhancing the thinking skills of pre-service teachers: A case study of Komenda teacher training college*. (Doctoral Dissertation). College of Education of Ohio University, Athens, OH. *[PDF+]*

URL

http://etd.ohiolink.edu/view.cgi/OwuEwie%20Charles.pdf?ohiou1202244002

Abstract

Since the Socratic era, there has been agitation for a shift from the traditional system of feeding learners with information to promoting intellectual development. This shift aims at developing the intellectual capacities of learners. The implication of this is that schools should have the development of thinking skills of learners at the core of their proceedings. In this age of technological challenges and multicultural world, good thinking is the key to success (Swartz and Parks, 1994). The development of the intellectual skills of learners begins with teachers. Unfortunately, most pre-service teacher institutions do not prepare their teachers adequately for this task (Wideen, Mayer-Smith & Moon, 1998). This qualitative single case study answers two major questions. These are

1. What factors have affected the enhancement of thinking skills in pre-service teacher education institutions (Teacher Training Colleges) in Ghana?

2. How can the thinking skills of pre-service teachers in initial teacher education institutions (Teacher Training Colleges) be improved?

Quotes

-Richard Paul, the director of the Sonoma State University's Center for Critical thinking and Moral Critique said that looking at thinking as subject-specific means given subjects natural divisions which are not the case. He says that subject divisions are creations by human and are subject to revision because concepts and lines of reasoning that are clearly within one domain are also at the same time within others; "Many problems are multilogical, touching on a number of disciplines."
-There is an emerging argument about the arbitrary categorization of the approaches. Paul et. al (1989) favors the Socratic dialogue approach which he calls "dialectical teaching".
-Teacher institutions need to incorporate thinking skills into all aspects of teacher preparation and train future teachers to be models of effective thinking strategies (Walsh & Paul, 1988).
-

Referenced From

Paul, R., Binker, A. J. A., Martin, D., Vertano, C., & Kreklau, H. (1989). Critical thinking handbook: 6th-9th grades. Sonoma, CA: Center for Critical Thinking and Moral Critique.

Citation # II.13

Myrmel, M. K. (2003, August). *Effects of using creative problem solving in eighth grade technology education class at Hopkins North Junior High School.* (Masters of Science Thesis). Industrial/Technology Education .Graduate School of the University of Wisconsin, Milwaukee, WI. 1-60. [PDF+]

URL

http://www2.uwstout.edu/content/lib/thesis/2003/2003myrmelm.pdf

Abstract

The purpose of this quasi-experimental study was to determine whether the number of creative responses would improve if junior high students were exposed to creative problem solving instructions on a daily basis. The hypotheses of this study were that there is no significant difference in both the quantity and variety of creative responses from students that receive 15 mini lessons in creative problem solving techniques....The result of the study showed a significant increase in the number of monograms produced by students in the treatment group in comparison to those produced by the students in the control group. However, there was no evidence of a significant difference in the variety of their monograms produced by the treatment and the control groups.

Quotes

-Critical thinking skills are a higher order skill involving the synthesis of information and thought. Richard Paul (1992) defines critical thinking as "thinking about your thinking while you're thinking in order to make your thinking better." For students to be prepared for the world they live in, it is imperative they leave school capable of reasoning and of understanding the importance of disciplined thinking.
-Critical thinking is the integration of many skills and abilities such as communication, problem solving, creative thinking, and collaborative learning, as well as others (Paul, 1992). These skills are necessary in both the school realm and the world of work.

Referenced From

Paul, R. (1992). Critical thinking: Basic questions and answers. Center for critical Thought [Online] Retrived October 2, 2003 from: http://www.Sonoma.edu/Cthink/k12/k12library/questions.nclk

Citation # II.14

Tavernier, D.L. (2011, May). *Critical thinking development:using student narrative to understand women's evolving role in the birth experience.* (Doctoral Dissertation). School of Education, California State University, Stanislaus, CA. . [PDF+]

URL

https://scholarworks.csustan.edu/bitstream/handle/011235813/51/Dissertation_Debra_Tavernier_07-22-2011.pdf?sequence=1

Abstract

Various methods have been used to stimulate critical thinking in undergraduate nursing students. This study had a dual focus; the first section examined the perceived relevance of a pedagogical critical thinking tool, a maternal interview assignment. Constructivist research inquiry was used to survey 54 students‘ perceptions of the effectiveness of the assignment. The results of the study indicate that the students believe the maternal interview critical thinking assignment is relevant for learning and developing patient interview skills. The second section of the study uses a grounded theory approach to present the birth stories from 25 women who participated in the maternal interview with the students. Through 8 required elements in the context of the birth experience a number of common themes emerged. 3 factors negatively contributed to the experience, and 2 positively contributed to the experience. The negative factors are unbearable pain, a detached and task oriented nurse, and interference with the natural process. The positive factors are an emotionally supportive nurse and a supportive family presence. The overarching theme identified throughout the narratives was that ―joy overcomes all. The results of this section of the study indicate that nurses need to be aware of the important role that they have in the birth experience of women. The Maternal Interview assignment is one critical thinking method that supports the development of critical thinking in nursing students.

Quotes

MANY, MANY QUOTES

-Using a grounded theory approach in which experiential student learning occurs is based on Richard Paul‘s ―Elements and Standards of Reasoning (Paul & Elder, 1997) and guided the CT framework aspect of this study.

-Paul and Elder (1997),(1997), believe there are two essential dimensions of thinking that students need to master in order to learn how to think critically. They need to be able to identify the ―parts of their thinking, and they need to be able to ―assess their thinking.

-Paul and Elder (2006) define 8 elements of reasoning essential for understanding CT: (1) All reasoning has a purpose, (2) All reasoning is an attempt to figure something out, to settle a question, to solve a problem, (3) All reasoning is based on assumptions, (4) All reasoning is done from some point of view, (5) All reasoning is based on data, information and evidence, (6) All reasoning is expressed through, and shaped by, concepts and ideas, (7) All reasoning contains inferences or interpretations by which we draw conclusions and give meaning to data, and (8) All reasoning leads somewhere or has implications and consequences (Paul & Elder, 2006). These elements and standards for reasoning can serve the profession of nursing well, as nurses need to have the ability to see the important contextual issues and incorporate them into their thinking to drive their decision making in the clinical setting.

-Critical thinking. Is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, or evaluating information gathered from, or generated by observation, experience, reflection, reasoning, or communication as a guide to belief and action (Scriven & Paul, 1997)

- Richard Paul (2004) describes CT as ―that mode of thinking—about any subject, content, or problem—in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking (para. 10). The Maternal Interview was designed to assist the students in improving their quality of thinking.

-Critical Thinking Results Summary The results of the CT section of the study provided positive results for using a CT teaching strategy that focuses on Paul and Elder‘s (2006) identified reflective, contextual, and perspective habits of the mind. A conclusion could be drawn based on the results from the student survey, that the Maternal Interview assignment is a valuable method for teaching reflective, conceptual, and perspective CT habits of the mind for PL nursing students.

-tical Thinking Results Summary

The results of the CT section of the study provided positive results for using a CT teaching strategy that focuses on Paul and Elder‘s (2006) identified reflective, contextual, and perspective habits of the mind. A conclusion could be drawn based on the results from the student survey, that the Maternal Interview assignment is a valuable method for teaching reflective, conceptual, and perspective CT habits of the mind for PL nursing students.

-Paul and Elder‘s continued work on the subject of CT in the form of a guide for educators and their interactive website dedicated to educators interested in CT are only two of many instruments that are easily accessible for educators to develop and assess CT educational

Referenced From

Paul, R., & Elder, L. (1997). The elements and standards of reasoning: Helping students assess their thinking. Foundation for Critical Thinking. Retrieved from http://www.criticalthinking.org/resources/articles/content-thinking.shtml

Paul, R., & Elder, L. (2005). A guide for educators to critical thinking competency standards: Standards, principles, performance indicators, and outcomes with a critical thinking master rubric. Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2006). Paul-Elder critical thinking framework. Retrieved from http://louisville edu/ideastoaction/what/critical-thinking/paul-elder-framework

Citation # II.15

Burson, T. (2011). *The Effects of 'Backward-Designed' curriculum and instruction* on classroom management. (Doctoral Dissertation). School of Education, Lindenwood University, St. Charles, MO. 1-182. [PDF+]

URL

http://gradworks.umi.com/3479305.pdf

Abstract

The purpose of this study was to investigate the link between interesting, purposeful work and positive classroom behavior. The backward design model proposed by Grant Wiggins and Jay McTighe was the foundation for establishing interesting, purposeful work. Their curriculum and instruction model termed Backward Design is a three-stage approach to curriculum design consisting of determining the desired results, acceptable evidence, and the instruction to bring about the desired results.

In the review of literature, the researcher was unable to find a study specifically investigating the relationship between classroom behavior, classroom management, and the employment of backward-designed curriculum and instruction. However, the researcher did find evidence of the positive relationship between specific elements within the backward design model and positive classroom behaviors. These elements included curriculum aligned with standards, formative and summative assessment, motivation, and understanding.

This study‘s intent was to provide a tool to aid teachers in their instruction and therefore, their classroom management. The effectiveness of using the backward design model as a strategy to increase positive classroom behavior was based upon teacher perceptions of the impact of backward design on classroom student behavior as recorded on one on-line survey and an accompanying questionnaire. The survey asked 13 teachers to rate their beliefs as to the effectiveness of backward-designed curriculum in promoting positive student behavior and classroom management. The purpose of the questionnaire was to encourage teachers to explain backward design in their own words, how they employed it, and how it impacted their students‘ learning. In eight of ten survey statements, classroom teachers trained in a backward design model of curriculum and instruction who implemented this model in their classroom lessons verified a measurable increase in positive, on-task behaviors including, but not limited to, student attention, participation, and on-topic responding. Responses also indicated that participants felt comfortable using the backward design model and that they planned on increasing its use in designing their lessons. Because of the small scope of the study, 13 classroom teachers, its finding may not be replicable. Therefore, further study investigating the link between backward design and classroom management is warranted.

Quotes

-Questioning externally the student needs to verify the information and look for biases in the information. (Paul & Elder, n.d.)

-Critical thinking is not a single process, rather it is characterized by several ―elements of reasoning including: purpose; question at issue; assumptions; inferences; implications; point of view; and concepts and evidence ‖ (Paul & Elder, Using Intellectual Standards to Assess Student Reasoning, 2009).

-(Paul & Elder, Using Intellectual Standards to Assess Student Reasoning, 2009, p. 1). These elements can be assessed by several criteria including: clarity (Is it expressed properly? Should one elaborate?); accuracy (Is it true? Can it be verified?); precision (Are more details needed? Is it specific enough?); relevance (Does this connect to the problem or issue?); depth (Are all the complexities of the questions covered?); breadth (Are all relevant points of view considered?); and logic (Does it makes sense?) (Paul & Elder, n.d.)

-The evidence of empathy will manifest similarly to that of perspective, in proper thinking; more specifically, when thinking involves depth, breadth, and logic (Paul & Elder, Using Intellectual Standards to Assess Student Reasoning, 2009).

Referenced From

Paul, R., & Elder, L. (n.d.). How to do critical thinking. Retrieved November 17, 2010, from http://www.uwec.edu/geography/Ivogeler/critical.htm

Paul, R., & Elder, L. (2009). Using intellectual standards to assess student reasoning. Retrieved November 17, 2010, from Foundation for Critical Thinking: http://www.criticalthinking.org/print-page.cfm?pageID=602

Citation # II.16

Sherblom, P. (2010). Creating critically thinking educational leaders with courage, knowledge and skills to lead tomorrow's schools today. *The Shepperd Institute Journal of Practical Leadership*. (5.1) 81-90. [PDF+]

URL

http://aa.utpb.edu/media/leadership-journal-files/2010_archives/JohnBenShepperdJournalofPracticalLeadership_Vol.5_Iss.1_81-90.pdf

Abstract

School leaders need to possess critical thinking skills to identify and effectively address systemic school problems. Educational leadership programs fail their candidates when they do not develop their ability to connect and apply theory, research, and practice. If critical thinking skills can be mastered then is it reasonable to expect educational leaders to be successful and model the NPBEA Educational Leadership Policy Standards.

Quotes

-NOTE: Elder specific: One of the authors of the Paul and Elder framework of critical thinking, educational psychologist Dr. Linda Elder, addressed the role of the affective domain within the context of rational thought. When searching for the ingredients necessary for a highly rational life, it is therefore crucial not to underestimate the role of the affective dimension of mind. To engage in high quality reasoning, one must have not only the cognitive ability to do so, but the drive to do so as well. One must feel the importance of doing so, and thus be driven to acquire command of the art of high quality reasoning. What is more, it is evident that to learn to solve problems effectively, one must have the desire to do so. One must be committed to it. Thus the affective dimension, comprised of feelings and volition, is a necessary condition and component of high quality reasoning and problem solving. Every "defect" in emotion and drive creates a "defect" in thought and reason. Intelligence on this view, then, presupposes and requires command of the affective dimension of mind. In short, the truly intelligent person is not a disembodied intellect functioning in an emotional wasteland, but a deeply committed mindful person, full of passion and high values, engaged in effective reasoning, sound judgment, and wise conduct. (1996)

-A framework of critical thinking that as been developed since then, and shown to be useful in school districts and universities throughout the United States, is that of Paul and Elder at the Foundation for Critical Thinking. Richard Paul defines critical thinking as "that mode of thinking-about any subject, content, or problem-in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it." (1993).

-The Paul and Elder framework has three components: (1) Intellectual Standards (2) Elements of Thought (3) Intellectual Traits. The Elements are aspects or "parts" of thought which enable us to take apart our thinking and analyze it. The Elements are assessed and evaluated through the application of the Intellectual Standards. Thus, critical thinking done well will meet high Intellectual Standards. Elements of Thought are not used in a specific and concrete order, but function interactively during the critical thinking process (Nosich, 2009). [Lists the elements and standards]

-At the secondary school level, in twelfth grade Rhetoric and Composition classes, Scanlan (2006) studied the effect of utilizing the Paul and Elder framework on the critical thinking skills of students.

-Instruction in critical thinking should not be seen as in conflict with other essential concerns. Dr. Richard Paul (1992) envisions it thusly: Everything essential to education supports everything else essential to education. It is only when good things in education are viewed superficially and wrongly that they seem disconnected, a bunch of separate goals, a conglomeration of separate problems, like so many bee-bees in a bag. In fact, any well-conceived program in critical thinking requires the integration of all of the skills and abilities … mentioned above. Hence, critical thinking is not a set of skills separable from excellence in communication, problem solving, creative thinking, or collaborative learning, nor is it indifferent to one's sense of self-worth. (http://www.criticalthinking.org/page.cfm?PageID=409&CategoryID=51)

-...further illustrate the connection between the cognitive and the affective domains within critical thinking. These attributes illustrate the Intellectual Traits developed by Paul and Elder (Autonomy, Confidence in Reason, Courage, Empathy, Fairmindedness, Humility, Integrity

Referenced From

Paul, R. (1992). Critical Thinking: Basic Questions & Answers. Think magazine. April. Downloaded January 27, 2010 from http://www.criticalthinking.org/page.cfm?PageID=409&CategoryID=51

Citation # II.17

Sulaiman, F. (2011). *The effectiveness of problem-based learning online on students' creative and critical thinking in physics at tertiary level i Malaysia*. (Doctoral Dissertation). Research Commons at the University of Waikato, Waikato, NZ. http://waikato.researchgateway.ac.nz/. 1-442. [PDF+]

URL

http://researchcommons.waikato.ac.nz/bitstream/handle/10289/4963/thesis.pdf?sequence=3

Abstract

The purpose of this study was to investigate whether student performance in creative thinking could be enhanced through Problem Based Learning delivered online (referred to as PBL online) and critical thinking. Students‘ perceptions and adoptions of PBL learning and online learning also were studied. The PBL online model was adopted from the McMaster‘s Model, and comprised three major steps: (i) problem posing; (ii) information searching; and (iii) discussion and application of knowledge in solving problems. PBL is operationally defined here as an instructional strategy which focuses on problem solving. Students are faced with real issues which they have to solve through information searching and group discussion online. In this study, students were given physics problems to solve as part of their Modern Physics course. The phases involved were (i) overview of the topic of the lesson; (ii) problem encounter; (iii) problem definition; (iv) exploration; (v) solution; and (vi) reflection. All of these phases were done through the University‘s Learning Management System (LMS), which thus acts as the online delivery tool.... Important findings were derived from this study. First, the results from this study suggest that PBL online enhances of Malaysian tertiary students‘ creative thinking for both science physics students and pre-service science teachers. Second, PBL online also is capable of having a positive impact on students‘ critical thinking for certain criteria, but this would be fostered by a whole programme approach rather than delivery via a single course. Third, students‘ acceptance and perceptions of PBL and online learning were positive and encouraging, this despite encountering some issues technical during the intervention.

Quotes

-For example, a number of researchers say that critical thinking involves not only logical, but also creative (intuitive) aspects (Brookfield, 1987; Garrison, 1991; Meyers, 1986; Paul, 1993).

-...(Paul, 1990). Lipman (1995, p. 146) suggests that critical thinking must be related to judgement, saying, ―critical thinking is skillful, responsible thinking that facilitates good judgments because it: (i) relies upon criteria, (ii) is self-correcting, and (iii) is sensitive to context.

-In thinking critically, we use our command of the elements of thinking to adapt our thinking to be logical. As we come to think critically routinely, we develop special features of the mind: intellectual humility; intellectual courage; intellectual perseverance; intellectual integrity; and confidence in our reasoning (Paul, 1990). These views of critical thinking and the characteristics of critical thinking, paint a picture of an active learner.

- The literature thus suggests we can conceptualize critical thinking as comprising a series of characterises that define our thinking (Paul, 1992).

-Critical thinking demands learners improve the quality of their thinking by skilfully and masterfully taking charge of its very structures and by imposing intellectual standards upon them (Brookfield, 1987; Paul, 1990; Shurter & Pierce, 1966).

-Philosophers also have considered the value of critical thinking with authors such as Paul reminding us that critical thinking is a process of thinking to a standard (Paul, 1990).

Referenced From

Paul, R. (1990). Critical thinking what every person needs to survive in a rapidly changing world. Rohnert Park, CA: Centre for critical thinking and Moral Critique.

Paul, R. (1992). Critical thinking: Basic questions and answers. In A. J. A. Binker (Ed.), Critical thinking: What every person needs to survive in a rapidly changing world. Rohnet Park, CA: Foundation for Critical Thinking.

Citation # II.18

Schmidt, T.M. & Hsu, D.K. (2009). Case studies in management and marketing: critical thinking, public relations, and integrated business topics. *E-Leader Tallinn*. 1-10. [PDF+]

URL

http://g-casa.com/conferences/tallinn/pdf%20papers/Hsu.pdf

Abstract

Researchers at Harvard University, Cranfield University and Thunderbird University have published extensively on case studies. These publications and internet searches, add significantly to the scholarship on global business and leadership. Critical Thinking, a Philosophy course, and Public Relations, a Communications course, were taught in the Business Department at the University of Phoenix. The Integrated Business Topics course is commonly called Strategic Management. It is a capstone course for seniors; at most business schools. Teaching these courses proved a challenge, especially if the number of hours per class was limited to 20 as opposed to 45 hours in traditional settings. This paper aims to address these issues by using case studies to reinforce learning, team work, and leadership in the E-Learning paradigm.

Quotes

-Four books were used:
Bateman and Snell (2005), Kirby and Goodpaster (2006), Paul and Elder (2006), and Robbins (2004).

Referenced From

Paul, R. and Elder, L., 2006, “Critical Thinking”, Pearson Prentice Hall, NJ, USA

Citation # II.19

Kops, K.E. (2011, March). *Strategic insights: the battle of Crecy*. (*Paper.)* Army War College: Carlisle Barracks, PS. 1-38. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA547310

Abstract

Using the thinking model as a conceptual framework, in conjunction with egocentrism and sociocentrism as the two main cognitive frames of reference, this paper explores and analyzes strategic decision making by Edward III, King of England, and Philip VI, King of France, at the Battle of Crecy in 1346. The key facets of the Battle of Crecy this paper examines include a comparison of the rival forces (strategic situation), the English position (deployment of forces), the French approach (employment of forces), and the fight (use of forces and technology). Targeting today's strategic leaders, this paper provides an analysis of the thoughts and resulting actions of Edward III and Philip VI at the Battle of Crecy to provide relevant critical thinking insights overall and specific insights that illuminate how biases impact mental agility, how they anchor strategic decision making, and the importance of bias mitigation.

Quotes

-For strategic leaders, the critical thinking model as set forth by Richard Paul and Linda Elder provides a well-defined analytical framework through which decision making can be observed and analyzed. Within this critical thinking framework, biases are established as cognitive frames of reference.

-According to Paul and Elder, the critical thinking model has four key characteristics: (1) is disciplined and self-directed, which typifies flawless thinking suitable to a specific mode or domain; (2) demonstrates mastery of rational abilities and aptitudes; (3) is “the art of thinking about one’s thinking while thinking” to expand or make more germane one’s thinking; (4) is fully mindful of, and constantly aware against, the normal human affinity of self-deception and to rationalize selfishness.

-Reasoning, according to Paul and Elder, is “the mental process of those who reason; especially the drawing of conclusions or inferences from observations, facts, or hypotheses...”13 In other words, reasoning is the process of figuring something out or making sense. Additionally, Paul and Elder propose elements of reasoning, which identify biases that are formed from assumptions, experience, inclinations, and partialities. Biases have multi-dimensional characteristics.

-Paul and Elder define egocentricity as “a tendency to view everything in relationship to oneself, to confuse immediate perception (how things seem) with reality; tendency to be self-centered, or to consider only oneself and one’s own interest; selfishness…few people recognize the sociocentric nature of much of their thought.”

-Paul and Elder describe sociocentrism as “the assumption that one’s own social group is inherently and self-evidently superior to all others.”

Referenced From

Richard Paul and Linda Elder, Critical Thinking, 2nd ed. (Columbus: Pearson Prentice Hall, 2006), 208.

Foundation for Critical Thinking, “Developing as Rational Persons: Viewing Our Development in Stages,” http://www.criticalthinking.org/articles/sts-developing-rational-persons.cfm (accessed November 15, 2010).

Citation # II.20

Smith, G. (2006. January). Lesson plan remodelling: a map for the global voyage. *Economics education: The Canadian Home Economics Association. Ottawa, ON. . 1-7. [PDF+]*

URL

https://bctf.ca/GlobalEd/TeachingResources/SmithGale/LessonPlanRemodelling.pdf

Abstract

Introduction: Most teachers want to make the curriculum more relevant in light of the increasingly global nature of our society. As a home economics teacher, I could see that my courses lacked a global perspective and in many ways were presenting students with an unrealistic, uncritical, fragmented view of the world in which they were living. However I
found myself slow to begin the journey of bringing the world into my classroom, slow to globalize my lessons. I was worried that if I did not approach global content and issues in an appropriate manner I could very well use a “tourist” approach. Such approaches tend to be superficial treatments of culture, concentrating on festivals and foods. They can oversimplify complex interrelated issues; reinforce ethnocentrism, a “we–they” dichotomy, and western superiority; and further entrench stereotypes and prejudices. Generally I was worried that rather than fostering the goals of global education I might end up doing just the opposite. As well, I was concerned that often, global content in curriculum is considered an add-on, a separate unit to be covered. This fragments the global from the rest of the curriculum, overlooking the interconnections and interdependencies that exist.

Quotes

-None Found.

Referenced From

Paul, R., Binker, A.J.A., Martin, D., Vetrano, C., & Kreklau, H. (1989). Critical thinking handbook: 6th–9th grades. Rohnert Park, CA: Center for Critical Thinking and Moral Critique, Sonoma State University.

Citation # II.21

Bessick, S.C. (2008. May). *Improved critical thinking skills as a result of direct instruction and their relationship to academic achievement. (*Doctoral Dissertation). Education. Indiana University of Pennsylvania, Indiana, PA. 1-217. [PDF+]

URL

http://dspace.iup.edu/bitstream/handle/2069/70/Sherlynn%20Bessick2%20Corrected.pdf?sequence=1

Abstract

This experimental study examined the effect of direct instruction in critical thinking on the critical thinking ability and academic achievement of Freshman students being tutored in repeat courses at a rural southeastern Pennsylvania university. This study used the Thinker's Guides, based on Richard Paul's model of critical thinking, and the Rationale Argument Mapping Program, based on the research of Tim van Gelder. Subjects' abstract reasoning and problem solving skills were measured by the Category Test: Computer Version – Research Edition (CAT: CV). Subjects' critical thinking skills were measured pre- and post- instruction using the California Critical Thinking Skills Test – Form 2000 (CCTST – 2000). Data were analyzed to determine the ability of the CAT:CV and the CCTST – 2000 Post-test Total Ranked Score to predict subjects' improvement in critical thinking skills and academic achievement following instruction. Data were also analyzed to determine the effect of direct instruction using the Thinkers Guides or Rationale on the improvement of subjects' critical thinking skills (CCTST-2000 total and subscale scores) and final grades.... Students repeating courses demonstrated improved academic achievement based on final grade, but the effect cannot be attributed to intervention method alone. These findings suggest that further research is needed using a larger sample size to determine the extent to which direct instruction using the Thinker's Guides and the Rationale Argument Mapping Program as a supplement to tutoring can improve students' critical thinking ability and academic achievement.

Quotes

Many, Many Quotes Beyond-Richard Paul (1993), a leading authority on critical thinking, expanded the elements of critical thinking identified by the Delphi Report to include: question, purpose, information, assumptions, concepts, point of view, and implications. Linda Elder, a leading researcher in critical thinking, has also contributed factors related to the improvement of these skills for students at the college level... They developed a series of tools entitled "The Thinkers Guides" to teach critical thinking skills at the post-secondary level.

-Over 2,500 years ago, Socrates came to the realization that when challenged, most people can not justify their knowledge through reasoning or evidence. He found that many people in positions of authority are rarely dependable regarding sound knowledge and insight; rather, they often display confusion and irrational thought when attempting to justify their knowledge (Paul,Elder, & Bartell, 1997).

-Socrates uncovered this through probing questions that challenged the veracity of claims made by those seen as the authority figures of his day. Unfortunately, when challenged, Socrates found that information presented as expert knowledge could not withstand questioning and deliberate scrutiny for verifiable evidence, clarity, and logical consistency (Paul, Elder, & Bartell, 1997).

-The Socratic Method is one of the most well-known strategies to teach critical thinking (Paul, Elder, & Bartell, 1997).

-Richard Paul took critical thinking to the next level by considering meta-cognition as a crucial component of critical thinking. Paul's consideration of meta-cognition is in agreement with teachers and researchers of critical thinking who feel that individuals must remain cognizant of their own thinking process.

-Paul's definition of critical thinking is: Critical thinking is disciplined, self-directed thinking which exemplifies the perfection of thinking appropriate to a particular mode or domain of thinking – about any subject, content or problem in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them (Paul, Fisher, & Nosich, 1993).

-Paul and Nosich (1991) assert that good reasoning has integral components that are described as cognitive elements of thought identified as: (Lists)

-The Thinker's Guides are based on Richard Paul's model of critical thinking that has three main components that include elements of thought/reasoning, intellectual standards and intellectual traits. Paul and Elder contend that this model of critical thinking can meet the challenge of many demands of reasoning (Paul & Elder, 2006).

-The Thinker's Guides are based on Richard Paul's model of critical thinking that has three main components that include elements of thought/reasoning, intellectual standards and intellectual traits. Paul and Elder contend that this model of critical thinking can meet the challenge of many demands of reasoning (Paul & Elder, 2006).

Paul and Elder (2005) found that excellence in thought requires intellectual traits and attributes that comprise the third component of the model of critical thinking. (See Figure 6)

Referenced From

Elder, L. (2001). Why Critical Thinking is Essential to the Community College Mission. Santa Rosa, CA: Foundation for Critical Thinking.

Elder, L., & Paul, R. (2002). Critical thinking: Distinguishing between inferences and assumptions. Journal of Developmental Education, 25 (3), 334-35.

Elder, L., & Paul, R. (2004). The Miniature Guide to the Human Mind: How it learns, how it mislearns. Dillon Beach, CA: Foundation for Critical Thinking.

Elder, L.,& Paul, R. (2006). The thinker's guide to analytic thinking: How to take thinking apart and what to look for when you do. Dillon

Citation # II.22

Hewlett, R. (2005). *Practice makes perfect: Integrating business practice in business education.* (Paper). Minot State University, Minot, ND. 1-13. [PDF+]

URL

http://www.abe.sju.edu/proc2004/hewlett.pdf

Abstract

Integrating professional practice in higher education business curriculum is challenging. The challenges are vexing because student learning is affected by variables such as faculty preparation, pedagogy, student preparation, target labor market human capital requirements and institutional resources. Anchoring student learning based on integrating the liberal arts with expectations of the business community provides an excellent starting point for developing both the art and science of business. Using knowledge mapping strategies, an integrated professional curriculum can be developed that meets the needs of all institutional stakeholders. Successful institutions begin with the graduates' target labor market. Understand the needs of this market and then work backwards from future state student learning needs matching them with future state curricula. Calculate the gaps and devise workable strategies to close the gaps. Rich, integrated and active learning strategies that close the gap are not easy fixes, but are achievable based on a structured student learning outcomes approach.

Quotes

- Gap analysis identifies the difference between the textbook and the expectations of the professional world. The gap is mitigated by the faculty influence and other resources. Before deciding on these other resources might consist of, the faculty member should consider the essential characteristics of linking the text to the desired outcomes through identifying key elements to be addressed. These items can include contextualizing skills, linking the liberal arts to the study of business, critical thinking, reasoning skills, and communication skills. In short, business courses need to be elaborative as well as schema building courses. Gerald Nosich (2001) suggests that developing high meta-cognitive graduates steeped in communication, reasoning, and critical thinking skills requires the faculty members as well as students be studied in the practice, pedagogy, and standards of critical reasoning. This is a much different way of looking at business courses than merely resonating with students on textual material and providing a context for application.

Methods to create these human capital rich business courses include, but are not limited to (Elder & Paul 2004; Hiler & Paul 2002; Paul & Elder 2004).

Referenced From

Elder, L. & Paul R. (2004). Guide to the human mind: How it learns, how it mislearns. Dillon Beach, CA: The Foundation for Critical Thinking.

Paul, R. & Elder, L. (2003). How to improve student learning: 30 practical ideas. Dillon Beach, CA: The Foundation for Critical Thinking.

Hiler, W. & Paul, R. (2002). Guide for those who teach on practical ways to promote active and cooperative learning. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # II.23

VanTassel-Baska. J. Brown, E. & Feng, A. (2005, August). *Developing a continuum of service*s. (Final Report). Options and Resources for the Ohio Department of Education, Columbus, OH. 1-284. [PDF+]

URL

http://www.abe.sju.edu/proc2004/hewlett.pdf

Abstract

The purpose of the research and evaluation study was to respond to several project objectives: a) to conduct a review and analysis of national research and school district policies and practices related to providing a comprehensive continuum of services for gifted students; b) to develop a "toolkit" for educators that includes a summary of the analysis and research as well as model policies and practical recommendations for school districts; c) to evaluate the availability and
comprehensiveness of gifted services available in Ohio schools; d) to document Ohio best practices and recommendations for Ohio school districts regarding service settings; and e) to provide recommendations for the Ohio Department of Education regarding policy development and resources needed to implement a comprehensive K-12 services in Ohio schools. To investigate the above objectives and provide a foundation for the toolkit, the following research questions guided the design and implementation of this study.
1. To what extent are appropriate instruction and services available to K-12 gifted students in Ohio?
2. To what extent do instruction and service settings employed by Ohio schools match research based best practices?
3. What are the strengths and weaknesses of popular service settings employed by Ohio schools?
4. What barriers prevent the provision of a comprehensive continuum of services for gifted students?
5. What policies, activities, and resources are needed for ODE and school districts to improve the availability of comprehensive continua of services for gifted students?
6. How can school districts use available resources most effectively to serve gifted students?

Quotes

-Thinking models such as Sternberg's Triarchic Model (Sternberg, Torff & Grigorenko, 1998) and Paul's Reasoning Model (Elder & Paul, 2004; Paul & Elder, 2002) have also been found effective in promoting critical thinking for advanced learners.
-Paul's Reasoning Model, although not explicitly tested, is utilized as part of questioning within the
William and Mary language, social studies, and science units.
Significant gains in literary analysis are shown using the Integrated Curriculum Model coupled Integrated Curriculum Model coupled with Paul's Reasoning Model components and modulated questioning. Paul's model as implanted in the curriculum units for gifted learners provides a scaffolding with which students must support their explanations with evidence, discuss implications and consequences, inferences, assumptions, purpose and goals, and multiple points of view (VanTassel-Baska & Stambaugh, 2006; VanTassel-Baska et al, 1998; Elder & Paul, 2004).

Referenced From

Elder, L. & Paul, R. (2004). Guide to the human mind: How it learns, how it mislearns. Dillon Beach, CA: The Foundation for Critical Thinking.
Paul, R., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and
personal life. New York: Prentice Hall.

Citation # II.24

Butt, N. S. (2010). Argument construction, argument evaluation, and decision-making: A content analyis of argumentation and debate textbooks. (Paper 77). Wayne State University Digital Commons, Detroit, MI @ http://digitalcommons.wayne.edu/oa_dissertations/77. 1 -190. [PDF+]

URL

http://digitalcommons.wayne.edu/cgi/viewcontent.cgi?article=1076&context=oa_dissertations

Abstract

Introduction:
Consider the issues of depletion of the ozone layer, world hunger, overpopulation, and AIDS. Without a grasp of the elements, and internal relationships of the elements, in each of dozens of interrelating systems from specific product emissions to social incentives, from effective utilization of the media to human learning, we are adrift in a stormy sea of
information. Without a grasp of the of political realities, economic pressures, scientific data on the physical environment and its changes—all of which are simultaneously changing as well—we stand no chance of making any significant positive impact on the deterioration of the quality of life for all who share the planet.
These two characteristics, then, accelerating change and increasing complexity— with their incessant demand for a new capacity to adapt, for the now rare ability to think effectively through new problems and situations in new ways—sound the death knell for traditional methods of learning how to survive in the world in which we live. (Paul &
Willsen, 1995, p. 3) Richard Paul and Jane Willsen concisely and powerfully explain the challenge facing educators: We need to produce students who can deal with exceedingly complex and interrelated problems and make decisions upon which our safety and well-being may rest. Dealing with such complex and important issues may require more advanced critical thinking and decision-making ability than most people have and more than our students currently develop. How can we better encourage our students to develop advanced decision-making abilities?

Quotes

-Fortunately, most of the different definitions are not actually mutually exclusive and all of them fit into the larger picture of what critical thinking is. There are elements of critical thinking that are general skills that transfer from area to area and can be taught in a straightforward manner (Paul, 2005).
-Furthermore, the ability to assess argument structures in this manner is not domain specific (Paul, 1990; Toulmin, 1958).
-Paul and Elder (2002) have argued that critical thinking is universally practical: There is nothing more practical than sound thinking. No matter what your circumstance or goals, no matter where you are, or what problems you face, you are better off if your thinking is skilled. As a professional -- shopper, employee, citizen, lover, friend, parent--- in every realm and situation of your life, good thinking pays off. Poor thinking, in turn, inevitably causes problems, wastes time and energy, engenders frustration and pain. (p. 7)
-Paul and Willsen (1995) have argued that reaching a large segment of the public is necessary to prevent an ideological elite from dominating and oppressing the rest of the population: Critical thinking is ancient, but until now its practice was for the elite minority, for the few. But the few, in possession of superior power of disciplined thought, used it as one
might only expect, to advance the interests of the few. We can never expect the few to become the long-term benevolent caretakers of the many. The many must become privy to the superior intellectual abilities, discipline, and
traits of the traditional privileged few. Progressively, the power and accessibility of critical thinking will become more and more apparent to more and more people,particularly to those who have had limited access to the educational opportunities available to the fortunate few. (p. 16)
-The problems Paul and Willsen (1995) list in the opening epigraph highlight how vital it is to produce and elect effective decision-makers. Basic democratic theory assumes that all citizens should have voices and that the more voices are heard, the more likely that the resulting policies will be fair and effective (Lau & Redlawsk, 2006).
-Paul and Elder (2006b) argued that democracy depends on the public's ability to assess information from media sources.
They explained that media bias manifests even without overt political ties or manipulation, because time constraints mean media sources must be selective about the information they present.
-Paul and Willsen (1995) have also argued that the importance of critical thinking for decision making will continue to increase, as problems become more complex and interrelated.
-In addition to lacking certain critical thinking skills, people also allow certain obstacles to interfere with their critical thinking ability. For example, Elder and Paul (2007) note that most people not taught to think analytically. Instead, they are conditioned to make certain responses, rather than think freely and reflexively, and are often motivated by fear or other emotions (Paul & Elder, 2006a).
-Paul & Elder, 2006; Gilovich, 1991; Makau & Marty, 2001) still believe that barriers to critical thinking can be overcome.
-Egocentric thinking can also be overcome by practicing considering issues from both sides (or multiple perspectives), teaching people to be aware of the criteria they are using, putting both sides into a larger perspective, and teaching people to apply the standards they have learned

Referenced From

Elder, L., & Paul, R. (1996). Critical thinking development: A stage theory. Retrieved from http://www.criticalthinking.org/page.cfm?PageID=483&CategoryID=68
Elder, L., & Paul, R. (2004). The human mind: How it learns, how it mislearns. Dillon Beach, CA: Foundation for Critical Thinking.
Elder, L., & Paul, R. (2007). Analytic thinking. Dillon Beach, CA: Foundation for Critical Thinking.Dialogue and dialectic (pp. 102-111). New York: Routledge.
Paul, R. (1990a). Critical thinking: What every student needs to survive in a rapidly changing world. Dillon Beach, CA: Foundation for

Citation # II.25

*Bajracharya, I.K. (2010, June). I*nfluencing factors of critical thinking in classroom teaching. *Education Quarterly* (1.1.) 1-7. [PDF+]

URL

http://www.criticalthinkingblog.org/wp-content/uploads/2010/12/Influencing-critical-thinking.pdf

Abstract

'Critical Thinking' (CT) as such is a professional development program for educators. It promotes active inquiry, student-initiated learning, problem solving, cooperative learning, thinking critically, writing and reading processes and alternative assessment. For teaching and learning are used in CT. the existing curriculum, text books, contemporary political situations, traditional types of examination system, existing administration system, previous back ground of students and traditional form of classrooms etc. are the influencing factors for CT strategies in the classroom teaching. The most successful classrooms are those that encourage students to think themselves and engage in critical thinking. It needs to be started at the primary level.

Quotes

-According to Paul and Elder (2005):Critical thinking is a process by which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them .

-According to Paul (1989), to learn to think critically is a combination of both affective and cognitive skills. It is the use of those cognitive skills or strategies that increase the probability of a desirable outcome. The most successful classrooms are those that encourage students to think for themselves and engage in critical thinking.

Referenced From

Paul, R., & Elder, L. (1997). Critical thinking: Implications for instruction of the stage theory. Journal of Developmental Education, 20 (3), 34-35.

Paul, R. and Elder, L. (2005, Fall). Critical thinking…and the art of substantive writing.(Part I). Journal of Developmental Education. 29 (1). 40-41.

Paul, R. (2007, July 23-26). Foundation for Critical Thinking. Retrieved on August 28, 2009, www.criticalthinking.org

Citation # III.1

Sorenson, H. A.J.& Yankech, R.L. (2008, May). Precepting in the fast lane: Improving critical thinking in new graduate nurses. *Journal of Continuing Education in Nursing.* (39.5). 208-216. [No PDF]

URL

http://www.slackjournals.com/article.aspx?rid=28104

Abstract

BACKGROUND: Research regarding the relationship between preceptorship and development of critical thinking in new graduate nurses is sparse. No studies could be found that examined the relationship of preceptor education to critical thinking scores of new graduate nurses. METHODS: A quasi-experimental, mixed-methods design measured critical thinking ability of new graduate nurses. Focus group interviews were conducted with preceptors who attended an author-developed educational program. RESULTS: Preceptors' participation in the educational session contributed to the evaluation subscale of critical thinking skills of the experimental group on the California Critical Thinking Skills Test (F = 4.709, p = .039). Preceptors had positive qualitative responses. CONCLUSIONS: Critical thinking skills of new graduate nurses can be improved and learning relationships developed through preceptor education. Further study is suggested.

Quotes

-As a result, some programs of nursing have used the California Critical Thinking Skills Test (CCTST) to produce evidence of critical thinking as a learning outcome... experience with the test has proved mixed and inconsistent, the CCTST remains the foremost standardized critical thinking test used in nursing research. [Facione and Paul??]

-The program incorporated research results regarding definitions of critical thinking (Paul & Elder, 2004)

Referenced From

Paul, R., & Elder, L. (2004). Miniature guide to critical thinking: Concepts and tools (4th ed.). Millbrae, CA: Foundation for Critical Thinking.

Citation # III.2

Wang, Y.H., Tseng, M.H. & Liaoc, H.C. (2009, May). Data mining for adaptive learning sequences in English language instruction. *Expert Systems with Applications.* (36.4) 7681-7686. [No PDF]

URL

http://ac.els-cdn.com/S0957417408006556/1-s2.0-S0957417408006556-main.pdf?

Abstract

The purpose of this paper is to propose an adaptive system analysis for optimizing learning sequences. The analysis employs a decision tree algorithm, based on students' profiles, to discover the most adaptive learning sequences for a particular teaching content. The profiles were created on the basis of pretesting and posttesting, and from a set of five student characteristics: gender, personality type, cognitive style, learning style, and the students' grades from the previous semester. This paper address the problem of adhering to a fixed learning sequence in the traditional method of teaching English, and recommend a rule for setting up an optimal learning sequence for facilitating students' learning processes and for maximizing their learning outcome. By using the technique proposed in this paper, teachers will be able both to lower the cost of teaching and to achieve an optimally adaptive learning sequence for students. The results show that the power of the adaptive learning sequence lies in the way it takes into account students' personal characteristics and performance; for this reason, it constitutes an important innovation in the field of Teaching English as a Second Language (TESL).

Quotes

None Available

Referenced From

Paul, R., & Elder, L. (2001). The miniature guide to critical thinking: Concept and tools. Dillon Beach, CA: The Foundation for Critical Thinking. Plionis, E. M. (2004).

Citation # III.

Stainer, L. & Grey, S. (2007, April). The ethical landscape of outsourcing performance. *International Journal of Business Performance Management.* (9.4). 453-469. [No PDF]

URL

http://inderscience.metapress.com/content/x32340517374ll73/

Abstract

Outsourcing of business operations is high on the agenda of management because getting quality products and services faster to the market has become critical for companies. Amongst the many drivers are cost reduction, core business focus, flexibility and risk transfer. However, it is easy to be over-enthusiastic about the benefits without fully appreciating the risks and their consequences. To avoid the downsides and maximize the upsides, an organisation should take a considered risk management approach which embraces Corporate Social Responsibility (CSR). This is defined and placed in its contemporary business context, highlighting the importance for the development of the added-value dimensions, whether economic or societal. Practical steps are provided to link the various facets of outsourcing management in order to create an impetus towards success. The synergy between outsourcing performance and CSR is expounded, galvanising management action in the pursuit of business excellence and stakeholder satisfaction.

Quotes

Could not access.

Referenced From

Paul, R., & Elder, L. (2001). The miniature guide to critical thinking concepts and tools. Retrieved from www.criticalthinking.org.

Citation # III.4

Goolsby, M.J. (2004, December*).* Integrating evidence-based practice in nurse practitioner education. *Journal of the American Academy of Nurse Practitioners. (*16.12). 520–525. [PDF+]

URL

http://onlinelibrary.wiley.com/doi/10.1111/j.1745-7599.2004.tb00431.x/abstract

Abstract

This column normally focuses on a specific clinical practice guideline (CPG). This month's column deviates from that practice to demonstrate how evidence-based practice (EBP) was integrated into the nurse practitioner (NP) curriculum at the University of Texas at Austin School of Nursing. Processes of EBP were linked to student clinical assignments across core NP clinical courses, culminating in a student-published CPG. When students research and analyze available scientific evidence for a CPG, they learn to critically evaluate and logically organize knowledge for use in clinical practice, and those critical-thinking skills can lead to improved clinical reasoning and decision making.

Quotes

-Attitudes, or “traits of minds” (Paul, 1990; Paul & Elder, 2001), motivate and justify cognitive skills. Critical thinking allows us to focus on what to believe or do (Ennis, 1985); it is disciplined, self-directed (Paul).

-Table 1 p.521. summarizes attitudes of critical thinking. Data are from Paul (1990) and Paul & Elder (2001).

Referenced From

Paul, R. (1990). Critical thinking. Rohnert Park, CA: The Center for Critical Thinking and Moral Critique, Sonoma State University.

Paul, R., & Elder, L. (2001). The miniature guide to critical thinking concepts and tools. Retrieved from www.criticalthinking.org.

Citation # III.5

Scholtz, Z., Braund, M., Hodgesa, M., et al. (2008, January). South African teachers' ability to argue: The emergence of inclusive argumentation. *International Journal of Educational Development.* (28.1). 21-34. [PDF+]

URL

http://www.sciencedirect.com/science/article/pii/S0738059307000120

Abstract

This paper explores the argumentation ability of ten science teachers in two South African schools on opposite ends of the resource spectrum. Toulmin's model is used to analyse individual contributions in six group discussions. The findings show that levels of argumentation improve with teachers' involvement in the development of teaching resources and the closeness of the argumentation task. The nature of the arguments is permeated by inclusiveness, thus precluding the use of rebuttals, traditionally a requirement for high-quality arguments. Based on the Ubuntu worldview, a model of inclusive argumentation is proposed with implication for teaching and a scheme of assessable levels of argumentation.

Quotes

No Access

Referenced From

Paul, R., Elder, L., 2004. The miniature guide to critical thinking concepts and tools. The Foundation for Critical Thinking, Dillon Beach, CA.

Citation # III.6

Lay, K., & McGuire, L. (2008). Teaching students to deconstruct life experience with addictions: A structured reflection exercise. *Journal of Teaching in the Addictions*. (7.2). 145-163. [No PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/15332700802269227

Abstract

Students come to the classroom with life experience that may reinforce stigmatization of those who struggle with addiction. Educators must address this dynamic directly if addiction practitioners are to move beyond their personal experiences and come to understand the neuroscience of addiction, evidence-based practices, and the human potential for recovery. This article provides a structured reflection exercise that challenges future practitioners to deconstruct dominant narratives that foster stigma while making space for emerging possibilities of new learning.

Quotes

No Access

Referenced From

Paul, R., Elder, L., 2004. The miniature guide to critical thinking concepts and tools. The Foundation for Critical Thinking, Dillon Beach, CA.

Citation # III.7

Cornelius-White, J.H.D. (2004). *Maintain and enhance: An integrative view of person-centered and process-differentiated diagnostics in person-centered & experiential psychotherapies.* (*Paper).* Special Issue: Papers from the 6th World conference for Person-Centered and Experiential Psychotherapy and Counseling. (3.4). [No PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/14779757.2004.9688357

Abstract

The author reviews, compares, contrasts and comments on various views of diagnosis in Person-Centered and Experiential therapies, especially as presented in the PCE 2003 keynote speeches of Greenberg (2004), Sachse (2004), and Schmid (2004). These views include the incorporation of traditional (DSM) diagnosis, reflexive models of the client, exercise of 'therapeutic' expertise, process diagnosis, and therapy as diagnosis. The paper concludes with an integrative view that values the potentially enhancing qualities of diagnostic formulations while maintaining the core aspects of person-centeredness. While diagnosis is generally incompatible with the person-centered approach, some aspects may be helpful for skill development and interactions with systems. The dialectic of being and doing, which rests upon principled nondirectivity, is emphasized.

Quotes

No Access

Referenced From

Paul, R., Elder, L., 2004. The miniature guide to critical thinking concepts and tools. The Foundation for Critical Thinking, Dillon Beach, CA.

Citation # III.8

Richardson, C.P. (2007). Engaging the world: music education and the big ideas. *Music Education Research. Special Issue- Music Education, Equity and Social Justice.* (9.2). 205-214. [PDF+]

URL

http://www.tandfonline.com/doi/abs/10.1080/14613800701384318

Abstract

In this paper I address the distance between our practices as music educators and the democratic issues of equity, social justice and social consciousness. I first explore issues of elitism, identity politics, and our natural aversion to change. I then propose several approaches that we as university faculty may take through our curricula and classroom practices to bridge the gap between our democratic claims and our actual practices. These include macro-level, university-wide efforts, such as using the arts as a way to engage local communities in sustained reciprocal partnerships focused on societal issues, as well as micro-level approaches to democratizing classroom interactions by teaching students to examine their thinking using Paul and Elder's template for critical thinking.

Quotes

-The most powerful content I have discovered for teaching critical thinking to both undergraduate and graduate students is the work of Richard Paul and Linda Elder of the Center for Critical Thinking (Paul & Elder, 2006). It is truly hard work to push ourselves and our students beyond what they label egocentric thinking (Paul & Elder,
2006, p. 9).

-They elaborate: Egocentric thinking results from the unfortunate fact that humans do not naturally consider the rights and needs of others. They do not naturally appreciate the point of view of others nor the limitations in their own point of view. They become explicitly aware of their egocentric thinking only if trained to do so. They do not naturally recognize their egocentric assumptions, the egocentric way they use information, the egocentric way they interpret data, the source of their egocentric concepts and ideas, the implications of their egocentric thought. They do not naturally recognize their self-serving perspective. (Paul & Elder, 2006, p. 9)

-Paul and Elder go on to describe the ‘self-centered psychological standards’ used by egocentric thinkers, the individuals described earlier as negatively afflicted by identity politics, to formulate their beliefs: It’s true because I believe it. It’s true because we believe it. It’s true because I want to believe it. It’s true because I have always believed it. It’s true because it is in my selfish interest to believe it. (p. 9)

- They provide detailed content that one can master to move beyond egocentric thinking. This includes detailed descriptions of the elements of thought, templates for analyzing articles, criteria for analyzing reasoning, templates for three kinds of questions, and a template for problem-solving. Also included is a six-stage model of critical thinking development, ranging from the unreflective thinker who is unaware of the problems in her/his thinking, to the master thinker who exhibits ‘good habits of thought’ (Paul & Elder, 2006, p. 22).

-The most compelling content that Paul and Elder offer to those of us engaged in bringing to our classes volatile issues of equity and social justice and social consciousness is a list of eight essential intellectual traits that should be nurtured
in each student: 1. Intellectual humility*/‘a consciousness of the limits of one’s knowledge, sensitivity to bias, a lack of intellectual pretentiousness.’ 2. Intellectual courage*/‘a consciousness of the need to face and fairly address ideas, beliefs or viewpoints toward which we have strong negative emotions and to which we have not given a serious hearing. 3. Intellectual empathy*/‘a consciousness of the need to imaginatively put oneself in the place of others in order to genuinely understand them. 4. Intellectual autonomy*/‘rational control of one’s beliefs, values, and inferences. 5. Intellectual integrity*/‘recognition of the need to be true to one’s own thinking.’ 6. Intellectual perseverance*/‘a consciousness of the need to use intellectual insights and truths in spite of difficulties, obstacles, and frustrations.’ 7. Confidence in reason*/‘confidence that, in the long run, one’s own higher interests and those of humankind at large will be best served by giving freest play to reason, by encouraging people to come to their own conclusions by
developing their own rational faculties.’ 8. Fairmindedness*/‘a consciousness of the need to treat all viewpoints alike,
without reference to one’s own feelings or vested interests’ (Paul & Elder, 2006, pp. 16-17).

Referenced From

Paul, R. & Elder, L. (2006) The miniature guide to critical thinking concepts and tools (Dillon Beach, CA, Foundation for Critical Thinking).

Citation # III.9

Jiang, M. & McGill, W.L. (2010, May). *Human-centered sensing for crisis response and management analysis campaigns.* (Paper). Proceedings of the 7th International Integrative and Analytical Approaches to Crisis Response and Emergency Management Information Systems (ISCRAM) Conference – Seattle, USA. 1-11.

URL

http://scholar.google.com/scholar?start=30&hl=en&as_sdt=5,48&sciodt=0,48&cites=3632478920216070946

Abstract

Human-centered sensing (HCS) is an emerging research field that leverages mobile devices carried by people to collect useful information in support of myriad analytic activities. In this paper, we explore ways in which HCS can be applied to support a variety of analytic campaigns in the context of crisis response and management (CRM). We first summarize the concept of HCS and then investigate the potential advantages of complementing traditional sensing platforms and analytic tasks with an HCS system. By recognizing the potentials of HCS, we offer a scheme for classifying HCS systems and envision three application scenarios of HCS in CRM as well as a general architecture of HCS systems.

Quotes

-A key discriminator between all analytic campaigns lies in the underlying question at issue (Paul and Elder, 2008).

Referenced From

Paul, R. & Elder, L. (2008) Critical Thinking: Concepts and Tools, Foundation for Critical Thinking.

Citation # III.10

Iwaoka, W.T. & Crosetti, L.M. (2008, March). Using academic journals to help students learn subject matter content, develop and practice critical reasoning skills, and reflect on personal values in food science and human nutrition classes. *Journal of Food Science Education*. (7.2). 19-29.

URL

http://onlinelibrary.wiley.com/doi/10.1111/j.1541-4329.2007.00044.x/full

Abstract

It has been reported that students learn best when they use a wide variety of techniques to understand the information of the discipline, be it visual, auditory, discussion with others, metacognition, hands-on activities, or writing about the subject. We report in this article the use of academic journals not only as an aid for students to learn about content knowledge needed in an Experimental Foods course, but also as a way to have students think about and reflect on their own personal values. The topics of these journal entries cover several of the core competencies in the Institute of Food Technologists (IFT) Undergraduate Education Standards for Degrees in Food Science. These are basic principles of food science, as well as address several "Success Skills" (written communication, critical thinking, professionalism, life-long learning, interaction skills, and organizational skills). While there are no quantitative "measurements" of gains in learning, comments from the students indicate that learning took place, critical reasoning occurred, and personal values were analyzed. A guideline for writing and grading academic journals and a simple rubric for scoring the quality of the writing are included.

Quotes

-The 2 definitions that received the majority of "votes" were "Critical thinking is an on-going process of seeking and analyzing an array of information to create a better understanding and more effective problem-solving and decision-making for complex issues" (Paul 1995).

- These documentations of experiences and reflections allowed students to understand the given event and also allowed them to witness their growth from what they have learned. Having this understanding allowed students to continue to reflect on situations, giving them the opportunity to continue to grow from each experience. Once realizing that they are able to solve their own problems and come to their conclusions, confidence is gained, as reported by Paul and Elder (2001).

Referenced From

Paul L. 1995. Teaching critical thinking skills to nutrition professionals. Presented at Ann. Mtg., July 6–19 Washington , D.C. : Society for Nutrition Education.

Paul R, Elder L. 2001. The miniature guide to critical thinking concepts and tools. Foundation for critical thinking. Available from: http: //www.criticalthinking.org . Accessed Dec 14 2007.

Citation # III.11

Nehmzow, U. (2005). Scientific methods in mobile robotics quantitative analysis of agent behaviour. *Springer Science Business Media. springeronline.com*. 1-207.

URL

http://newplans.net/RDB/Scientific%20Methods%20in%20Mobile%20Robotics%20-%20Ulrich%20Nehmzow.pdf

Abstract

This book is not actually about mobile robotics! It is merely written from a mobile robotics perspective, and the examples given are drawn from mobile robotics, but the question it addresses is that of “analysing behaviour”, where
behaviour is a very loose concept that could refer to the motion of a mobile robot, the trajectory of a robot arm, a rat negotiating a maze, a carrier pigeon flying home, traffic on a motorway or traffic on a data network. In short, this book is concerned with describing the behaviour of a dynamical system, be it physical or simulated. Its goals are to analyse that behaviour quantitatively, to compare behaviours, construct models and to make predictions. The material presented in this book should therefore be relevant not only to roboticists, but also to psychologists, biologists, engineers, physicists and computer scientists.

Quotes

-To formulate the hypothesis clearly, it is useful to consider the following points (see also [Paul and Elder, 2004]):
What is the question addressed? What are the assumptions? ...

Referenced From

[Paul and Elder, 2004] Paul, R. and Elder, L. (2004). The miniature guide to critical thinking. Foundation for Critical Thinking, Dillon Beach, CA.

Citation # III.12

Mbabu, L.G. (2007, June). *A content analysis of information literacy courses in master's degree programs of library and information studies.* (Master's Thesis). College of Education Ohio State University, Columbus, OH. 1-106. [PDF+]

URL

http://etd.ohiolink.edu/view.cgi/Mbabu%20Loyd.pdf?ohiou1178045906

Abstract

A content analysis of textbooks used for instruction of information literacy courses in Masters in Library and Information Studies programs was conducted. The hypotheses was that these courses identified specific competencies of information literacy at various stages of learning and differentiated between lower-level basic skills from upper-level more sophisticated skills. This paradigm was exemplified by the Middle States Commission on Higher Education (2003). Chi-square ($\chi 2$) analyses of the frequencies with which educational levels starting from K -12 through graduate school occurred were conducted. Textbooks that contained any of the following information literacy themes met the selection criteria: (a) determining information needed, (b) accessing the information, (c) critically evaluating and synthesizing retrieved information, (d) integrating and applying knowledge, and (e) understanding the economic, legal, and social implications of information production and dissemination.

Contrary to the hypotheses, the results revealed that emphases were on grouped competencies such as K-12 or undergraduate, rather than on graded incremental proficiencies. Educational levels K-12 were found to have significantly more citations than expected. Frequencies of references to college levels decreased as the learning levels advanced. There was no mention of the junior level. Emphases on lower-level basic information literacy skills were revealed by higher frequencies of references to sophomore than those of senior. Moreover, graduate level had only eight mentions out of a total of 361 observations. Taken as a whole, these courses fell short of the scholarly expectations of clearly identifying between lower-level basic skills from upper-level more sophisticated skills.

Quotes

-This checklist is closely aligned to elements of thought associated with critical thinking skills (Paul & Elder, 2001):
• Purpose of the thinking (goal, objective)
• Question at issue (problem issue)
• Information (data, facts, observations, experiences)
• Interpretation and inference (conclusions, solutions)
• Concepts (theories, definitions, axioms, laws, principles, models)
• Assumptions (presuppositions, taking for granted)
• Implications and consequences
• Points of view (frame of reference, perspective, orientation) (p.2)
-The concept of critical thinking is widely accepted in institutions of higher learning (Middle States Commission on Higher Education, 2003; Paul & Elder, 2001).
-

Referenced From

Paul, R., & Elder, L. (2001). The miniature guide to critical thinking: Concepts and tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # III.13

Piawa, C.Y. (2010). Building a test to assess creative and critical thinking simultaneously. *Procedia -Innovation and Ceativity in Education: Social and Behavioral Sciences.* (2.2). 551-559. [No PDF]

URL

http://ac.els-cdn.com/S1877042810001023/1-s2.0-S1877042810001023-main.pdf?

Abstract

The Malaysia Education Master Plan 2006–2010 expresses the importance of critical and creative thinking, by stating that one of its major goals in producing first class human resources in Malaysia is to arm the students with creative and critical thinking abilities. As a consequence, educational transformation has been initiated, and creative and critical thinking teaching and learning strategies have been implemented at the Malaysian schools. Therefore, it was anticipated that by the year 2010, students under the new school system will exhibit higher levels of thinking styles, especially creative and critical thinking styles. An attempt was initiated to build an instrument to collect and provide data concerning the two thinking styles of the students. The instrument Yanpiaw Creative-Critical Thinking Styles Test or CREATIVE-CRITICALS, consists of 34 items, will be used to measure creative and critical thinking style of the students simultaneously. This article reports the building of the test and its validity and reliability construction.

Quotes

-\Other scholars (Paul & Elder, 2005; Giancarlo, Blohm & Urdan, 2004; Silverman & Smith, 2002; Scriven & Paul, 1996; Angelo, 1995; Rudinow & Barry, 1994; Wilson, 1988; Primack, 1986; Glaser, 1985; Modjeski & Michael, 1983) viewed critical thinking as the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

Referenced From

Paul, R. & Elder, L. (2005). Critical and creative thinking. CA: Foundation for Critical Thinking.
Paul, R. & Elder, L. (2008). Critical thinking: Concepts and tools. CA: Foundation for Critical Thinking.
Paul, R. (1993). Critical thinking: How to prepare students for a rapidly changing world. CA: Foundation for Critical Thinking.

Citation # III.14

Fitzwater, D. et al. (2003, August). Information literacy across the curriculum action plan. *(PowerPoint).* University College of the Fraser Valley, Abbotsford, B.C. 1-17.
[PDF+]

URL

http://www.cod.edu/Library/services/faculty/infolit/actionplan.pdf

Abstract

Intro. Definition of information literacy In a 1989 publication of the American Library Association's Presidential Commission on Information Literacy, the authors state: information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand. Information literacy** is the ability to recognize an information need and then to locate, evaluate, and effectively use information from a variety of sources to satisfy the need. The acquisition of information literacy skills contributes to an individual's development as a critical thinker, problem solver, and independent learner. (College of DuPage Library, 2002). An information literate person also uses information ethically by properly crediting sources for a research project as well as observing the copyright law.

Quotes

-In fact, information literacy is directly related to critical thinking skills which entail the ability "to gather and assess relevant information" as well as "problem solving abilities." (Paul, 2000, p.1)

Referenced From

Paul, R. & Elder, L. (2000). The miniature guide to critical thinking concepts & tools. Dillon Beach, Calif.: Foundation for Critical Thinking.

Citation # III.15

Mosenson, A.B. & Johnson, J.M. (2008). Instructional Strategies and Resources: Exploring the Use of Technology. *Journal of Family Consumer Sciences Education* (Ch. 12) [PDF+]

URL

http://w.natefacs.org/JFCSE/Standards_eBook/Standards_eBook.pdf#page=186

Abstract

Through a review of current literature on the use of technology in education, it was found that new teachers are not being adequately prepared to teach with technology. In order to help preservice family and consumer sciences teachers develop a ―thinking with technology perspective, two areas need to be addressed in teacher education programs: (a) technology integration should be modeled with content-specific examples and demonstrations, and (b) self-efficacy in using technology should be encouraged with positive examples. Numerous examples and resources are provided to illustrate how technology can be used in family and consumer sciences education programs to enhance preservice teachers' knowledge and abilities in using technology effectively. In particular, using technology to enhance students' critical thinking skills is discussed with promising examples.

Quotes

-Paul and Elder (2006) indicated that ―critical thinking is the art of analyzing and evaluating thinking with a view to improving it. A critical thinker:

1. raises vital questions and problems, formulating them clearly and precisely;
2. gathers and assesses relevant information, using abstract ideas to interpret it effectively;
3. comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
4. thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
5. communicates effectively with others figuring out solutions to complex problems (Paul & Elder, p. 4).

Referenced From

Paul, R., & Elder, L. (2006). The miniature guide to critical thinking concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # III.16

Colby, I.C. (2008, July) Social welfare policy as a form of social justice: Comprehensive handbook of social work and social welfare. *Published Online:John Wiley & Sons Online Library.* [No PDF]

URL

http://onlinelibrary.wiley.com/doi/10.1002/9780470373705.chsw004012/abstract;jsessionid=134A6C0C8CBBEA71C4F93486B845E7EE.

Abstract

Social workers confront horrific problems on a daily basis that reflect the broad range of social issues that plague and threaten the lives of people and weaken our civil structures. Central to the social work profession's mission is its work with and on behalf of the most vulnerable, at-risk, and marginalized persons in our communities. The author recognizes that social policy governs practice and agency work and that all policies are extensions of justice theories. The author believe that Rawls theory of justice best reflects the mission, values, and beliefs of the social work profession. The author identifies critical thinking, though merged with creative thinking as the overarching skill necessary for successful policy practice.

Quotes

No Access

Referenced From

Paul, R., & Elder, L. (2006). The miniature guide to critical thinking concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # III.17

Scott, S. (2008). Perceptions of students' learning critical thinking through debate in a technology classroom: A case study. *The Journal of Technology Studie*s. (34.1). [MS Word]

URL

http://scholar.lib.vt.edu/ejournals/JOTS/v34/v34n1/scott.html

Abstract

Critical thinking is often a desired competency for graduates of a technology program. Organizational members have uttered concern about students' inability to think critically. Although traditional pedagogical techniques, such as lectures and examinations, center on knowledge acquisition, debates in the technology classroom can effectively facilitate critical thinking. The purpose of this study was to gather via questionnaires the perceptions of technology students on the debate process used in the classroom to increase critical thinking. Overall, the students believed that the debate process was a useful learning activity. The results of the questionnaire revealed that students believed that the debates helped them understand the topic better, learn new knowledge, and gain an understanding of the debate process. In addition, students thought that the debates increased their critical thinking skills.

Quotes

-According to Paul and Elder, (2006) a well-cultivated critical thinker solves a complex problem by raising vital questions, gathering relevant information, determining findings, and communicating effectively.

-The scientific method involves asking questions, researching information, developing questions, testing, analyzing, and communicating results. All of these involve different levels of critical thinking (Paul & Elder, 2006). Brookfield (1997) believes that critical thinking can be analyzed in terms of process and purpose.

Referenced From

Paul, R. & Elder, L (2006). The Miniature Guide to Critical Thinking Concepts and Tools. Dillion Beach CA: The Foundation for Critical Thinking.

Citation # III.18

Ceylon, T. & Lang, W.L. (2003, April). *Critical thinking and engineering education*. (Conference Presentation). American Society for Engineering Education. Valparaiso University, *IN*. 41-43. [PDF+]

URL

http://ilin.asee.org/doc/Paper1C1.pdf

Abstract

This paper is on the cultivation of critical thinking in undergraduate engineering education. The quality of our thinking determines the quality of what we design, produce, or build as engineers. As is the case for many professionals, graduates of engineering schools need strong critical thinking skills in a world of rapid change and greater complexity. Critical thinking is essential to get to the root of problems and to develop reasonable solutions. Engineers need to continually improve and learn throughout their professional lives. Our goal is to help undergraduate engineering students perceive the usefulness of critical thinking and grasp the principles of critical thinking. The anticipated educational benefits for engineering students are improved thinking skills and increased ability in identifying and comprehending a problem, determining the key parameters in a problem, making meaningful connections, and developing higher quality solutions. Assessment aspects of this project are also discussed.

Quotes

-According to Paul and Erder [6], "...critical thinkers are clear as to the purpose at hand and question at issue. They question information, conclusions, and points of view. They strive to be clear, accurate, precise, and relevant. They seek to think beneath the surface, to be logical, and fair...

-Critical thinking is that mode of thinking – about any subject, content or problem – in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them...

-A well-cultivated critical thinker raises vital questions and problems, formulating them clearly and precisely; gathers and assesses relevant information, comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards; thinks openmindedly, recognizing and assessing assumptions, implications, and practical consequences; and communicates effectively with others in figuring out solutions to complex problems... It entails effective problem-solving and communication abilities..."

Referenced From

Paul, Richard and Elder, Linda, The Miniature Guide to Critical Thinking Concepts and Tools, The Foundation for Critical Thinking.

Citation # III.19

Bekele, T.A. (2009). Cognitive skills in internet supported learning environments in higher education: research issues. *Scandinavian Journal of Educational Research.* (53.4). 397-419. [HTML+]

URL

http://www.tandfonline.com/doi/abs/10.1080/00313830903043182

Abstract

How did Internet supported learning environments (ISLE) impact students' critical thinking (CT) and problem solving (PS) skills in higher education? What specific indicators have been used to measure CT? What types of problems and learning approaches were chosen to assess PS skills? This paper qualitatively reviewed studies published in academic journals, books, professional databases, and reliable web sites between 1995 and 2006. The review indicated that students demonstrated CT and PS skills in different contexts. Most of the core cognitive and sub-cognitive CT skills identified by the Delphi study of the American Philosophical Association were found. All the studies delimited CT to a cognitive domain whereas half of them considered it as a PS process. To assess students' PS skills, problem-based learning with ill-structured problems was chosen. Quazi experimental and experimental studies dominated research. The theoretical and methodological issues in and for research on ISLE are discussed.

Quotes

-Two sources (Facione, 1990; Paul & Elder, 2008) were considered relevant for this paper for their comprehensive approach; wide-ranging impact in CT research, teaching, and assessment; and detailed treatment of the construct. Other models are appropriations of these.

-Paul and Elder (2008) defined CT as the application of intellectual standards (clarity, accuracy, relevance, logic, breadth, precision, significance, completeness, fairness, depth) to the elements of thought/reasoning (purposes, questions,viewpoints, information, inferences, concepts, implications, assumptions) for the purpose of developing intellectual traits (humility, autonomy, integrity, courage, perseverance, confidence in reason, empathy, and fairmindedness).

-According to the Delphi study, the elements of thought include questions, experiences, data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, procedures, criteria, events, or other forms of representation, which are almost the same as Paul and Elder's thought elements. The intellectual standards mentioned here are also congruent to the affective dimension of CT acknowledged by the Delphi project, where Paul himself participated. The difference, if there is any at all, seems to be related to the intellectual standards. In one way or another and to a certain degree, Paul and Elder's standards are found in the cognitive skills of CT of the Delphi study, particularly when they mention the approaches to specific problems (Facione, 1990, p. 13).

-Within these skills, they recognized cognitive sub-skills such as precision, clarity, logic, orderliness, perseverance, depth, accuracy, relevance, and breadth. These sub-skills also exist when a critical thinker explains, evaluates, analyses, infers from, interprets, and regulates her thoughts. The subskills correspond to Paul and Elder's (2008) intellectual standards. Generally, CT studies adapted the cognitive skills and intellectual standards developed by the Delphi panelists and Paul and Elder, respectively.

-Theoretically, it is possible to posses CT skills without the motivation to apply them and vice versa (Facione, 1990; Facione, Facione, & Giancarlo, 2000; Paul & Elder, 2008). A student might possess CT skills but might not have the sufficient interest, motivation and/ or experience to demonstrate them. Delphi's affective dispositions of CT, which are congruent with Paul and Elder's intellectual traits, were not reported.

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Paul, R.W., & Elder, L. (2008). The miniature guide to critical thinking: Concepts and tools. California, CA : The Foundation for Critical Thinking.

Paul, R.W., Elder, L., & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations. Sacramento, CA: California Commission on Teacher Credentialing.

Citation # III.20

Perez, H.E. & Kobayashi, K.D. (2004) Graduate student professional development: A case study. *Horttechnology*. 14.4).625-628. [PDF+]

URL

http://horttech.ashspublications.org/content/14/4/625.full.pdf

Abstract

Graduate students within the Tropical Plant and Soil Sciences Department at the University of Hawaii at Manoa developed a program that addressed their concerns regarding career enhancement and planned a Professional Development Seminar Series. Students identified topics related to enhancing their over-all graduate experience and professional development, such as ethics in research, leadership in graduate school and beyond, interviewing skills, and writing critically for publications. Experts from the University of Hawaii and business communities presented 35-40 minute seminars on the various topics. Expectations of the students included participation in discussion sessions and completion of a critical thinking exercise after each presentation. Course evaluations revealed that the new seminar series was considered to be as effective as established courses within the department.

Quotes

-Questions were adapted from Paul and Elder (2001) critical thinking elements and used as the critical thinking exercise template.

Referenced From

Paul, R.W., & Elder, L. (2008). The miniature guide to critical thinking: Concepts and tools. California, CA : The Foundation for Critical Thinking.

Citation # III.21

Mulnix, J.W. (2010, October 4). Thinking critically about critical thinking. *Wiley Online Library: Educational Philosophy and Theory*. (?). 1 -16. [PDF+]

URL

http://onlinelibrary.wiley.com/doi/10.1111/j.1469-5812.2010.00673.x/abstract?

Abstract

As a philosophy professor, one of my central goals is to teach students to think critically. However, one difficulty with determining whether critical thinking can be taught, or even measured, is that there is widespread disagreement over what critical thinking actually is. Here, I reflect on several conceptions of critical thinking, subjecting them to critical scrutiny. I also distinguish critical thinking from other forms of mental processes with which it is often conflated. Next, I present my own conception of critical thinking, wherein it fundamentally consists in acquiring, developing, and exercising the ability to grasp inferential connections holding between statements. Finally, given this account of critical thinking, and given recent studies in cognitive science, I suggest the most effective means for teaching students to think critically.

Quotes

-Definitions of Critical Thinking What is it to think critically? Michael Scriven and Richard Paul state: Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

-Critical thinking can be seen as having two components: 1) a set of information and belief generating and processing skills, and 2) the habit, based on intellectual commitment, of using those skills to guide behavior. It is thus to be
contrasted with: 1) the mere acquisition and retention of information alone, because it involves a particular way in which information is sought and treated; 2) the mere possession of skills, because it involves the continual use of them; and 3) the mere use of those skills (‘as an exercise’) without acceptance of their results. (Scriven and Paul, 2008a)

-Throughout their work on the theory of critical thinking, Richard Paul and Linda Elder also maintain that critical thinking encompasses elements of thought, universal intellectual standards and intellectual virtues. Elaborating, they claim that the relevant elements of thought are: Point of View, Purpose, Question at Issue, Information, Interpretation and Inference, Concepts, Assumptions, and Implications and Consequences, while the intellectual standards associated with critical thinking are: Clarity, Accuracy, Precision, Relevance, Depth, Breadth, Logic and Fairness. Finally, the intellectual virtues central to critical thinking are: Intellectual Humility, Intellectual Courage, Intellectual Empathy, Intellectual Autonomy, Intellectual Integrity, Intellectual Perseverance, Confidence in Reason, and Fair-mindedness (Paul & Elder, 2008):

-Critical Thinking is that mode of thinking—about any subject, content, or problem—in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem-solving abilities, as well as a commitment to overcome our native egocentricism and sociocentrism. (Scriven & Paul, 2008b)

-Critical thinking is self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way. People who think critically consistently attempt to live rationally, reasonably, empathetically. They are keenly aware of the inherently flawed nature of human thinking when left unchecked ... They use the intellectual tools that critical thinking offers— concepts and principles that enable them to analyze, assess, and improve thinking. They work diligently to develop the intellectual virtues of intellectual integrity, intellectual humility, intellectual civility, intellectual empathy, intellectual sense of justice and confidence in reason. (Elder, 2007)

Referenced From

Paul, R. & Elder, L. (2008) The Miniature Guide to Critical Thinking, 5th edn. (Dillon Beach, CA, Foundation for Critical Thinking Press).
Elder, L. (2007) Our Concept of Critical Thinking (Side Bar), Foundation for Critical Thinking. Available at: http://www.criticalthinking.org/aboutCT/ourConceptCT.cfm

Citation # III.22

Stott, A.E. (2008. December). *Promotion of critical thinking in school physical scienc*e. (Doctoral Dissertation). School of Science, Mathematics, and Technology Education Faculty of Education University of Kwa-Zulu, Natal. 1-310. [PDF+]

URL

http://146.230.128.141/jspui/bitstream/10413/259/1/stott_08_Promoting_Critical_Thinking_in_Physical_Science.pdf

Abstract

This dissertation describes an action research study aimed at promoting critical thinking in learners while learning physical science within the South African national curriculum. The data were primarily qualitative in nature, and were collected primarily through participant observation, composed of audio- and video- recorded lessons, interviews,
questionnaires, journal entries and written material. Data collection, analysis and interpretation were done in the inductive, cyclic manner of action research. This process was guided by research questions about task characteristics, their position in the teaching sequence, the role of the learning environment, and the need to adjust tasks to fit the
needs of different learners, so as to effectively promote critical thinking. A pragmatic approach was used. It was found that it is possible, using particular strategies and tasks, to promote critical thinking while meeting the curriculum outcomes, although the intense syllabus pressure of the curriculum makes this challenging. Task design characteristics and positioning in the teaching sequence, and conditions of the learning environment, were found to affect a task's effectiveness at promoting critical thinking. Various teaching strategies can improve attainability by a wider range of learners. An instructional model, The Ladder Approach, emerged as being most likely to promote success. This was found to be successful when evaluated against criteria of active engagement and interest by learners, attainability with effort, display of critical thinking traits, and compatibility with the South African curriculum. In this model, an interesting problem is posed at the start of a section, after which direct instruction and learner engagement with the problem run parallel to one another, linked by scaffolding tools which are engaged in individually and collaboratively.

Quotes

-Other authors' views on the characteristics of critical thinking were also used to inform a rich understanding of critical thinking. For example, the intellectual standards of relevance, consistency, accuracy, precision, fairness, logic, depth, breadth and significance (Paul, 1993), guided decisions about which criteria should be relied on in order for thinking to be considered critical.

-Similarly, the criterion of motivation with consideration of both merits and faults, was used for judgement to be considered critical (Paul & Elder, 2001).

-Procedures reduce complexity and so can become short-cut substitutes for independent thought Paul (1993).

- On the other hand, some degree of language command and complexity is surely necessary to support the complexity of critical thinking and for learners to explain scientific concepts in a their own words: a key aspect of a critical approach to scientific thinking according to Paul & Elder (2006c).

-On one hand, it seems reasonable that a process-based approach should contribute towards the promotion of critical thinking. This is because a process-based approach exemplifies the scientists' evaluation of empirical data in the light of
assumptions, to lead to inferences which answer questions within a point of view and which have implications. In other words, it exemplifies the elements of critical thought identified by Paul and Elder (2006a).

-The ability to operate qualitatively with concepts is crucial to critical thinking, and over-emphasis on procedures can
short-circuit critical thinking (Paul & Elder, 2006c).

-"the art of thinking about your thinking while you are thinking in order to make your thinking better: more clear,
more accurate, or more defensible" (Paul, 1995, p. 521).

-...the intellectual standards and criteria for critical judgement, given by Paul (1993). I used the latter to guide decisions about whether the criteria used during thinking should be considered to be critical or not. According to this, the criteria which were considered acceptable are borrowed from Paul's (1993) intellectual standards, namely relevance, consistency, accuracy, precision, fairness, logic, depth, breadth and significance. Similarly, judgement which were considered acceptable had to be objective and substantiated by reasons which consider both merits and faults (Paul & Elder, 2001).

-Paul (1993) seems to place a similar stress on the criteria and dispositions of critical thinking. He calls the criteria against which thinking which is critical assesses itself, intellectual standards, and lists these (Paul & Elder, 2006d). Additionally, he provides a list of what he terms affective dimensions or intellectual traits.

-I view the elements of thought and intellectual standards referred to by Paul and Elder (2006a) as particularly useful
in identifying critical thinking in action.

-Various authors stress the role of belief systems on learning and the learning experience on belief systems. Paul & Elder's reference to essential intellectual traits describe a belief system which encourages critical thought, and therefore effective learning (2006d). These traits are confidence in reason, fair-mindedness and intellectual humility, courage, empathy, autonomy, integrity and perseverance.

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Elder, L. (1997, March 19). Collaborative learning: Collaborative mislearning. Education Week.
Paul, R. (1995). Critical thinking: how to prepare students for a rapidly changing world. Dillon Beach, CA: Foundation for Critical Thinking.
Paul, R., & Elder, L. (2001). The miniature guide to how to study and learn. Dillon Beach, CA: Foundation For Critical Thinking.
Paul, R., & Elder, L. (2006a). The art of asking essential questions. Dillon Beach, CA: The Foundation for Critical Thinking.
Paul, R., & Elder, L. (2006b). The art of Socratic questioning. Dillon Beach, CA: TheFoundation for Critical Thinking.Paul, R., & Elder, L. (2006c). A miniature guide for students and faculty to scientific thinking. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # III.23

Snyder, L.U., et al. (2008). European Union's moratorium impact on food biotechnology: A discussion-based scenario. *Journal of Natural Resources & Life Sciences Education*. (37.?). 27-31. [PDF+]

URL

https://www.soils.org/publications/jnrlse/abstracts/37/1/27

Abstract

Genetically modified (GM) crops such as maize (Zea mays L.), cotton (Gossypium hirsutum L.), soybean [Glycine max (L.) Moench], and canola (Brassica rapa L.) have been widely adopted by American farmers. In spite of their use in the United States, the European Union (EU) imposed a 6-year de facto moratorium (1998–2004) on the cultivation/import of transgenic crops. Although the U.S. government has assured stakeholders of their safety, the EU continues to be an outspoken opponent. This can largely be attributed to a lack of trust in the regulatory process, and especially a cynical perspective on the underlying science and institutions that govern approval. Such disparities were illustrated in 2003 when the United States donated GM maize to aid African countries stricken by famine. Under purported EU threats of retaliatory trade sanctions, African officials refused the aid. An examination of this episode contrasts the potential discord between those affected and those who formulate government policy. Using resources from both sides of the debate, this scenario summarizes the pertinent issues regarding EU's refusal to the import transgenic crops. A group discussion and debate protocol was developed for facilitating small group and entire class consideration of the scenario while strengthening student critical thinking skills

Quotes

-(Retrieval Chart for a Teaching Scenario) The students are then instructed to follow the elements of thought (Table 2), and told to use the information presented in the introductory summary and selected testimonies, to develop and defend their position. The elements of thought are a systematic method for critically evaluating a problem. By following Table 2 a person can develop a logical conclusion or solution. More information on critical thinking can be found by visiting The Foundation for Critical Thinking on the internet at www.criticalthinking.org (Paul and Elder, 2006).

Referenced From

Paul, R., and L. Elder. 2006. The miniature guide to critical thinking concepts and tools. Available at www.criticalthinking.org (verified 12 Feb. 2008). Foundation for Critical Thinking, Dillon Beach, CA.

Citation # III.24

Andreu-Andes, M.A., Garcia-Casas, M. & Rising, B. (2009, December). Assessment of student participation and critical thinking in engineering students' teamwork. *WSEAS Transactions on Advances in Engineering Education*. (12.6). 464-477. [PDF+]

URL

http://www.wseas.us/e-library/transactions/education/2009/32-838.pdf

Abstract

Aware of the qualities besides knowledge which are most valued by engineering firms (the ability to make decisions, a capacity for teamwork, initiative, capacity for solving problems and efficient communication, among others), an experience based on Problem-based Learning (PBL) has been carried out in which students have had to decide on what they understand as critical thinking and participation in multi-task teamwork in order to self-assess their own participation and critical thinking and evaluate that of their team-mates. A quantitative analysis of the grades indicated that there were no significant differences except with regard to the students' preparation time. A qualitative analysis showed that the students experienced the process as one similar to that of facing their professional future.

Quotes

-A trained critical thinker is able to formulate questions and solve problems with clarity and precision; s/he gathers and evaluates information efficiently and proposes well-reasoned solutions; s/he has an open mind and the ability to communicate with others effectively [Paul/Elder].

Referenced From

Paul, R. and Elder, L. The Miniature Guide to Critical Thinking: Concepts and Tools. The Foundation for Critical Thinking, 2006.

Citation # III.25

Goldberg, L.R. & Coufal, K.L. (2009). Reflections on service-learning, critical thinking, and cultural competence. *The Clute Institute: Journal of College Teaching and Learning.* (6.6). [PDF+]

URL

http://journals.cluteonline.com/index.php/TLC/article/viewArticle/1133

Abstract

In today's increasingly multicultural society, students need to be prepared for the work world they will encounter. Well-developed critical thinking skills appear essential to needed cultural competence. With its focus on community involvement, deep reflection and civic engagement, the possibility that Service-Learning (SL) could improve students' critical thinking abilities, and thus contribute to students' intellectual development and cultural competence, was explored. The critical thinking abilities of a group of 4th and 5th year university students were measured before and after 12 weeks of community-based experiences. The 4th year students were involved in an integrated SL course. The 5th year students had completed the SL course the previous year. There was a significant difference between the two groups with the 5th year students better able to think critically, particularly in deducing conclusions and evaluating arguments. Both quantitative and qualitative data from the two groups revealed a non-linear developmental trajectory of skills that provide insights for professionals in higher education.

Quotes

-Critical thinking can be defined as the ability to broaden and deepen one's thinking through systematic intellectual self-assessment, internal reflection and collaborative validation (Eyler & Giles, 1999; Garrison, 1992; Gokhale, 1995; Hatcher & Bringle, 1997; Kolb, 1984; Paul & Elder, 2008).

-Thoughts and decisions are based on evidence or sound reasoning (Mezirow, 1990) rather than on "force, chance, or custom" (Langsdorf, 1988, p. 45) and facilitated through discussions in communities of learning (Garrison, 1992; Gokhale, 1995; Paul, Binker, Martin, Vetrano & Kreklau, 1995).

-Journal entries showed many students' movement from "unreflective thinker" to "practicing" or "advanced thinker" (Paul & Elder, 2008).

-The issue of perplexity highlights the need for supportive instructors who are skilled in facilitating deep reflective inquiry (Bringle & Hatcher, 1999; Eyler, 200; Felten et al., 2006; Kolb, 1984; Paul et al., 1995) rather than a surface approach to learning, as students develop their critical thinking skills.

-Unlike traditional methods of learning, SL employs a collaborative approach where the responsibility for learning is shared between students and instructors using democratic and scaffolded processes (Clayton & Ash, 2004). Within this collaboration, students need careful and respectful guidance as they gain insight into what they do, and do not know, and become increasingly able to self-monitor, correct, and expand their thinking (Carnegie Report, 2006; Clydesdale, 2009; Gokhale, 1995; Paul & Elder, 2008; van Gelder, 2005).

-Critical thinking can be defined as the ability to broaden and deepen one's thinking through systematic intellectual self-assessment, internal reflection and collaborative validation (Eyler & Giles, 1999; Garrison, 1992; Gokhale, 1995; Hatcher & Bringle, 1997; Kolb, 1984; Paul & Elder, 2008).

Referenced From

Paul, R. (1992). Critical thinking: What every person needs to survive in a rapidly changing world. Santa Rosa, CA: The Foundation for Critical Thinking.

39. Paul, R., Binker, A.J.A., Martin, D., Vetrano, C., & Kreklau, H. (1995). Critical thinking handbook. Santa Rosa, CA: The Foundation for Critical Thinking.

40. Paul, R., & Elder, L. (2008). The miniature guide to critical thinking: Concepts and tools. Santa Rosa, CA: The Foundation for Critical Thinking.

Citation # IV.1

Kennison, M.M. (2003). *The evaluation of critical thinking, reflective writing, and cognitive word use in baccalaureate nursing students.* (Master's Thesis). College of Human Resources and Education. Morgantown, West Virginia University. 1 -98. [PDF+]

URL

http://wvuscholar.wvu edu:8881//exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRpYS82NjE3.pdf

Abstract

This nonexperimental, descriptive, correlational study addressed the problem of consistency and fairness in evaluating student nurses' reflective writing for evidence of critical thinking. The purposes were twofold: To describe the relationships among teacher ratings, cognitive word use, and a standardized measure of critical thinking in baccalaureate
nursing students; and to describe the extent that teacher ratings and cognitive word use are predictive of a standardized measure of critical thinking. A teacher designed tool, the Critical Thinking Scale (CTS), was used by five faculty members to independently evaluate graduates' reflective writings for evidence of critical thinking. The California Critical
Thinking Skills Test (CCTST) was the standardized measure of critical thinking. The Linguistic Inquiry and Word Count (LIWC), a software processing program, was used to analyze the same reflective writings that the teachers rated. Archival data in the form of reflective writings and CCTST exit scores were obtained from a total of 57 nursing graduates of the 1999, 2000, 2001, and 2002 classes of a small liberal arts college located in the northeast. The reflective writings pertained to significant experiences that the graduates encountered during their last practice course of the program. Pearson correlations between the five teacher raters indicated a statistically significant range between r = .267 and .628 ($p < .05$). Additional correlations indicated a positive relationship ($r = .233$, $p < 0.05$) between the total CCTST critical thinking score and the mean teacher rating. The six LIWC cognitive mechanisms subscores were significantly ($R2 = .222$, $p < 0.05$) related to the total CCTST critical thinking score. Future research is indicated to develop and test teacher accessible tools to evaluate the reflective writing of student and practicing nurses.

Quotes

(Many Quotes)

-The description of critical thinking is derived from the combined works of Facione (1990), Paul (1993), and Scheffer and Rubenfeld (2000). Critical thinking is "thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, or more defensible" (Paul, 1993, p. 462). "Thinking about your thinking" is reflection. The critical thinker engages in "disciplined, self-directed thinking..." (p. 137), an "intellectual training for the mind" (Paul, 1993, p. 21).

-The critical thinker is guided by these standards to gauge the effectiveness of thought. The intellectual standards of relevance, depth, breadth, accuracy, precision, and clarity are akin to criteria for sound reasoning. For instance, when evaluating a student's critical thinking related to a case study analysis one would evaluate its completeness, the accuracy of theory application, the attention to subtle cues, and the relevance of nursing interventions. The critical thinker remains mindful of these standards as the ultimate criteria to judge the effectiveness of thought (Paul, 1993).

-One queries the interpretation of information, assumptions, and conclusions. In contemplating the conclusion, one becomes aware of the consequences of action. By making a conscious effort to command the elements of thought, one develops critical thinking (Paul, 1993).

-To think without action does not constitute critical thinking (Paul, 1993).

-Experts (Freire, 1970; Paul, 1993) promulgate the notion of critical thinking as having emancipatory potential and fostering empowerment.

-Paul (1993) further purports that critical thinking implies a fundamental goal of all education, similar to Dewey's (1933) earlier assertion that learning to think is the primary purpose of education.

- It is that "mode of thinking – about any subject, content, or problem – in which the thinker … skillfully takes charge of the structures inherent in thinking and imposing intellectual standards upon them" (Paul & Elder, 1999). Regardless of the discipline, critical thinking has broad ranging applicability.

-"The most significant transfer [of learning] is achieved by in-depth learning which focuses on experiences meaningful to the student" (Paul, 1990, 491).

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Referenced From

Paul, R. W. (1993). Critical thinking: What every person needs to survive in a rapidly changing world. (3rd Ed.). Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R. W. (1990). Critical and reflective thinking: A philosophical perspective. In B. F. Jones & L. Idol (Eds.Dimensions of Thinking and Cognitive Instruction. Hillsdale, NJ: Lawrence Erlbaum Associates.

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Citation # IV.2

Ulmer, J.D. (2005, July). *An assessment of the cognitive behavior exhibited by secondary agriculture teachers.* (Doctoral Dissertation). Graduate School University of Missouri, Columbia, MO. 1-179. [PDF+]

URL

https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/4125/research.pdf?sequence=3

Abstract

Federal initiatives, state legislation, and educational leaders have encourage ededucators to teach higher-order thinking skills. Teacher behaviors have been identified as variables of influence for higher-order thinking. The purpose of this study was to investigate the level of cognitive behavior exhibited by secondary agriculture teachers,how they compare to science teachers, and what characteristics are indicators of specific cognitive behaviors. The sample consisted of agriculture teachers in Central Missouri. Biology teachers from each school were utilized as a comparison group. For this descriptive-correlational study, the Florida Taxonomy of Cognitive Behaviors was used. Additionally, an attitudinal questionnaire was used to collect the teachers' attitude toward teaching at higher cognitive levels. Agriculture teachers had a slightly favorable attitude toward teaching at higher cognitive levels. Eighty-two percent of agriculture teachers' observed class time was spent on lower-order behavior. Science teachers were found to have similar results. No differences were found between agriculture and science teachers' cognitive behaviors. Measures should be taken at both the in-service and pre-service level to inform teachers of the importance of cognitive behavior and techniques for exhibiting cognitive behavior. Teacher, school, and class characteristics did not predict cognitive behavior with the current data.

Quotes

-According to Paul and Elder (2004b), unrefined thinking leads to bias and prejudice.

-Many educational philosophers would argue that to make informed decisions a person must be able to synthesize information and evaluate options (Paul & Elder, 2004b.

-Paul and Elder (2004b) state that the quality of life depends on a person's higher order thinking abilities. They added that it is natural for people to think, but also naturally occurring are biases, distorted thinking, partial and uniformed thinking, and prejudice.

-Elder (2004) concluded that our educational system should be guided by robust higher-order thinking opportunities.

-Only through thinking can your change whatever it is about you life that needs changing. Only through thinking can you take command of you future" (Elder & Paul, 2004, p. 6). Paul and Elder (2004a) stated that "instructors must design activities and assignments that require students to think actively within the concepts and principles of the subject (Introduction section).

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Referenced From

Elder, L (2004). A professional development model for K-12 schools: Critical thinking as the key to substantive learning. The Foundation for Critical Thinking. Retrieved December 20, 2004, from http://www.criticalthinking.org/professionalDev/modelfor-k-12.shtml

Elder, L. & Paul, R. (2004). The miniature guide to the art of strategic thinking (1st ed.). Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R. & Elder, L. (2004a). The miniature guide for those who teach on how to improve student learning (2nd ed.). Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R. & Elder, L. (2004b). The miniature guide to critical thinking: concepts & tools (4th ed.). Dillon Beach, CA: Foundation for Critical

Citation # IV.3

Dearing, K. S. and Steadman, S. (2009), Enhancing intellectual empathy: The lived experience of voice simulation. *Perspectives in Psychiatric Care. (*45.3) 173–182. [PDF+]

URL

onlinelibrary.wiley.com/doi/10.1111/j.1744-6163.2009.00219.x/abstract;jsessionid=AA96FF072C1D247DDF254384B94B8DAE.d04t03?

Abstract

PURPOSE. This study aimed to understand the lived experience of voice simulation with the novice nurse and to describe the impact on the nurse's empathy and desire to develop a therapeutic relationship.

DESIGN AND METHODS. Twenty-eight women and men participated in a detailed narrative investigation of reflective writing of the lived experience of hearing voices through a voice simulation experience.

FINDINGS. A sense of insight was developed, and participants felt they could empathize with this type of suffering. The ability to change attitudes to focus on the development of therapeutic relationships was enhanced.

PRACTICE IMPLICATION. Voice simulation assists the novice nurse in developing intellectual empathy.

Quotes

-.Audio simulation adds to the quality and depth of the clinical experience regarding nursing care of individuals with mental illness by helping advanced practice or generalist nurses recognize their feelings and change their attitudes toward these clients. This improves the nurse’s ability to be empathic, which ultimately improves client care (Bastable, 2008; Paul & Elder, 2005; Scriven & Paul, 2007).

Referenced From

Paul, R., & Elder, L. (2005). The miniature guide to critical thinking concepts & tools (4th ed.). Dillon Beach, CA: Foundations for Critical Thinking.

Citation # IV.4

Groeters, T. (2006, March). *German general staff officer education and current challenges. (*Paper). School of Advanced Military Studies United States Army Command and General Staff College, Fort Leavenworth, Kansas. 1-70.
[PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA450998%26Location=U2%26doc=GetTRDoc.pdf

Abstract

"German General Staff Officer Education and Current Challenges" examines the institutional education of German General Staff Officers, as experienced by the author, and offers a "Conceptual Competency-Skill-Framework" for professional development. Five competencies (Physical, Intrinsic Motivation, Intrapersonal, Interpersonal, and Cognitive Competency) and five skills (Deduction, Synthesis, Analysis, Induction, and Revaluation Skill) define this model through a process of theory and praxis. A case study of an operational planner for the first German Provincial Reconstruction Team (PRT) in Afghanistan (2003) describes the experiences of the author and identifies competencies and skills that required improvisation, rather than reliance on a model of previous institutional, operational, and personal preparation. This monograph commends the balanced holistic approach of the German General Staff Officer course at the Fuehrungsakademie der Bundeswehr (German General Staff Officer Academy), and recommends several educational venues to improve the specific competencies and skills in an institutional setting. The trinity of premier institutional education, operational experience and practical insight, and a dedicated life-long program for professional self-development, invigorates the military leader for emergent roles in national, regional, and global mission responsibilities. The ultimate value of a conceptual competency-skill framework is the personal assessment, evaluation, and integration for professional learning and performance that results in how to think, act, and lead.

Quotes

None found

Referenced From

Paul, Richard and Linda Elder, The Miniature Guide to Critical Thinking: Concepts & Tools, Dillon Beach, CA: The Foundation for Critical thinking, 2003.

Citation # IV.5

Claris, L.M & Riley, D.M. (2008). Learning to think critically in and about engineering: A liberative perspective. *Research in Engineering Education*. 1-5. [Word Doc+]

URL

?? (Google Scholar-http://scholar.google.com/scholar?q=related:owwN5VDovmsJ:scholar.google.com/&hl=en&as_sdt=5,48&sciodt=0,48)

Abstract

Since the adoption of the ABET 2000 criteria, there has been an increased focus on the development of critical thinking skills within the engineering curriculum. Perhaps because of this ABET impetus, engineering education research on critical thinking occurs mostly in a focused context, directed toward critical thinking within one of several ABET learning outcomes: problem-solving (Mani, Omidvar, & Knott, 2003; Lombardo, 2004; Papadopoulos, Rahman & Bostwick, 2004), conducting experiments (Miller & Olds, 1994; Bruno & Anderson, 2005), ethical decision-making (Wolverton & Wolverton, 2003; Swalie & Kreppel, 2001), open-ended design (Lunt & Helps, 2001; Gurmen, Lucas, Malmgren, & Folger, 2003), or assessing the social impacts of technology (Nelson, 2001). Critical thinking is applied within elements of engineering but not about the whole of engineering.

*Could not access journal.)

Quotes

-Paul and Elder (2003) offer a definition of critical thinking representative of what we could characterize as “conventional wisdom” about critical thinking as a self-directed learning spiral in which intellectual standards are applied to the thinking process with the goal of improving the quality of thought.

-Paul and Elder present include clarity, logic, accuracy, precision, breadth, depth, relevance, significance, completeness, and fairness. They apply these standards in different contexts to a variety of elements of thought including the purpose of an argument, questions posed, points of view presented, information used, inferences made, concepts employed, implications drawn, and assumptions made.

-Finally, Paul and Elder define a set of intellectual traits, or virtues, that are characteristic of critical thinking, which capture what most of us think of when we hear the term “critical thinking.”

-It is interesting to note that the Foundation for Critical Thinking has released a disciplinary version of this critical thinking primer called Engineering Reasoning (Paul, Niewoehner, & Elder, 2006), which presents these same elements of thought as central to good engineering.

Referenced From

Paul, R. and Elder, L. (2003). Critical Thinking Concepts and Tools. Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R., Niewoehner, R., and Elder, L. (2006). The Thinker’s Guide to Engineering Reasoning. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # IV.6

Hollow, D. (2010). *Evaluating ICT for education in Africa. (Doctoral Dissertation).* Department of Geography: University of London, London, U.K. 1-519. [PDF+]

URL

http://pure.rhul.ac.uk/portal/files/1773319/DavidHollowThesisFinalCopy.pdf

Abstract

This thesis is situated at the intersection between the three themes of education in Africa, impact assessment, and Information and Communication Technologies (ICTs). Specifically, it seeks to develop a critique of current practices regarding monitoring and evaluation of ICT for education within Africa, and explores plausible alternatives to such practices that would make the benefits of education and technology more available and structured towards the poor and marginalised. Two participatory case studies of ICT for education programmes in Malawi and Ethiopia were used as the main empirical focus for the research. These involved working in partnership with implementing organisations, whilst simultaneously abstracting myself so as to evaluate the evaluation process and assess the underlying reasons for what was occurring. These case studies were supplemented by three international participatory workshops and a pan-Africa survey of ICT for education practitioners. The findings from the empirical work are examined within four analytical contexts. The first of these analyses the different methodological approaches employed in the case studies and considers the limitations and opportunities encountered. The second focuses on the role of partnerships within ICT for education programmes, especially in regard to their impact in defining the nature of monitoring and evaluation processes. The third investigates the marginalising of pedagogy within many ICT for education programmes, especially in regard to educational outcomes. The fourth explores the significance of aspiration within technology related development initiatives, focussing on consequences for effective impact assessment. The applied nature of the research emphasises the need for both critical rigour and innovative alternatives in assessing ICT for education in Africa. This thesis concludes by demonstrating the ways in which monitoring, evaluation and impact assessment can be positively reframed in the light of
the research findings to emphasise process, participation, capacity enhancement, and the centrality of education.

Quotes

-Many Quotes

-However, despite the improvement and the efforts of the monitoring and evaluation teams in both locations to follow conventional good-practice guides and ensure consistency (Valentine 1999), the responses from the group interviews with children remained varied. The primary reason for this was the limited ability of the children to engage with critical „why-based‟ questions (Paul and Elder 2007a).

-Constructivism, especially within the context of ICT for education in Africa, should therefore be considered as the latest iteration of a frequently recurring educational fad, defined by Paul and Elder (2007a p.4) as „a short-lived emphasis on a seemingly wonderful new idea that will transform teaching and learning without much effort on anyone‟s part‟.

-Whilst maintaining a less explicit transformative agenda, critical thinking (Paul and Elder 2007) is linked to critical pedagogy in that it aims to inculcate the same form of consciousness and critical processing within students. This encapsulates what is perhaps the most significant negative consequence of a rote-based orthodoxy in African education and a wider cultural resistance to enquiry from children.

-This has added pertinence when considering the introduction of ICT in education in Africa, where it is less likely that children will have had prior exposure to utilising digital technology than in the developed world. Indeed, it is within this context of „accelerating change, intensifying complexity, escalating interdependence, and increasing danger‟ that critical thinking becomes increasingly significant (Paul and Elder 2007 p.10).

-303

-Critical thinking constitutes a significant tool in serving both the interests of individuals and those of society at large, giving „the freest play to reason, by encouraging people to come to their own conclusions by developing their own rational faculties‟ and creating a context within which people can learn to think for themselves (Paul and Elder 2005 p.14).

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Referenced From

Paul, L. and Elder, R. 2007. Critical thinking competency standards. The foundation for critical thinking.
Paul, L, and Elder, R. 2007a. A critical thinker‟s guide to educational fads. The foundation for critical thinking.
Paul, R. and Elder, L. 2005. The miniature guide to critical thinking, concepts and tools. The foundation for critical thinking.

Citation # IV.7

Durham,D.R. (2007). *Problem solving styles and methods of Florida agricultural industry leaders. (*Masters Thesis). Graduate school of the University of Florida, Gainsville, FL. . 1-70. [PDF+]

URL

http://ufdcimages.uflib.ufl.edu/UF/E0/01/61/40/00001/durham_d.pdf

Abstract

The purpose of this study was to identify and describe the problem solving styles and practices of leaders in the Florida agricultural industry. Sixteen leaders representing nine major commodity groups participated in qualitative interviews and completed a problem solving style assessment in order to identify and compare leaders' problem solving styles and methods. This study found that the participating leaders most often face personnel, staff and management problems. These leaders often sought to work with others when solving problems, and the problem solving practices utilized by the leaders was determined by the nature of the problem and situation. Adaptive and innovative leaders were found in Florida's agricultural industry, with 56% of the participants being innovators and 44% being adaptors. All leaders were found to utilize both problem solving practices and not predicted for their style.

Quotes

-Many problem solving models and processes exist. According to Paul and Elder (2003), problem solving begins with determining the goal and/or purpose.

-Critical and creative thinking are both achievements of cognition. The two are inseparable elements of thought and are considered to be the result of high quality thinking (Paul & Elder, 2004).

-Paul and Elder (2002) present another definition of critical thinking: "the disciplined art of ensuring that you use the best thinking you are capable of in any set of circumstances" (7). Criticality implies a process of assessing or judging (Paul & Elder, 2004). A good critical thinker asks the right questions, assesses the right information, produces good conclusions and solutions, is able to think with an open mind, and can communicate effectively (Paul & Elder, 2003).

-According to Paul and Elder (2004), creativity is the mastering of a process of making or producing. Paul and Elder (2002) write that the very definition of creative implies a critical component. While creative thinking is related to critical thinking, they are not the same thing.

Referenced From

Paul, R. & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River: Prentice Hall.

Paul, R., & Elder, L. (2003). The miniature guide to critical thinking concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2004). The thinker's guide to the nature and functions of critical and creative thinking. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # IV.8

McGinty, R.L. (2011). The folly of teaching "A' while hoping for 'B'. *Journal of Business Case Studies*. (3.4). [PDF+]

URL

http://scholar.google.com/scholar?start=80&hl=en&as_sdt=5,48&sciodt=0,48&cites=3632478920216070946&scipsc=

Abstract

Introduction: The focus of this segment of my research case is to summarize a review of the non-business content of the business curriculum at a second tier university‟s College of Business to determine if graduating business students are learning all they need to know to be competitive in the job market while making a contribution to society. Reflective thinking and clarity and grace of expression, both oral and written, using a wide variety of media, are included in this portion of the case as are values clarification and ethics. A descriptive summary from examining all syllabi for fall, winter, and spring quarters of a Department of Management containing finance, human resources, management, marketing, & operations/production courses was undertaken to determine whether faculty stress in their syllabi the importance of critical thinking and clarity in communications, both written and oral. These elements of the syllabi are referred to as the non-business content of business content courses. In short, what did the learning objectives, reading assignments, homework, and grade weights imply about the priorities of the professor in charge of a given course?

Quotes

-The general skills of critical thinking can lend themselves to all subjects. “What is needed is critical thinking, thinking as a process within which a person‟s ability to understand is greatly enhanced” (Paul & Elder, 2001).

Referenced From

Paul, Richard & Linda Elder, Critical Thinking Concepts & Tools, The Foundation for Critical Thinking, 2001.

Citation # IV.9

Iwaoka, W.T., Li, Y., and Rhee, W. Y. (2010). Research in food science education: Measuring gains in critical thinking in food science and human nutrition courses: The Cornell critical thinking test, problem-based learning activities, and student journal entries. *Journal of Food Science Education*. (9) 68–75. [PDF+]

URL

http://onlinelibrary.wiley.com/doi/10.1111/j.1541-4329.2010.00100.x/full

Abstract

The Cornell Critical Thinking Test (CCTT) is one of the many multiple-choice tests with validated questions that have been reported to measure general critical thinking (CT) ability. One of the IFT Education Standards for undergraduate degrees in Food Science is the emphasis on the development of critical thinking. While this skill is easy to list as a student-learning objective, measuring gains in CT is relatively difficult. If the majority of the class time is spent discussing and solving ill-defined problems, then will students become actively and meaningfully involved in their own learning and will there be any gains in CT skills? To measure gains using this format, the CCTT was administered as a pre- and posttest to Food Science and Human Nutrition students in an Experimental Foods class taught every fall over an 8 y period (2001–2008). Statistical analysis indicated that in 2 of the years (2002 and 2004), there were significant gains (P values 0.036 and 0.045, respectively) in CT scores. Furthermore, in both years, there were significant gains in the same 2 aspects of CT (deduction and assumption) and not in the other aspects. However, we suggest that completing several take-home exams with many open-ended questions, writing detailed laboratory reports, and documenting unsolicited student reflections in journal entries that comment on apparent gains in CT skills may be a better indication of actual gains in CT skills compared to the actual CCTT test scores.

Quotes

-A search for the definition of critical thinking (CT) in GoogleTM turns up many definitions, from relatively short ones (shows or requires careful analysis before judgment) to ones several lines long (that is, www.criticalthinking.org, www.criticalthinking.com, and so on). The Foundation for Critical Thinking uses the following longer definition: “Critical thinking is that mode of thinking— about any subject, content, or problem—in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual
standards upon them” (Paul and Elder 2001).

- “Critical thinking is an on-going process of seeking and analyzing an array of information to create a better understanding and more effective problem-solving and decisions making for complex issues” (Paul 1995)

Referenced From

Paul R, Elder L. 2001. The miniature guide to critical thinking: concepts and tools. Dillon Beach , Calif. : The Foundation for Critical Thinking.

Paul R, Elder L. 2007. White Paper. Consequential validity: using assessment to drive instruction. Foundation for Critical Thinking . Available from: http://www.criticalthinking.org .

Citation # IV.10

Oliveras, B., Marquez, C. & Sanmarti, N. (2011, July). The use of newspaper articles as a tool to develop critical thinking in science classes. *International Journal of Science Education. (?). 1-21. [PDF+]*

URL

http://www.tandfonline.com/doi/abs/10.1080/09500693.2011.586736

Abstract

The aim of this research is to identify the difficulties experienced by secondary school students (aged 15–16) with the critical reading of newspaper articles with scientific content. Two newspaper critical reading activities in relation to the study of various scientific contents were designed and carried out in two schools (61 students in total), one with a student population from a medium to high social and economic bracket and the other with students from a medium to low social and economic bracket. These activities were designed taking into account the phases of the reading process: before, during and after reading. In order to analyse the difficulties 'Elements of science critical reading' were identified on the basis of the 'Elements of reasoning' of Paul and Elder and the categories proposed by Bartz C.R.I.T.I.C. questionnaire and a scale was drawn up. The results show that the activities designed were useful in helping students to read critically. We also rated very positively the instrument created to assess the students' answers: the scale based on the performance indicators of Paul and Elder. This instrument enabled us to detect the aspects of critical thinking where students have the most difficulties: identifying the writer's purpose and looking for evidence in a text. It was also shown that the stance taken in the articles also had an influence on the results.

Quotes

- The scale based on the performance indicators of Paul and Elder (2005) (Table 2) was very useful for detecting where students' difficulties with critical reading lie. If we want to help students to be critical we have to think of the difficulties they may have and use them as a basis to work on.
-The ability to analyse texts and the data and arguments they provide critically and to justify one's own point of view requires the development of critical thinking, an area in which research is being carried out from various perspectives (Ennis, 1996; Paul & Elder, 2006).
-In this research, we have focused on assessing critical thinking abilities based on the proposal by Paul and Elder (2006). These authors refer to thinking abilities as 'Elements of reasoning' (Table 1).
-The eighth element of reasoning of Paul and Elder (implications and consequences) was not included in this research study as an 'Element of science critical reading', given the characteristics of the articles and the fact that the purpose of the classroom work was geared towards a critical analysis of the scientifically based arguments used in the texts rather than proposing discussions and consequences. However, we consider that the eighth element of reasoning of Paul and Elder to be essential. Discussing with students the 'implications and consequences' for them, their families, their friends and their communities of science issues reported in the news is a very important aspect of a science education that aims to promote 'scientific literacy'.
-In this study, we put forward a proposal for working critically with newspaper articles but we think that without a belief in the importance of class discussion Ma´rquez & Prat, 2005; Paul, 1992; Ten Dam & Volman, 2004) on the interpretation of facts with a scientific basis it is difficult for students to develop critical thinking.
-

Referenced From

Paul, R. (1992). Critical thinking: What every person needs to survive in a rapidly changing world (2nd revised ed.). Santa Rosa, CA: Foundation for Critical Thinking.
Paul, R., & Elder, L. (2005). A guide for educators to critical thinking competency standards. Foundation for critical thinking. Retrieved May 20, 2010 from http://www.criticalthinking.org/TGS_files/SAM-CT_competencies_2005.pdf.
Paul, R., & Elder, L. (2006). The miniature guide to critical thinking concepts and tools. Foundation for

Citation # IV.11

Sierra, M.S. (2010). A guided reading of images: A strategy to develop critical thinking and communicative skills. *Columbian Applied Linguistics Journal*. (12.2) 72-86. [HTML+]

URL

http://revistas.udistrital.edu.co/ojs/index.php/calj/article/view/84/124

Abstract

This article describes the effects of a strategy aimed at helping students develop critical thinking and communicative skills by means of a program for guided reading of images using the questioning technique in an EFL context. Many teachers are not prepared for the education of critical thinkers as part of their curricular work. This is a qualitative descriptive research study carried out with third graders from a public school in Bogotá, Colombia in which field notes, artifacts, and questionnaires were used as data collection instruments. The study showed that the program activated children's mental processes to allow them to move from basic to higher levels of critical thinking while communicating their thoughts in Spanish as well as using vocabulary in English. This strategy could be used by teachers of different disciplines.

Quotes

-Paul and Elder (2005) consider critical thinking "as a process by which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them" (p. 1). This consideration is accurate in the sense that, by nature, children have great potential in their thinking, and what they need is a strategy that empowers their thinking to help them categorize information to understand and produce more elaborate ideas.

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Referenced From

Paul, R. (1993). Critical thinking: What Every Person Needs to Survive in a Rapidly Changing World. (3rd ed.), Rohnert Park, California: Sonoma State University Press.

Paul, R. & Elder, L. (2005).The Miniature Guide to Critical Thinking Concepts and Tools. Dillon Beach CA; Foundation for Critical Thinking.

Citation # IV.12

Brown, A.H. et al. (October, 2012). *Intentionally independent thinkers.* (Conference Paper). International Society for Exploring Teaching and Learning, San Antonio, TX. *[MS Word+]*

URL

http://www.isetl.org/conference/presentation.cfm?pid=1377

Abstract

How do you cultivate independent thinkers in your classroom? How do you make thinking visible for your students? How do you teach your students to think intentionally? We, a cross-disciplinary group of college professors, will present a rationale for why making thinking visible is important, and we will share habits of mind that are important for college students and intentional teachers (intentionally teaching thinking). We will share classroom strategies that make thinking visible—both student's and teacher's. And we will involve the audience in considering applications of those and other strategies with the aim of improving students' independent thinking.

Quotes

-If we are to intentionally grow independent thinkers, creating awareness of thinking is essential; this includes students' own thinking and expert thinking, with the habits of mind as the tools of thinking. For example, modeling expert thinking processes and the conditions under which they are used helps to improve student learning (Beyer, 2001; Bransford, Brown, & Cocking, 2000; Palincsar & Brown, 1984; Paul & Elder, 2007).

Referenced From

Paul, R., & Elder, L. (2006). Critical thinking: Learn the tools the best thinkers use. Upper Saddle River, NJ: Pearson Prentice Hall.

Paul, R., & Elder, L. (2007). A miniature guide for those who teach on how to improve student learning: 30 practical ideas. Tomales, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2008). The thinker's guide for conscientious citizens on how to detect media bias & propaganda. Tomales, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2009). The miniature guide to critical thinking concepts and tools. Tomales, CA: Foundation for Critical Thinking.

Citation # IV.13

Claravall, L.M. (2007. December). Evaluating air force expeditionary nursing: are we prepared? (Report). Air War College,325 Chennault Circle,Maxwell AFB,AL,36112. 1-45. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA489248

Abstract

Introduction: A number of nurses from Wilford Hall Medical Center (WHMC) are being deployed on a cyclical rotation to the Air Force (AF) Theater Hospital at Balad Air Base, Iraq, to care for casualties in the intermediate care ward. To prepare these nurses, they are sent to various training sessions prior to the deployment. However, according to three Chief Nurses and a Flight Commander who have served in Balad's AF Theater Hospital, the observation is that some
nurses are better prepared than others. Perhaps training is the issue. If so, is there a right mix and right amount? Is WHMC's training suitable for nurses being deployed to the intermediate care ward at Balad's AF Theater Hospital?
The deployment preparation of these intermediate care nurses is the target of this evaluation. Thus, the aim of this research paper is to establish a common set of ideal training requirements to prepare deploying nurses for the treatment of casualties at an intermediate care facility by assessing 1) what WHMC is doing now to train their nurses, 2) reviewing the literature to discern what other military facilities are doing, and 3) identifying whether WHMC has a training gap. The result of this analysis is the need for more training in "non-traditional" topics such as culture, language, ethics and critical thinking, with recommendations to fill the void.

Quotes

-RECOMENDATIONS

Based on the review of the literature and analysis of the data, the following are my recommendations about how to improve WHMC's deployment training program for nurses: 1) Begin using the READI tool to assess nurses' readiness deployment at WHMC. 2) Expose nurses to even more multi-trauma experience than WHMC is already offering. 3) Get nurses re-acquainted with the steps of the basic nursing process. 4) Encourage and develop the use of critical thinking skills. I recommend nurses: read Paul and Elder's pocket-sized edition of Critical Thinking skills so they can apply questioning techniques to expand the way they think; keep a copy handy for easy reference; apply critical thinking concepts during pre-deployment training scenarios; and continue to develop critical thinking skills for everyday practice in the deployed setting where success would be evidenced by nurses exercising greater autonomy in decision making and more efficient problem-solving that ultimately expedites the delivery of care.

Referenced From

Paul, Richard and Linda Elder. The Miniature Guide to Critical Thinking. Dillon Beach, CA: The Foundation for Critical Thinking, 2006.

Citation # IV.14

Nyrose, E. (2009). Pursuing wisdom: An investigation of the relationship between some ancient religious concepts of wisdom and current notions of critical thinking within information literacy. *Journal of Religious & Theological Information.* (8.3-4 *). 128-144.*

URL

http://www.tandfonline.com/doi/abs/10.1080/10477840903523605

Abstract

In a recent research project, I asked first year college students if they felt they used wisdom when doing research on the Internet. Coming from faith-based contexts, they did not consider the question an unusual one. However, in my discussions of information literacy at the library school, the concept of wisdom was not as common. Following the work of Maxwell and Targowski, this article will investigate connections between current discussion on critical thinking and some ancient ideals of wisdom from the Book of Proverbs and the Analects of Confucius with the hope that such insight will inform and improve our perspective and practice of information literacy.

Quotes

-Something That Grows in a Person--There are stages of critical thinking from the very unreflective person,
through practicing, toward being a master thinker (Paul and Elder 22).
-Active and Disciplined-Along with this desire to improve comes the idea that critical thinking is active and disciplined (Scriven and Paul).
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Referenced From

Paul, Richard, and Linda Elder. The Miniature Guide to Critical Thinking, 4th ed. Dillon Beach: Foundation for Critical Thinking, 2006.
Paul, Richard, Linda Elder, and Ted Bartell. “A Brief History of the Idea of Critical Thinking.” The Critical Thinking Community, March 1997. Web. 31 January 2008 <http://www.criticalthinking.org/ aboutCT/briefHistoryCT.cfm>.

Citation # IV.15

Jensen, R.S. (2011, May). The effect of curricular sequencing of human patient simulation learning experience on students' self-perceptions of clinical reasoning abilities. (Doctoral Dissertation). School of Nursing, Indiana University, Indianapolis, IN. 1-189. [PDF+]

URL

https://scholarworks.iupui.edu/handle/1805/2715

Abstract

It is unknown whether timing of human patient simulation (HPS) in a semester, demographic (age, gender, and ethnicity), and situational (type of program and previous baccalaureate degree and experience in healthcare) variables affects students' perceptions of their clinical reasoning abilities. Nursing students were divided into two groups, mid and end of semester HPS experiences. Students' perceptions of clinical reasoning abilities were measured at Baseline (beginning of semester) and Time 2 (end of semester), along with demographic and situational variables. Dependent variable was Difference scores where Baseline scores were subtracted from Time 2 scores to reveal changes in students' perceptions of clinical reasoning. Students who were older and had previous healthcare experience had higher scores, as well as students in the AS program, indicating larger changes in students' perceptions of clinical reasoning abilities from Baseline to Time 2. Timing of HPS, mid or end of semester, had no effect on Difference scores, and thus students' perceptions of clinical reasoning abilities.

Quotes

-Critical thinking is that mode of thinking-about any subject, content, or problem-in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them (p. 15). Paul & Elder (2002).

-The art of thinking in such a way as to: 1) identify its strengths and weaknesses, and 2) recast it in improved form (where necessary) (p. 20) Paul & Elder (2008).

- The art of analyzing and evaluating thinking with a view to improving it (p. 2) Paul & Elder (2009).

-Some critical thinking definitions (Paul & Elder; Rapps et al., 2001) are similar to those provided for metacognition, which is commonly described as thinking about one‘s thinking.

-

Referenced From

Paul, R., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Prentice Hall.

Paul, R., & Elder, L. (2008). The nature and function of critical and creative thinking. Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2009). The miniature guide to critical thinking concepts and tools. Dillon Beach, CA: Foundations for Critical Thinking Press.

Citation # IV.16

Mehdian, N. (2009, March). Teacher's role in the reading apprenticeship framework: Aid by the side or sage on the stage. *English Language Teaching.* (2.1.) 1-12. [PDF+]

URL

http://ccsenet.org/journal/index.php/elt/article/view/328

Abstract

Despite decades of efforts, alarming statistics about the literacy crisis from secondary school teachers indicate that the reading abilities of the learners are inadequate for the materials to be taught and teachers wonder if adolescents are literate enough, language-wise, to leave school and enter colleges or universities. The common mode of teaching allows students a passive role in class which leads to their being disengaged from literacy. How we teach literacy is of great importance if students are to become empowered as lifelong readers. As individuals differ in their reading abilities, teachers must move beyond testing for comprehension if students are to embrace a new way of being literate. Although research has taught us much about what is needed to read, it has provided much less knowledge about effective means of helping students learn to read. This study hoped to design a literacy program to respond to this need through a Reading Apprenticeship Framework as a partnership of expertise, drawing on what the teacher knows and does as a reader and on pre- university students' often underestimated strengths as learners using exploratory mixed method design.

Quotes

-According to Paul (2001) the common mode of teaching allows students a passive role in class which leads to the crisis of schools today, being disengaged from literacy.

Referenced From

Paul, R. & Elder, L. (2000). The Miniature Guide to Critical Thinking. Concepts & Tools. The Foundation for Critical Thinking.

Citation # IV.17

Gideons, C.D. (2011. June). *21st century small unit leaders: Developing the ultimate smart power weapon.* (Master's Thesis). National Defense University Joint Forces Staff College Joint Advanced War fighting School. Norfolk, VA. 1-92. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA545529

Abstract

Globalization and the information age have created an operating environment in which small unit leaders have, and will continue to have, operational and strategic importance. Ultimately, the demands of the Irregular Warfare battlefield, and the hybrid forms of warfare that will evolve from it, require small unit leaders within the General Purpose Forces to be more culturally aware; intellectually adaptable; seasoned in their decision-making requiring fundamental changes in the way they are educated, trained, and gain experience. This paper will first address how individuals make decisions and those elements most critical in developing sound decision makers by comparing and contrasting analytical and intuitive decision-making. Second, it will address the strengths and weaknesses in current training and educational paradigms for developing intuitive and adaptive small unit decision makers via an analysis of the Systems Approach to Training. Third will be a proposal for the expansion or inclusion of a number of new educational initiatives necessary for developing small unit leader intuition and adaptability in IW. These will include recommendations for expanded history, culture and language training and the inclusion of critical thinking skills, human profiling techniques, and methods for assessing complex problems. Following this will be recommendations on how best to instruct and inculcate critical thinking and decision-making skills in small unit leaders by adopting the more Socratic methods of instruction found in Outcomes Based Training and Education (OBTE) and Adaptive Leaders Methodology (ALM) as well as the experiential based learning that immersive training environments provide. The paper will conclude with specific recommendations for the joint force.

Quotes

-The elements of reasoning found in the Paul Model provide a guide and a basis for instruction.

- The Paul model, as seen in Figure 819, can serve as a reference for how critical thinkers should use their cognitive abilities for real world problems. By applying the elements of reasoning and following the intellectual standards listed, critical thinkers are able to make reasoned judgments. The Paul model offers practical guidelines for thinking that can assist small unit leaders in determining priorities, information gathering, and informed decision making.

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Referenced From

Paul, Richard and Linda Elder. The Miniature Guide to Critical Thinking Concepts and Tools. Upper Saddle, NJ: Prentiss Hall, 2001.

Citation # IV.18

Schaber, P. & Shanedling, J. (2012). Online course design for teaching critical thinking. *Journal of Allied Health*. (41.1). 1-6. [PDF+]

URL

http://www.ingentaconnect.com/content/asahp/jah/2012/00000041/00000001/art00010

Abstract

Teaching critical thinking (CT) skills, a goal in higher education, is seldom considered in the primary design of either classroom or online courses, and is even less frequently measured in student learning. In health professional education, CT along with clinical reasoning skills is essential for the development of clinical practitioners. This study, measuring CT skill development in an online theory course, supports using a cyclical course design to build higher level processes in student thinking. Eighty-six Masters of Occupational Therapy students in four sections of an occupation-based theory course were evaluated on elements in the Paul and Elder CT Model throughout the course and surveyed for their perceptions in their ability to think critically at course completion. Results of this study demonstrated that the online theory course design contributed to improving critical thinking skills and student's perceived CT skill development as applicable to their future professional practice. In a focus group, eight students identified four effective course design features that contributed to their CT skill development: highly structured learning, timely feedback from instructor, repetition of assignments, and active engagement with the material.

Quotes

-In a study by Paul, Elder, and Bartell, fewer than 8% of college educators had standards tomeasure students' ability to think critically.

-Along with assessing the content of the learning, the Paul and Elder CT model concepts were incorporated into a grading rubric to evaluate CT skills in each learning activity.

-From amidst the wide realm of definitions and models for critical thinking offered in the literature, the Paul and Elder critical thinking model was selected as most fitting to the learning content of the course), The concepts supported the CT learning objectives and served to structure the rubric to measure CT acquisition. The Paul and Elder model includes three domains that group a constellation of concepts:

• Intellectual Standards:Clarity, precision, accuracy,significance, relevance logical, breadth, depth, fairness

• Elements of Reasoning:Purposes,inferences,questioning, concepts, points of view, implications, information assumptions.

• Intellectual Traits: Perseverance, integrity, empathy, fair mindedness,autonomy, confidence in reasoning, courage, humility.

Referenced From

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Elder L: Another brief conceptualization of critical thinking. Foundation for Critical Thinking; 2007. Available from http://www. criticalthinking. org. Accessed August 12, 2010.

Paul R, Elder L, Bartell T: California teacher preparation for instruction in critical thinking: Research findings and policy recommendations. Sonoma, CA: Foundation for Critical Thinking; 1997.

Paul R, Elder L: The miniature guide to critical thinking concepts and tools (5th ed). Dillon Beach, CA: Foundation for Critical Thinking

Citation # IV.19

Schwenk, L.M. (2010). *Intercultural communication instruction: a pre-departure training program to promote success in U.S. student study abroad*. (Doctoral Dissertation). Communication Studies: California State University, Sacramento, *CA.* 1-288. [PDF+]

URL

http://csus-dspace.calstate.edu/xmlui/handle/10211.9/860

Abstract

Individuals in possession of skills to communicate appropriately and effectively across cultural boundaries will be those in a position of leadership in a global world. Of the total student population in the United States, less than 1.5% chooses to study abroad, and 55% of those who do study abroad opt for less than a semester living in another culture. Preparing students in advance is essential to maximize the limited opportunity to develop interculturally competent communication skills. Despite the ardent pleas of twenty-seven years of research on the topic, students continue to venture abroad with little to no training, expected to gain vital intercultural communication skills largely through unprepared chance experiences. The pre-departure training program developed for this project attempts to fill a critical gap. Designed utilizing theoretical foundations, the three-day training course provides students with necessary communication and behavioral skills for their sojourn abroad. Intercultural communication competence is considered a vital skill in the 21st century. With a very small percentage of U.S. students participating in the study abroad experience, lack of pre-departure training compromises student ability to develop appropriate and effective communication; this oversight is, ultimately, negligent and dangerous to our nation as a whole. The three-day training course provides students with tools and concepts regarding intercultural communication competence, rhetorical sensitivity, and specific communication behaviors and attitudes to develop during their study abroad experience. A multi-method approach, including interactive lectures, critical incidents, role-play, and cross-cultural dialogues is used in the culture-general training. Sample needs assessments, a complete three-day training course with abstracts for training modules and course materials are included in the project. Training is designed to actively engage the learner, appeal to visual, aural, and kinesthetic learners, and apply concepts from training immediately. Post-training evaluation is also presented.

Quotes

- Paul (2005) cited teaching for usefulness as one of the elements intended for active and adult learning.
-It is important to ask questions to check on the reasoning behind student understanding of concepts (Paul & Elder, 2006).
-

Referenced From

Paul, R., & Elder, L. (2006). The miniature guide to critical think concepts & tools. Dillon Beach, CA: The Foundation for Critical Thinking.
Hiler, W., & Paul, R. (2005). The miniature guide for those who teach on ways to promote active and cooperative learning (2nd ed.). Dillon Beach, CA: Foundation for Critical Thinking.

Citation # IV.20

Nettles, A.B. (2010, June). *The president has no clothes: The case for broader application of red teaming with homeland security*. (Master's Thesis). Security Studies-Naval Postgraduate School. Monterey, CA. 1-95. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA524738

Abstract

Missing in the Department of Homeland Security's (DHS) current gap and vulnerability analysis approach to Red Teaming is the employment of broader decision support Red Teaming, which would provide a strategic assessment tool that assists the organization in overcoming group think and a lack of organizational creativity, while avoiding mirror imaging. By broadening its use of Red Teaming, DHS will improve its decision-making processes across all levels of homeland security. This research uses the case study method to identify and challenge assumptions inherent within the Transportation Security Administration's (TSA) security system. Combined with evidence and analysis from historical examples, this effort is designed to determine whether decision makers can benefit from Red Teams and Red Team fundamental concepts, and whether these concepts will be effective in assisting DHS and its partners in making better decisions. America's homeland security system is hampered by bureaucratic challenges. The U.S. Government must dramatically re-orient itself. America needs to change its homeland security approach into a flexible, adaptive system. Understanding the U.S. layers of security, and how they interact to defeat the terrorist threat, is as critical as understanding "Red" -- what our enemies are doing. Trained Red Teams apply creative thinking, and Red Team fundamentals challenge the organization's assumptions, provide alternative analysis to the organization's plans, and give the decision maker alternative perspectives on the current operating environment. Education on Red Team Fundamentals should be mandatory for all homeland security leaders. DHS should implement decision support Red Teams as part of its force structure; implement joint enterprise Red Teams among its own agencies and between DHS and other security agencies, entities, and partners; and implement Red Team integration into the homeland security technology approval process.

Quotes

-The Red Team fundamentals include critical thinking and analysis to challenge and provide alternatives.91 Critical thinking forms the foundation of Red Teaming. Our thinking, planning, and actions are often tainted, biased, distorted, partial or uniformed by our experiences or some starting point we use to filter information.(Paul & Elder, 2005)

-Unfortunately, educationally formed bias and a preference for certain analytical approaches to problem solving can make an organization’s planning and decision making sub-optimal. (Paul & Elder, 2005)

Referenced From

Elder, Linda, and Paul Richard, The Miniature Guide to Critical Thinking Concepts and Tools. 2nd Ed. (Dillon Beach, CA: The Foundation for Critical Thinking, 2005).

Citation # IV.21

Colby, I. (2009, July). An overview of social work education in the United States: new directions and new opportunities. *China Journal of Social Work. Special Issue: Social Work Professionalization: Lessons in Reformation, Revitalization, and Reinvention*. (2.2). p119-130. [No PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/17525090902992339

Abstract

The social work profession in 2009 is a global profession and given its breadth and scope as a worldwide profession, we should not be surprised by the diversity found in the profession's practices and in its educational programmes. This paper outlines current issues, emerging trends in the United States for social work education, and presents a broad overview of the 2008 Educational Policy and Accreditation Standards, the Council on Social Work Education's policy that creates the framework for American social work education. What is presented is only an illustration of one nation, among more than 190 world-wide, as it defines the social work profession and its education for professional practice. The extent to which the experiences in the United States influence social work practice elsewhere in the global community is left to those local professionals or national professional associations to craft a culturally relevant profession that promotes human well-being.

Quotes

No Access

Referenced From

Elder, Linda, and Paul Richard, The Miniature Guide to Critical Thinking Concepts and Tools. 2nd Ed. (Dillon Beach, CA: The Foundation for Critical Thinking, 2005).

Citation # IV.22

Nicholas, M.C. (2011). *Faculty conceptualizations and approaches to assessing critical thinking in the humanities and natural sciences – A grounded theory study.* (Doctoral Dissertation). Education, Criminal Justice, Human Services, University of Cincinnati, Cincinnati, OH. 1 -207. [PDF+]

URL

http://etd.ohiolink.edu/view.cgi/Nicholas%20Mark%20C.pdf?ucin1321367323

Abstract

Empirical research on how faculty across disciplines conceptualize or assess CT is scarce. The debate on whether CT is discipline-general or discipline specific has long remained a theoretical one. However, the assumption that CT is discipline-general has informed curricular and assessment approaches in general education and is pervasive in higher education. These theoretical assumptions remain untested with the realities of how CT operates in the undergraduate classroom. There is little empirical evidence on whether discipline-general means and methods used to assess CT match faculty approaches in the classroom. Nonetheless, the assessment of students' ability in CT have been measured using discipline-general standardized tests and rubrics and faculty and institutions have been called out for their contributions to developing CT in students based on the outcomes of such measures. This investigation focused on a group of 14 faculty drawn from multiple disciplines in the humanities and natural sciences. Using in-depth interviews, focus group discussions, assessment artifacts and qualitative coding strategies, this study examined how faculty conceptualized the term CT and how they assessed for CT in general education. The study adopted an exploratory approach to study faculty conceptualizations of CT and hence did not use an operational definition of CT. This study found that that disciplinary approaches, ontological assumptions and personal epistemologies influenced the way faculty from the natural sciences and humanities conceptualized CT.

Quotes

-While thinking comes naturally to human beings, Paul, Elder, and Bartell (1997) pointed out that "human thinking left to itself often gravitates toward prejudice, over-generalization, common fallacies, self-deception, rigidity, and narrowness."

-Paul and Elder (2006) wrote that critical thinking deals with the mind's judiciousness and ability to make fair judgments that are grounded in evidence. While few would argue against judiciousness being part of CT, the
problem arises with what theorists attribute as contributing to the judiciousness of the mind.

-Some theorists and researchers have held that CT in essence is logical and rational thinking (Paul & Elder, 1999; 2003).

-Elder and Paul (1994) articulated the introspective element as "the ability of thinkers to
charge of their own thinking." (pp. 34-35).

-Paul and Elder (2006) made a distinction between creative thinking and critical thinking, but see them as two sides to the same coin. They hold that creative thinking deals with the mind's generative power. By this, they refer to the creative faculties of the mind. They hold that critical thinking deals with the mind's judiciousness and ability to make fair judgments that are grounded in evidence.

-Take for instance the California Commission on Teacher Credentialing, which conducted a large scale study across teacher education faculty in 38 public and 28 private colleges and universities in the state of California (Paul, Elder, & Bartell, 1997). They found that 89 percent of faculty claimed to be teaching for CT but only 19 percent of them could define CT and only 9 percent were teaching to develop CT in the classroom.

-Most of the current approaches for training faculty on CT focus on making a particular conceptualization of CT operable or explaining how to apply an existing rubric to student work (Paul, 2005).

-

Referenced From

Paul, R. (1990). Critical thinking: What every person needs to survive in a rapidly changing world. Rohnert Park: Center for Critical Thinking and Moral Critique, Sonoma State University.

Paul, R. (2005). The state of critical thinking today. New Directions for Community Colleges, 130. 27-38.

Paul, R., & Elder, L. (1999). Critical thinking: Teaching students to seek logic of things. Journal of Developmental Education, 23 (1), 34-35.

Paul, R., & Elder, L. (2003). Teaching students how to study and learn (part III). Journal of Developmental Education, 26 (3), 36-37.

Paul, R. & Elder, L. (2006). Critical thinking: The nature of critical and creative thought. Journal of Developmental Education, 30, 34-35.

Citation # IV.23

Taylor, M.A. (2012). S*ocial science teacher's critical engagement with best evidence synthesis research*. (Master's Thesis). Victoria University of Wellington, Wellington, NZ. 1-133. [PDF+]

URL

http://researcharchive.vuw.ac.nz/bitstream/handle/10063/2092/thesis.pdf?sequence=1

Abstract

This thesis draws on qualitative data gathered in focus group discussions, and interviews with ten teachers and three academics to examine social science teachers‟ critical engagement with Effective Pedagogy in the Social Sciences /Tikanga-a-iwi Best Evidence Synthesis (Aitken & Sinnema, 2008). To assess teachers‟ critical engagement with the Social Science BES, the thesis develops a modified model designed to encourage critical thinking. The methodological approach involved recording two phases of self-directed teacher discussion before and after the introduction of the modified critical thinking model. The findings suggest that the model supported teachers in the short term, especially those participants for whom critical thinking about research evidence was a novelty. The model had little impact, however, for teachers with more critical thinking skills. A lack of accountability, entrenched teacher identity, and socio-centric dialogue were identified as barriers to the teachers‟ critical engagement with the Social Sciences BES. Further findings provide insight into how over-assimilation and inattention to the complexity of research evidence risk undermining the integrity of teacher inquiry. The thesis concludes with a discussion about the difficulty of teachers critically engaging with the Social Sciences BES and offers recommendations for different levels of the education system that might help facilitate critical engagement with Social Sciences BES research.

Quotes

-In the third part of this chapter, the use of Paul and Elder‟s (2000) critical thinking model is introduced as a heuristic for examining teacher reasoning about published research evidence.

- In Chapter 5, the analysis of focus-group discussions and teacher interviews explores the teachers‟ critical thinking before and after being introduced to an adapted version of Paul and Elder‟s (2000) critical thinking model.

-Borrowing from a model of critical thinking by Paul and Elder (2000), I will defend why a focus on eight elements of reasoning, which are part of critical thinking, is a suitable heuristic for analysing teachers‟ engagement with published research evidence.

-Richard Paul and Linda Elder are two critical thinking experts associated with the Foundation for Critical Thinking, an educational non-profit organisation with its origin at Sonoma State University, California. In order to help the reader understand the methodology and results of this thesis, this section introduces Paul and Elder‟s (2000) multi-dimensional critical thinking model, before presenting a modified version as a framework for the analysis of teachers‟ critical engagement with the Social Sciences BES. The backgrounding of Paul and Elder‟s (2000) model is vital, because it provides the theoretical framework for the methodological approach to analysing teacher critical thinking. [EXTENSIVE DISCUSSION-- TOO LENGTHY TO INCLUDE IN THIS DOCUMENT]

-In order to examine teachers‟ critical interrogation of research evidence this chapter presented a critical thinking model (Paul & Elder, 2000) that, with some modification, is used as a heuristic for analysis of social science teachers‟ thinking about published educational research in the Social Sciences BES. My rationale for choosing this model is that it offers a very clear articulation of the multi-dimensional nature of critical thinking, which is important for both the teachers using the tool and my analysis of critical thinking.

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Referenced From

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Paul, R. (1992). Critical thinking: What every person needs to survive in a rapidly changing world (2nd ed.). Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R. (2007). Critical thinking in every domain of knowledge and belief. Paper presented at the Annual International Conference on Critical thinking. Retrieved from http://www.criticalthinking.org/articles/27thconf–keynote.cfm

Citation # IV.24

Wang, (2011, December). Shattering the hierarchical education system: The creation of a poststructural feminist English classroom. *The Asian EFL Journal Quarterly. (13.4).* 256-287. [PDF+]

URL

http://70-40-196-162.bluehost.com/PDF/December-2011.pdf#page=256

Abstract

The study aims to examine the effectiveness of the poststructural feminist pedagogical model developed by the author in 2006 and apply the model to the English classroom to investigate whether it has any potential to increase Taiwanese students' English learning achievement, critical thinking ability, and satisfaction with their class. The quantitative methods used in the study are an English achievement test, a critical thinking ability test, and a student satisfaction questionnaire. The qualitative methods are a semi-structured questionnaires and interviews. An independent sample t-test was used to determine if there were any statistically significant differences in the means between the students in the traditional classroom and the students in the poststructural feminist classroom. The research results show that the poststructural feminist pedagogical model has positive effects upon the participants in the experimental
group. Several conclusions are elicited from the study. First, in the English language achievement, the students instructed according to the poststructural feminist pedagogical model significantly outperform those receiving the traditional banking instruction. Second, they are equipped with significantly better critical thinking ability. Third, they express significantly greater satisfaction than those receiving traditional banking instruction.

Quotes

Hypothesis 2: College students in the poststructural feminist English class will have superior critical thinking ability to those in the traditional class.

Critical thinking ability is an ability which students can use to improve their thinking quality by skillfully managing their thought structures and surrounding intellectual stimuli. (Paul & Elder, 2001.)

Referenced From

Paul, R., & Elder, L. (2001). The miniature guide to critical thinking: Concepts and tools. *California: The Foundation for Critical Thinking.*

Citation # IV.25

Naber, J.L. (2011, August). *The effect of reflective writing interventions on critical thinking skills*. (Doctoral Dissertation). University of Tennessee, Knoxville, TN. 1-153 {PDF+]

URL

http://trace.tennessee.edu/cgi/viewcontent.cgi?article=2100&context=utk_graddiss

Abstract

The importance of critical thinking as an outcome for students graduating from undergraduate nursing programs is well-documented by both the American Association of Colleges of Nursing (AACN) and the National League for Nursing (NLN). Graduating nurses are expected to apply critical thinking in all practice situations to improve patient health outcomes. Reflective writing is one strategy used to increase understanding and ability to reason and analyze. The lack of empirical evidence regarding the effectiveness of reflective writing interventions on increasing critical thinking skills supports the need for examining reflective writing as a critical thinking strategy. The purpose of this study was to test the effectiveness of a reflective writing intervention, based on Paul's model of critical thinking, for improving critical thinking skills and dispositions in baccalaureate nursing students during an eight-week clinical rotation. The design for this pilot study was an experimental, pretest-posttest design. The sample was a randomly assigned convenience sample of 70 baccalaureate nursing students in their fourth semester of nursing school at two state-supported universities. All participants were enrolled in an adult-health nursing course and were completing clinical learning experiences in acute care facilities. Both groups completed two critical thinking instruments, the California Critical Thinking Skills Test (CCTST) and the California Critical Thinking Dispositions Inventory (CCTDI), and then the experimental group completed a reflective writing intervention consisting of six writing assignments. Both groups then completed the two tests again. Results showed a significant increase (p=0.03) on only the truthseeking subscale on the CCTDI for the experimental group when compared to the control group. Some other slight differences on subscale scores could be accounted for by the institution, age, ethnicity, and health careexperience differences between the control and experimental groups. Strengths of this study included the innovative intervention and the convenient format of intervention administration, completion, and submission. Limitations of the study included institutional differences, the eightweek commitment, and the lack of control of some aspects of the study environment. Evaluation
of the qualitative data, replication in a larger sample, inclusion of different levels of students, and alternative design of assignments are all areas for future research.

Quotes

[Many, many Quotes and Graphics!]

-The purpose of this study was to test the effectiveness of a reflective writing intervention, based on Paul's model of critical thinking, for improving critical thinking skills and dispositions in baccalaureate nursing students during an eight-week clinical rotation.

-Critical thinking is generally thought of as a process of analyzing, synthesizing, and/or evaluating information (Paul & Scriven, 1987, p. 1).

-For this study, the definition of critical thinking stated by Paul and Scriven (1987) will be used. According to Paul and Scriven, critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. (p. 1)

-They state that critical thinking is based on intellectual standards that appear among disciplines, namely the ten standards mentioned in the model described later: clarity, accuracy, relevance, logic, breadth, precision, significance, completeness, fairness, and depth. Critical thinking also involves examining the "elements of thought that are implicit in all reasoning." These are the eight elements listed in the model: purpose, question, points of view, information,
inferences, concepts, implications, and assumptions (Paul & Scriven, 1987).

Referenced From

Paul, R. (1993). Critical thinking: What every person needs to survive in a rapidly changing world. Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R. (1996). Valuable intellectual traits. Retrieved from http://www.criticalthinking. org/articles/valuable-intellectual-traits.cfm

Paul, R. (2007). Elements and standards online learning model. Retrieved from http://www.criticalthinking.org/CTmodel/CTModel1.cfm

Paul, R., & Elder, L. (1996). Universal intellectual standards. Retrieved from www.criticalthinking.org

Paul, R., & Elder, L. (2008). The miniature guide to critical thinking concepts and tools. Santa Rosa, CA: Foundation for Critical Thinking.

Citation # V.1

Friedel, C. (2006- May-June). How do you teach a disposition to think critically? *The Agricultural Education Magazine*. (78.6) 8-10. [PDF +]

URL

http://www.naae.org/links/agedmagazine/archive/Volume78/v78i6.pdf#page=8

Abstract

Have you ever noticed in the classroom that some of your students are really smart, but don't have that thing we generally call common sense? Or a student may be more street smart than book smart? Simply said, some students are great at using higher-order thinking skills to make decisions and solve problems, while others are not. Even if we teach critical thinking skills in the classroom, SAE and FFA, we find some students do not always use those learned skills. Why is this? To answer this question, many variables play a role in describing the thinking behaviors of students; these include previous knowledge, values, motivations, ability and the environment. However, research has found that a student's disposition toward using critical thinking skills is also a variable that may promote or inhibit their ability to think critically (Norris, 1994). If this is true, a student taught critical thinking skills may not use those skills
if he/she lacks the proper disposition. This poses two questions: 1) What is a critical thinking disposition? and 2) How can you teach a critical thinking disposition? This article will attempt to answer both.

Quotes

-Paul and Elder (2001) believe that a critical thinking disposition includes eight essential traits. They include the following: ♦ Intellectual Humility – Not claiming to know more than you actually know. ♦ Intellectual Courage – Fairly examining beliefs that are against your own.♦ Intellectual Empathy – Genuinely understanding the reasoning of another person. ♦ Intellectual Autonomy – Thinking for oneself with control over your beliefs, values and inferences. ♦ Intellectual Integrity – Admitting your thinking is inconsistent with your actions. ♦ Intellectual Perseverance – Need to answer unsettled questions for better understanding and insight. ♦ Confidence in Reason – Faith that using reason will best serve humankind. ♦ Fairmindedness – Treating all viewpoints alike without regard to emotions

Referenced From

Paul, R., & Elder, L. (2004). The miniature guide to critical thinking concepts & tools. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # V.2

Abdullah, N. (2012). Moving towards critical thinking in classroom. *E Leader: Manila.* 1-8. [PDF+]

URL

http://www.g-casa.com/conferences/manila/papers/Abdullah.pdf

Abstract

Problems are multitudinous; they can be economic, political conflicts, high failure rate among students and many more. We can solve these through critical thinking, a self-guided, self disciplined dispositions aims to take the reasoning to a higher level naturally. Survey indicated that schools and universities are not teaching the skills and dispositions of the critical minds and thus students' intellects are not cultivated. The need for designing a typical class day is
imperative so that students could design and be actively and thoughtfully involved in the thinking process. To inculcate students' critical thinking in strategic management class, an innovative and teaching-learning approach was crafted. The students, working in groups, were required to think of a product of their choice to innovate. The end products were used as replica in learning the concepts and principles in class and forcing the students to reason out clearly. Results indicated that students' improvement in application, analysis and evaluation were evident. Relatively the students were able to think deeply for themselves (85%), motivate to ask questions at the rate of agree and strongly agree of 75% and 25% respectively, and think within the logic of strategic management (95%) and complexities (90%). Simultaneously, students' final examination average marks were satisfactory at 65%. However, fostering critical thinking
in classroom is least effective in the absence of explicated replica as a teaching-learning tool.

Quotes

-Those who are ambivalent on these aspects of the disposition toward critical thinking are more likely to encounter problems in their critical thinking skills. Failure to recognize the importance of correct dispositions can lead to various forms of self- deception and closed mindedness Summer (1940). It is based on concepts and principles, not on hard and fast, or step by step procedures Paul & Elder (2008).

-The list is based on the work of Drs. Paul and Elder, created by Connie Wolfe, Surry Community College:

1. Demonstrate a clear understanding of the assignment's purposes 2. Clearly define the issue or problem. ETC. ...

-LITERATURE REVIEW

Critical thinking is purposeful and reflective judgment about what to believe or what to do which requires skilled, active, interpretation and evaluation of observations, communications, information, and argumentation Fisher & Sriven (1997),self-guided, self disciplined thinking that aims to take the persons' reasoning all naturally to a higher level Elder (2008)...

Referenced From

Summer, W. (1906, 1940) Folkways: A Study pf the Sociological Importance of Usages, Manners, Customs, Mores, and Morals, New York: Ginn and Co. p. 46.

Paul, R., Elder, Linda. (2008). The Miniature Guide to Critical Thinking Concepts and Tools, Dillon Beach: Foundation for Critical Thinking Press.

Citation # V.3

Blair, E. (2005, June). *Best practices for teaching and presenting safety topics.* (Conference Paper). American Society of Safety Engineers (ASSE) Professional Development Conference and Exposition-New Orleans, LA. [No PDF+]

URL

http://www.onepetro.org/mslib/app/newSearch.do

Abstract

McKeachie observes, "Skill in teaching is not something to be learned and simply repeated; what makes it exciting is there is always room to grow" (McKeachie xvii). Foundational to adding techniques and best practices to your delivery is that you continue your own discovery, learning, and scholarship. Best practices are essentially useless if one hasn't mastered the materials and doesn't have profound knowledge of the content. W. E. Deming once noted a pre-requisite of a good teacher is they must first know their subject matter. Best practices and techniques are no substitute for this basic underlying knowledge.

In addition to competence and subject mastery, teachers and presenters are exponentially more effective with students and audiences when they demonstrate caring behaviors and trustworthiness. Good relationships and a solid reputation of being trustworthy are foundational to any techniques or best practices. When teachers have the mentality of serving and helping others learn, and put these above or equal to their self-interests, students understand and respond accordingly. The best teachers have the mentality of good leaders, coaches, and mentors.

Whether we are teachers, trainers, or consultants (or all three), our goals are typically to provide the best education and presentations we can. Our students and clients anticipate our help as they seek an edge in knowledge and a resulting improvement in safety performance. Recognition and application of the following practices may enhance the effectiveness of your delivery and improve the quality and quantity of student learning.

Quotes

[No Access]

Referenced From

Paul, R., Elder, Linda. (2008). The Miniature Guide to Critical Thinking Concepts and Tools, Dillon Beach: Foundation for Critical Thinking Press.

Citation # V.4

Fitch, P., Steinke, P., and Hudson, T. (2012). Research and theoretical perspectives on cognitive outcomes of service learning. *Research on Service Learning: Conceptual Frameworks and Assessmen*t. (2.A). 1-35. [PDF+]

URL

http://styluspub.com/resrcs/chapters/1579223419_1stChap.pdf

Abstract

Primary among the goals of higher education is learning that lasts, which Mentkowski and associates (2000) posit includes the "integration of learning, development, and performance" (p. 1). Although Mentkowski and associates do not explicitly mention service learning as a to achieve learning that lasts, as explored in this chapter, the pedagogy of service learning has the potential to enhance intellectual development and related cognitive processes; the service
learning experience can, in turn, be enhanced by the intentional inclusion of activities that are scaffolded and developmentally designed. Well-designed service learning experiences serve as bridges between the curriculum and the world outside the classroom, where problems are ill-structured and the stakes are often high for communities and students alike. These opportunities build students' capacities to develop, use, and refine their knowledge, skills, and critical thinking abilities. The capacity for critical thinking requires a set of cognitive skills as well as personal dispositions that enhance confidence.

Quotes

-Paul and Elder (2008) use the following definition in their work with the Foundation for Critical Thinking, "Critical thinking is the art of analyzing and evaluating thinking with a view to improving it" (p. 2).

-Both Fascione (1990) and Paul and Elder (2008) contend that teaching critical thinking includes helping students develop the ability and disposition to reflect on the process and quality of their own thinking, a phenomenon psychologists refer to as metacognition – broadly, thinking about thinking.

-In the authors' review of studies that investigated critical thinking, four that were theoretically grounded in Paul and Elder's (2008) model all showed increases over time as measured by pre-post comparisons of written reflection products for students involved in well integrated service learning experiences.

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Referenced From

Paul, R. W., & Elder, L. (2008). The miniature guide to critical thinking: Concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # V.5

Sarnoff, S., Welch, L., Gradin, S. & Sandell, K. (2004-Spring). Using a faculty-in residence model to enhance curriculae in computer science and social work with writing and critical thinking. *The Journal of Faculty Development.* (19.3). 131-143. [No PDF]

URL

http://newforums.metapress.com/content/1224uj20020q6805/

Abstract

This paper will discuss the results of a project that enabled three faculty members from disparate disciplines: Social Work, Interpersonal Communication and Software Engineering, to enhance writing and critical thinking in their courses. The paper will address the Faculty-in-Residence project model, the activities taken on as a result of it, the theoretical and empirical reasons for adopting these activities, and the project's challenges and successes.

Quotes

[No Access]

Referenced From

Paul, R. W., & Elder, L. (2008). The miniature guide to critical thinking: Concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # V.6

Moremen, R.D. (2010, April). Using fundamentals in sociology to rethink impressions about people living with HIV/AIDS. *Teaching Sociology*. (38.2). 144-155. [PDF+]

URL

http://tso.sagepub.com/content/38/2/144.short

Abstract

The purpose of this article is to document how a course in the fundamentals of sociology encouraged students to rethink negative impressions about people with AIDS. Multimethod, active learning processes were utilized to introduce the sociological imagination, critical thinking, and theory and methods in sociology. The intent was to apply basic sociological knowledge to a real-world issue, HIV/AIDS in a global perspective. In the process of developing basic skills in sociology, a consistent change was noted in students' self-reported impressions about people with AIDS in each of four semesters (N = 160). Catastrophic contagion characterized their impressions at the beginning of the semester; humanizing attributes (encouragement and empowerment) replaced catastrophic contagion at the end of the semester. Implications of these findings for teaching and learning, and deconstructing HIV/AIDS stigma, are discussed.

Quotes

-Often, these forms of egocentric thinking (Paul and Elder 2006) are learned from people we love and trust.
-The texts for the course were chosen with the goals and the focus on HIV/AIDS in mind. They included Paul and Elder's (2006) The Miniature Guide to Critical Thinking: Concepts and Tools.
-Paul and Elder provide a practical approach to critical thinking that is accessible to students.

Referenced From

Paul, Richard and Linda Elder. 2006. The Miniature Guide to Critical Thinking: Concepts and Tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # V.7

Kek, M.Y. & Huijser, H. (2011), The power of problem-based learning in developing critical thinking skills: preparing students for tomorrow's digital futures in today's classrooms. *Higher Education Research & Development: Special Issue:Critical Thinking in Higher Education*. (30.3). 329-341. [No PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/07294360.2010.501074

Abstract

This article describes problem based learning as a powerful pedagogical approach and an aligned teaching and learning system to explicitly and directly teach critical thinking skills in a broad range of disciplines. Problem-based learning is argued to be a powerful pedagogical approach as it explicitly and actively engages students in a learning and teaching system, characterized by reiterative and reflective cycles of learning domain,specific knowledge and doing the thinking themselves. At the same time, students are guided and coached by the problem-based learning teacher, who models critical thinking skills in the acquisition of the domain-specific knowledge. This article will explore what critical thinking actually means. What are critical thinking skills? How best to teach such skills? What is the potential role of problem-based learning in teaching critical thinking skills? Finally, the article reflects on how critical thinking can be developed through problem-based learning as a pedagogical approach in an aligned learning and teaching context.

Quotes

[No Access]

Referenced From

Paul, Richard and Linda Elder. 2006. The Miniature Guide to Critical Thinking: Concepts and Tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # V.8

Bobrowski, P. & Cox, P.L. (?). Overview of critical thinking. *cetl.matcmadison.edu*. [Word Doc+]

URL

http://cetl.matcmadison.edu/efgb/2/2_2_5.htm

Abstract

Critical thinking is the ability to use and manage intelligence and skills for tasks or goals across all four domains of knowledge. Although many strategies and models of critical thinking are available to educators and learners, the degree of success in application usually depends upon the user's level of awareness of what strategy will fit what problem in what context. This module examines definitions of critical thinking and addresses questions such as whether it is beneficial to provide specific training in such skills. Examination of the metacognitive skills required for critical thinking within any discipline is followed by a set of tactics for enhancing critical thinking performance in the classroom. A holistic rubric for assessing critical thinking skills concludes the module.

Quotes

-Critical thinking supports the creation of new knowledge, or improved quality of knowledge, in any field or application (Paul, 2003).

-Paul (2003) argues that instruction in all subjects should result in the progressive disciplining of the mind with respect to the capacity and disposition to think critically within that domain and should contribute to a self-chosen commitment to a life of intellectual and moral integrity. Hence, instruction in science should lead to disciplined scientific thinking; instruction in history should lead to disciplined historical thinking; and in a parallel manner to every discipline.

-Includes chart demonstrating stages of critical thinking from 1. Egocentric Thinker, 2. Beginning Thinker, 3. Practicing Thinker, 4. Advanced Thinker, and 5. Master Thinker.

Referenced From

Paul, R. (2003). Draft statement of principles. National Council for Excellence in Critical Thinking. Retrieved May 28, 2004 from<http://www.criticalthinking.org/ncect.html>

Paul R., & Elder, L. (1999). Miniature guide to critical thinking. Dillon Beach, CA: Foundation for Critical Thinking.

Critical Thinking Consortium. (2003). Foundation for Critical Thinking (n.d.). Tactics that encourage active learning. Retrieved November 17, 2003 from <http://www.criticalthinking.org>

Citation # V.9

Laws, P.R. (2001). Media literacy and liberation: Honors students as prophetic artists and critics. J*ournal of the National Collegiate Honors Council. University of Nebraska, Lincoln, NB Paper 94. 1-18.* [PDF+]

URL

http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1078&context=nchcjournal

Abstract

Prophetic critics and artists of color should be exemplars of what it means to be intellectual freedom fighters, that is, cultural workers who simultaneously position themselves within (or alongside) the mainstream while clearly aligned with groups who vow to keep alive potent traditions of critique and resistance.—Cornel West

"The New Cultural Politics of Difference" Kulturkritiker Cornel West focuses on artists and critics of color in the statement above, and his words are therefore particularly pertinent to students at my home institution, Norfolk State University, the fifth-largest historically black university in the U.S. His refreshing radicalism, however, can serve as a universal call to arm all students, and especially honors students, with the weapons of media literacy. Empowering students as makers and critics of film and video art serves the most vital interests of interdisciplinary honors education, and this essay explores some ways of training both types of "cultural workers," i.e. student filmmakers and critics. My

assumption is that, far from being adversaries, good artists and good critics share a common skill set and participate in the larger common cause of what West terms "critique and resistance."

Quotes

-In their useful booklet The Miniature Guide to Critical Thinking Concepts and Tools, Richard Paul and Linda Elder (the latter a presenter at a recent NCHC conference) have defined critical thinking as follows: Critical thinking is that mode of thinking—about any subject, content, or problem—in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them.

(Paul and Elder 1)

-Proponents of meta-thinking try to codify good intellectual habits and their resulting virtues as Paul and Elder do here:

THE STANDARDS—Clarity, Precision, Accuracy, Significance, Relevance, Completeness, Logicalness, Fairness, Breadth and Depth—must be applied to THE ELEMENTS—Purposes, Inferences, Questions, Concepts, Points of View, Implications, Information, Assumptions—as we learn to develop INTELLECTUAL TRAITS— Intellectual Humility, Intellectual Perseverance, Intellectual Autonomy, Confidence in Reason, Intellectual Integrity, Intellectual Empathy, Intellectual Courage, Fairmindedness. (18)

-And there is certainly no better way to tackle what Paul and Elder call the "problem of egocentric thinking"—that is, the total reliance on one's own unexamined opinions and feelings about art and indeed life—than for an artist to have to collaborate with others on, say, a film, or for a critic to have to convince readers, audiences, actors, studio moguls,

etc. of the honesty, validity, and earned authority of his or her criticism.

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Referenced From

Paul, Richard and Linda Elder, The Miniature Guide to Critical Thinking.
(Foundation for Critical Thinking, 1999) ver. 8/00.

Citation # V.10

Decker, J. & Ebersole, M. (2007). The use of scoring rubics in management accounting. *Academy of Educational Leadership Journa*l. (11.2). 1-20. [Word Doc]

URL

http://support.google.com/adsense/bin/static.py?hl=en&gl=US&client=ca-pub-1586334167197709&ts=1631343&page=ts.cs&adU=www.

Abstract

The first two courses in accounting, principles I and II elicit fear and misunderstanding from most business students. Reinforcing the importance of accounting as a foundational building block in business education is critical to the students' success in later business courses. Yet, a large number of students who exit the accounting principles courses are not trained in using accounting for business decisions. In this study the treatment was a rubric assignment in one section of an accounting principles II course. Another section was maintained under the lecture, homework and exam format. Results indicated that students using scoring rubrics in the course initially struggled with incorporating the method into their learning process. Even after students were familiar with the rubric process, they did not show improvement over the control group. Although initial findings were not significant, issues discovered in current study will be used to refine future research.

Quotes

-For business educators, the goal is to work towards this ideal standard by establishing instructional practices that cultivate good critical thinking. Business educators have been attracted to critical thinking methods and approaches which produce employees who exemplify such dispositions and uphold these ideals. Paul and Elder (2001) profess that students need to learn to use critical thinking strategies which help them effectively think through complex problems encountered on the job and in daily life. This is done by identifying the logic of each task which includes the following elements of thought: 1) Identify goals and purposes; 2) Gather relevant information; 3) Formulate questions clearly and precisely; 4) Determine (and evaluate) assumptions; 5) Think through the implications of decisions; 6) Make logical and accurate inferences and interpretations; 7) Articulate clearly the concepts or ideas that are guiding their thinking; and 8) Consider alternate ways of looking at situations. The scoring rubric used in this research was developed using some of Paul and Elder's (2001) Universal Intellectual Standards: Clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness.

-Specific language for each criterion was developed using Paul and Elder Universal Intellectual Standards (2001). These intellectual standards check the quality of reasoning about a problem, issue or situation. A few samples of student work were used to refine the scoring rubric. Figure I. shows the rubric used with the treatment group

Referenced From

Paul, R. and Elder, L. (2001) The miniature guide to critical thinking: concepts and tools. The Foundation for Critical Thinking.
Paul, R. and Elder, L. (2001) Critical thinking: Tools for taking charge of your learning and your life. New Jersey: Prentice Hall

Citation # V.11

Coulter, N.W. (2006, May). *Development and initial testing of a model of student leadership in high schools: an exploratory study*. (Doctoral Dissertation). Texas Tech University, Lubbock, TX. 1-196. [PDF+]

URL

http://scholar.google.com/scholar?start=110&hl=en&as_sdt=5,48&sciodt=0,48&cites=3632478920216070946&scipsc=

Abstract

Leadership is a construct that has many facets, attributes, and nuances. In the gestalt of school leadership roles, the student leadership component is part of the overall leadership culture. The significance of the role student leaders play on a high school campus, and their consequent impact on the effectiveness of the school as an organization, was the focus of this study. The purpose of this study was to explore how, through the eyes of high school principals, student leaders impact organizational behavior and effectiveness both favorably and unfavorably.

This study addressed the following research questions: How do high school principals view student leaders in the context of the campus leadership culture? How do high school principals develop/engage/enlist the student leadership component on high school campuses to affect improved campus effectiveness? In what ways do student leaders have an impact on school culture and organizational effectiveness?

A conceptual model was developed for the purposes of the study. The Student Leadership Culture (SLC) Model was developed to provide a conceptual framework through which to view the impact of student leaders on the effectiveness of the campus as an organization.

Using grounded theory, this study first examined, by use of self-reporting surveys, the level of commitment to the development and enlistment of student leaders on public high school campus in Texas by 105 campus principals. Follow-up qualitative interviews were conducted with 14 principals whose survey responses or whose campus performance as determined by elements of the Academic Excellence Indicator System proved well outside the norm.

The study provides a first step in the development of the Student Leadership Culture Model as a useful tool for study of the impact of student leaders on the effectiveness of high school campuses as organizations. Other conclusions of the study indicate that principal tenure and the type of schedule used have an impact on the development of student leaders. Also, the recursive interplay of campus context, culture, and performance was identified as an important factor in the development of student leaders. Finally, the theme of student voice emerged as an important indicator in the level of commitment principals and campuses exhibit toward student leadership.

Quotes

-As long as seventy years ago Dewey (1933) was arguing for schools to be places that fostered real thinking instead of merely institutions of training in formal discipline. In today's language, that same idea is described as critical thinking (Paul & Elder, 1999, 2001).

Referenced From

Paul, R., & Elder, L. (1999). The miniature guide to critical thinking concepts & tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Paul, R., & Elder, L. (2001). How to study & learn a discipline using critical thinking concepts & tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # V.12

Ulmer, J.D. and Torres, R.M. (2006, September). *Cognitive behaviors exhibited by secondary agricultural teachers.* (Conference Paper). North Central Agricultural Education Research Conference. Aims, Iowa . 16-30. [PDF+]

URL

http://www.aged.caf.wvu.edu/Research/AAAE-NC-2006/2006%20North%20Central%20Research%20Conference%20Proceedings.

Abstract

The purpose of the study was to describe the level of cognitive behavior and investigate characteristics that may influence teaching at higher cognitive levels. Agriculture teachers in Missouri were observed using the Florida Taxonomy of Cognitive Behaviors. Teachers' attitude toward teaching at higher levels of cognition was collected using a summated questionnaire. Teachers' cognitive behavior was found to be at the knowledge and comprehensive levels of cognition 83% of instructional time. The total weighted cognitive behavior of teachers was 17.3. Teachers' attitude toward teaching at higher levels of cognition was found to be slightly favorable and had a substantial positive relationship with cognitive behavior.

Quotes

-Bias, prejudice, and many problems in life, can be attributed to unrefined thinking (Paul & Elder, 2004).

Referenced From

Paul, R. & Elder, L. (2004). The miniature guide to critical thinking: concepts & tools (4th ed.). Dillon Beach, CA: Foundation for Critical Thinking.

Citation # V.13

Fitzpatrick, L.E. and McConnell, C. 2011). Intentionally evaluating course and project design for achieving global contextual learning. *Journal of Instructional Pedagogies. (7)* 1-11. [PDF+]

URL

http://www.aabri.comwww.aabri.com/manuscripts/11947.pdf

Abstract

Students must be educated for a globalized, integrated world. Such preparation requires deep knowledge, critical evaluation, and cultural awareness. This is not a new idea among internationalists. What has been rapidly changing, however, is the understanding of how making connections for a globalized, integrated world requires intentional focus on higher level learning. This challenge can be addressed through an understanding of cognitive learning levels, critical thinking, and the examination of socio- vs. non-sociocentric thinking. The authors term teaching to these three essential components global contextual learning. To be successful in global contextual learning, students must be able to reach the higher levels of cognitive learning, while engaging in critical thought in a non-sociocentric way. In order to do this, course design, content presentation, and course assignments and projects must all be consciously created with this goal in mind. In this paper, the literature in these areas is examined, and the concepts are applied to an existing business course and course project to demonstrate how to evaluate whether the course and project are designed to achieve global contextual learning. The rubric described that maps to the course and project learning goals can also be used as course embedded assessment to assess student achievement of the global learning goals.

Quotes

-Paul and Elder (2006) note that Critical thinkers are clear as to the purpose at hand and the question at issue. They question information, conclusions, and points of view. They strive to be clear, accurate, precise, and relevant. They seek to think beneath the surface, to be logical, and fair. They apply these skills to their reading and writing as well as to their speaking and listening. They apply them in professional and personal life. (Paul and Elder, 2006, p2)

-Results of developing critical thinking in students include essential questioning, information assessment, clear reasoning, and openness to using “alternative systems of thought” in solving “complex problems.” (Paul and Elder, 2006, p4)

-Issues of globalization and critical thought are also highlighted by Paul and Elder (2009) in what they term the ‘problem of sociocentric thinking’ or “the degree to which they have uncritically internalized the dominant prejudices of their society or culture.” (Paul and Elder 2009, p 22)

The results of such thinking are many but can be summarized as viewing only through the lens of one’s own culture hence the uncritical elevation of things of that source over those of all others. That is, the student would perhaps be able to learn facts and information about the wider world, the student may even be able to apply them, but the student will be unable to reach higher levels of critical thinking or cognition in a global context because of their inability to evaluate situations outside their cultural value perspective. There can be no true global critique since the de facto position of the student has predetermined evaluative outcomes.This corresponds in part to what Paul and Elder (2009) see as “the failure to see sociocentricthinking as a significant impediment to intellectual development.” (Paul and Elder 2009, p 22)

They see “sociocentric thinking [as] a hallmark of an uncritical society. It can be diminished only when replaced by cross-cultural, fair-minded thinking—critical thinking in the strong sense.” (Paul and Elder 2009, p 22)

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Referenced From

Paul, R. and Elder, L. (2006). The Miniature Guide to Critical Thinking Concepts and Tools, Limited Download Copy. Retrieved March 5, 2010 from The Foundation For Critical Thinking Website, http://www.criticalthinking org/files/Concepts_Tools.pdf

Paul, R. and Elder, L. (2009). The Miniature Guide to Critical Thinking Concepts and Tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # V.14

Dokoupil, O. and Farana, R. (2007-September). *Mechanical engineer as a technical problem solver: an approach to teaching mechanical engineering courses at the university level.* (Conference Paper). International Conference of Engineering Education (ICEE). Portugal. 1-4. [PDF+]

URL

http://ineerweb.osanet.cz/Events/ICEE2007/papers/191.pdf

Abstract

Engineers work in a real world. Mechanical engineers in everyday business have to solve technical tasks and their responsibility spans from the concept and the technical design to manufacturing and commissioning often under the time pressure and in stress conditions. Therefore the engineering curriculum needs to be reviewed; the future engineers need mutual language to solve technical problems in a more effective way. This kind of approach to teaching mechanical engineers is demonstrated in two case studies. The first one is an individual approach in classes called “Technical Problem Solving “, based on technical system analysis and optimization. The classes are based on the “Theory Of Inventive Problem Solving” (known as TRIZ), with an original approach to the first stage of the solution – how to define and understand a technical system as an abstract model for further optimization. The second case study demonstrates team cooperation on the project “High Capacity Bucket Elevators”.

Quotes

None found.

Referenced From

Paul, R., Elder L.,“ The Miniature Guide to Critical Thinking: Concepts and Tools”, Foundation for Critical Thinking; 2004.

Citation # V.15

Andrews, W. and Patrick, C. (2011, March). *CLEAR Thinking: consider, learn, evaluate, argue, reflec*t. (Quality Enhancement Plan*).* Morehead State University, Morehead, KN. 1-64. [PDF+]

URL

http://www2.moreheadstate.edu/files/projects/sacs/qep/MSU_QEP_Report_FINAL_2011.pdf

Abstract

To adequately prepare leaders for evolving issues of local and global communities, Morehead State University must equip graduates with skills to effectively address complex problems. Graduates must acquire knowledge to be successful, but they must also develop fundamental competencies to apply knowledge in their personal and professional lives. One such competency, critical thinking, is essential to use information for wise decisions and responsible actions. The importance of critical thinking is not disputed. Prospective employers place the highest value on employees' ability to think critically. The ability imparts enormous benefits: navigating the flood of information and misinformation; liberation from superstition, irrationality, unfounded opinion, fashion, and illegitimate authority; improving career prospects; and fostering an appreciation of diversity and of global perspectives. Unfortunately, a variety of assessments indicate that the critical thinking of MSU students needs improvement. Consequently, Morehead State has chosen the QEP goal of enhancing the ability of our students to think critically.

Quotes

-Given the depth of concern for student cognitive learning, there are a plethora of definitions and systems for teaching critical analysis skills which vary greatly in focus, depth, and breadth, and many have been in use for several decades (for example, Paul 2010; Wolcott 2006)
-Paul et al. (1997) argued that instructors often cannot describe or define critical thinking beyond using pedagogical buzz words even though "the vast majority (89%) stated that critical thinking was of primary importance to their instruction."
-Paul (2005) called for a "rich, substantive concept [of critical thinking] with clear-cut implications for ensuring that students construct knowledge and then transfer it to multiple facets of their lives" (p. 28).
-Fortunately, Paul (1982) explained that "Since critical thinking can be defined in a number of different ways consistent with each other, we should not put a lot of weight on any one definition. Definitions are at best scaffolding for the mind" (p. 5).
- Linking disciplines and critical thinking (Elder & Paul, 2003; Paul & Elder 2004). Paul (2005) stated, "Each discipline generates a form of thinking" (p. 29). Further, "Every discipline and every subject contains crucial information students need if they are to acquire essential knowledge in that subject" (p. 31).
-Linking skilled thinking and skilled learning (Paul, 2005, p. 29). Skilled thinking requires thinking about thinking. Skilled learning requires thinking about learning.
-Clarifying the close relationship connecting critical thinking and skilled reading and writing (Paul, 2005, p. 31).
-Paul (2005) asserted that "We cannot get beyond non-substantive concepts of critical thinking unless we face the obstacles to them and devise effective countermeasures" (p. 35). Furthermore, Paul argued that educators often falsely assume that critical thinking can be taught through one or two targeted courses or can just be limited to general education.
-The following elements will be necessary for successful implementation of an eventually broad, integrated critical thinking program (Paul, 2005):
• A robust definition of critical thinking across the curriculum
• Embeddedness in mission statements
• Comprehensive outcomes assessment performed by at least a part-time assessment director
• Administrator education and support for the time and energy required for successful implementation
• Long-term plan for institution-wide goals
• Linkages/alignment with accreditation processes
• Linking of critical thinking, disciplinary knowledge, and course content (p. 37).
-Faculty will, unquestionably, be the driving force behind the success of the MSU QEP. While a large majority of faculty report that critical thinking is a primary objective in their instruction, only a small minority are able to give clear examples of intellectual criteria or specific activities that foster critical thinking in their classrooms (Paul, et al., 1997).

Referenced From

Elder, L. & Paul, R. (2004). A miniature guide for students and faculty to the foundations of analytical thinking: How to take things apart and what to look for when you do. Dillon Beach, CA.: Foundation for Critical Thinking.
Paul, R. (2005). The state of critical thinking today. New Directions for Community Colleges, (130), 27-38. (2010). Defining critical thinking: A draft statement for the national council for excellence in critical thinking. Retrieved February 17, 2010, from http://www.criticalthinking.org
Paul, R. W. (1982). Critical thinking: How to prepare students for a rapidly changing world. In J. Willsen, & A. J. A. Binker (Eds.).

Citation # V.16

Agbere, D.A.A. (2011, June). *Critical thinking and army religious leadership: challenges and opportunities.* (Master's Thesis). US Army Command and General Staff College. Ft. Leavenworth, KS. 1-103. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA548039

Abstract

The United States Army is changing and so must the chaplaincy. At the heart of the ongoing Army transformation is a critical thinking (CT) approach to problem solving and decision-making. Given the many complex choices Army leaders face on a daily basis, the Army considers CT to be an essential leader skill, and requires its leaders to become critical thinkers. Consequently, to remain relevant in a _critical thinking Army,‘ it is essential that chaplains need not only be educated on CT, but also that they understand what it portends for their religious leadership of the Army.

Particularly as chaplains face new challenges and assume new responsibilities, some outside the area of their traditional expertise or training, CT skills will become even more crucial. Its shortcomings notwithstanding, CT is vital to Army religious leadership. However, to realize the value of CT to religious leadership in the pluralistic environment of the Army will require a broader understanding of religious ministry. Consequently, chaplains must overcome certain intellectual, theological, and psychological (emotional) challenges to foster coherent intellectual and theological

alignment of their beliefs and ministerial practices. This study explores the relevance of CT to Army religious leadership by examining its meaning, characteristics, purpose, and requirements; outlining its strengths and weaknesses; and analyzing the challenges it poses, as well as its utility, for Army religious leadership.

Quotes

-The Army‘s perspective of CT draws heavily on the works of scholars in the academia. Notably among these scholars are Richard Paul and Linda Elder of the Foundation for CT. Their works feature prominently in CGSC and Army Management Staff College (AMSC) curriculums on CT. Consequently, to appreciate the Army‘s view on the subject is to explore not only Army field manuals that deal with the topic of CT,

-Richard Paul advances several definitions of his own. One of these definitions describes CT as a ―disciplined, self-directed thinking that exemplifies the perfections of thinking appropriate to a specific mode or domain of thought. He als odefines CT as ―the art of thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, or more defensible.

-On the other hand, Paul notes that knowledge is not synonymous with belief nor should it be mistaken for a ―symbolic representation of belief. According to him, humans can easily believe things that are not true or be ignorant of the things they believe to be true.Genuine moral decision, he contends, necessitates thoughtful differentiating between socially approved mores and what is ethically reasonable. He further notes that people frequently mistake ―internalized voice of social authority for ―inner voice of conscience.

-Furthermore, Paul and Elder further argue that often people confuse ethics with other domains of thinking such as theology, law, and ideology. This confusion, they contend, often leads to the mistaken acceptance of ―social values and taboo as universal ethical principles. Particularly, for the purpose of this study, they contend that people

often mistake ―religious ideologies‖ as ―inherently ethical in nature. As far as they are concerned, universal ethical principles are found not in ―social conventions, religious practices, political ideas, and laws,‖ because they are variant and conflicting. Rather, they are enshrined in such documents as the United Nations General Assembly Universal

Declaration of Human Rights.

-Perhaps for Paul and Elder, these principles were arrived at through a strictly rational process, because, as Paul argues somewhere else, trust in reason will ultimately best serve ―our higher interest and those of others. However, what Paul and Elder fail to point out is that these principles did not come out of nowhere, but derive from the religious, social, political, and legal practices of individual nations represented on the United Nations General Assembly.

-Paul and Elder argue that without guidance much of human thinking is ―biased, distorted, partial, uninformed or

down-right prejudiced. Accordingly, the task of CT is to provide that guidance so people can think

effectively and make informed judgments.

-According to Paul and Elder, fair-mindedness involves the awareness of the need to judge all points of view equally, irrespective of ―one‘s own feelings or vested interests, or the feelings or vested interests of one‘s friends, community, or nation.

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Referenced From

Paul, Richard. ―Critical Thinking: What, Why, and How. In Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World, by Richard Paul, edited by A.J.A. Binker, 45-56. Rohnet Park, CA: Center for Critical Thinking and Moral Critique, 1990.

Paul, Richard, and Linda Elder. The Miniature Guide to Critical Thinking: Concepts and Tools. Dillon Beach, CA: Foundation for Critical Thinking Press, 2008.

___ The Thinker’s Guide For Students On How to Study and Learn a Discipline: Using Critical Thinking Concepts & Tools. Dillon Beach, CA: The Foundation for Critical Thinking, 2007.

Citation # V.17

Snoddy, D.W. (2010, October). *A case for principles of cyberspace operations.* (Paper). Naval War College: Newport, RI. 1-27. [PDF+]

URL

http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA535577

Abstract

The requirement to conduct deliberate military operations in the cyberspace domain is a relatively recent addition to the U.S. armed forces' mission set yet joint doctrine for the planning and execution of operations within cyberspace has not been published. This paper concludes specific principles for cyberspace operations should be developed to serve as the foundation from which the doctrine can be developed. The case supporting this conclusion is grounded on a number of key points. First, the current principles of war are not as timeless and universal as they are often perceived to be. Second, there is a precedent within U.S. joint doctrine for establishing operation and domain-specific principles. Finally, an examination of the cyberspace attack on Georgia in 2008 illustrates how a principle called precision would be more useful for planning and executing cyberspace operations than the traditional principle mass. The paper concludes by recommending U.S. Cyber Command lead the development of a tailored set of principles of cyberspace operations which will serve to guide the planning and execution of joint operations in cyberspace with the ultimate objective of enabling U.S. forces to retain freedom of action while denying the same to our adversaries.

Quotes

None Found

Referenced From

Paul, Richard, and Linda Elder. The Miniature Guide to Critical Thinking: Concepts and Tools. Dillon Beach, CA: The Foundation for Critical Thinking, 2006.

Citation # V.18

Toh, C.S. (2007, April). An experiential research-focused approach: implementation in a nonlaboratory-based, graduate level analytical chemistry course. *Journal of Chemical Education.* (84.4).639-642. [PDF+]

URL

http://pubs.acs.org/doi/abs/10.1021/ed084p639

Abstract

Analytical chemistry courses for undergraduate and graduate levels often include descriptions of techniques and elaborations on principles involved in the techniques. This is necessary for formal education and training of students enrolled in analytical courses and closely follows the work carried out by industrial analytical chemists (1). However,
nonlaboratory-based research skills are often neglected in graduate-level courses in analytical chemistry. Many of these nonlaboratory research skills are taught separately in graduate education courses, including scientific information retrieval, scientific inquiry, presentation, proposal writing, and scientific writing (2). In addition, there has been much effort to incorporate laboratory research skills into chemistry teaching laboratories (3, 4). In this article, the description of a project to incorporate nonlaboratory research skills in a graduate- level course on analytical chemistry is presented.

Quotes

None Found

Referenced From

Paul, Richard; Elder, Linda. The Miniature Guide to Critical Thinking: Concepts & Tools; Foundation for Critical Thinking: Dillon Beach, CA, 2001.

Citation # V.19

Lip, P.C. (2003). Investigating form 6 students' development on their critical thinking skills with narrative analysis activities with film: a case study of a Hong-Kong language classroom. *The Asia-Pacific Education Researcher*. (19.3). 549-558. [PDF+]

URL

http://ejournals.ph/index.php?journal=TAPER&page=article&op=viewFile&path%5B%5D=1608&path%5B%5D=1697

Abstract

Few studies on critical analysis activities with film for senior secondary students in Hong Kong have been conducted as most studies were done at university level and abroad. Also, previous studies have not validated whether students have developed their critical thinking skills after doing different critical analysis activities with film as their main focus were on students' perceptions. The purpose of the study was to investigate whether Form 6 students actually developed critical thinking skills after doing narrative analysis activities with film in Hong Kong. For two weeks, students did narrative analysis activities with films in two rounds for two different films. Students' worksheets for the two rounds were assessed with a checklist by the researcher and an external marker to check whether students had developed critical thinking skills. The checklist assessment results showed that students actually developed critical thinking skills, which suggested that narrative analysis activities with film could be useful activities that Hong Kong teachers could use to help their students to develop their critical thinking skills.

Quotes

-The rsearcher has adapted Scriven and Paul's definition of critical thinking to blend with film study, as the definition was clear, concise and comprehensive: Critical thinking skills for film study is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from film, or generated by observation, experience, reflection, reasoning or communication, as a guide to belief and action from film.

-However, there was one study conducted by Renzi which developed a rubric to assess students' writing assignments after viewing films based on eight criteria of developing critical thinking skills as documented in Paul and Elder's (2006) book.

- Also, Renzi's adapted version of Paul and Elder's eight criteria for developing critical thinking skills lacked a lot of details after comparing with a clearer version as cited in a Louisville, KY eight critera for developing critical thinking skills.

Referenced From

Louisville University (2009). Ideas to Action: Using critical thinking to foster student learning and community engagement. Retrieved from http://louisville.edu/ideasto action/what/critical-thinking/paul-elder-critical -thinking-model/paul-elder-model-of-critical-thinking.html

Paul, Richard; Elder, Linda. The Miniature Guide to Critical Thinking: Concepts & Tools; Foundation for Critical Thinking: Dillon Beach, CA, 2001.

Citation # V.20

Hoe, B.H. and Hee, W.T. (2008, July). F*rom classroom to crime scene: bringing forensic science into project work*. (Conference Paper). Asia-Pacific Conference on Giftedness. *1-20.* [PDF+]

URL

http://hkage.org.hk/b5/events/080714%20APCG/02-%20Curriculum%20%26%20Instruction/2.8%20Chow%20%26%20Wong_From%

Abstract

As the exciting TV serial Crime Scene Investigation (CSI) continues to entice its audience, teachers are capturing its intrigue in the classroom. Forensic Science is a multidisciplinary field which draws principles from many branches of Science, ranging from biology, chemistry, pathology, molecular biology and toxicology. In River Valley High
School (Singapore), forensic science is used as a topic for a 15-week interdisciplinary project work module in our Construct, Integrate and Differentiate (CID) Programme. Students are taught basic analytical techniques used in forensic science, from fingerprint lifting, blood type determination, footprint casting and drug analyses to DNA fingerprinting. Using role play and a range of other learning activities, the students collected and analysed evidence in their attempt to solve the mystery. At the end of the CID Science Cluster, the culminating project sees Secondary Two students working in teams to solve a mock-up crime case. This CID Science Cluster seeks to develop critical thinking and problem-solving skills, synthesising knowledge and skills learnt and applying them to solve a crime case. It offers an intriguing and authentic learning opportunity which is challenging to all science students, particularly high ability learners, in expanding their interests in science and providing depth in their learning of science.

Quotes

-Skills refer to the set of critical thinking skills which Richard Paul interestingly defines as developed through “thinking about one’s thinking” (or metacognition): “Critical thinking is the mode of thinking about any subject, content, or problem whereby the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. Such thinking about one’s thinking involves the ability to identify the basic elements of thought (purpose,question, information, assumption, interpretation, concepts, implications, point of view, See Annex 3) and assess those elements using universal intellectual criteria and standards
(clarity, accuracy, precision, relevance, depth, breadth and logicalness) (Paul and Elder, 2002).”
-Critical thinking discusses the element of thought that critical thinkers have. The model used is adapted from Foundation for Critical Thinking (Paul and Elder, 2005). According to Richard Paul, such thinking about one’s thinking involves the ability to identify the basic elements of thought (purpose, question, information, assumption, interpretation, concepts, implications, point of view) and assess those elements using universal intellectual criteria and standards (clarity, accuracy, precision, relevance, depth, breadth and logicalness). (Circle Diagram)
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Referenced From

Paul, R.W. and Elder, L. (2002). Critical thinking: tools for taking charge of your professional and personal life. New Jersey: Pearson Education.
Paul, R.W. and Elder, L. (2005). The Miniature Guide to Critical Thinking: Concepts and Tools. Foundation for Critical Thinking.

Citation # V.21

Purvis, C.A. (2009, December). *Factors that influence the development of critical thinking skills in associate degree nursing students. (*Dissertation). University of Georgia: Athens, GA. 1-227. [PDF+]

URL

http://athenaeum.libs.uga.edu/bitstream/handle/10724/11861/purvis_carol_a_200912_edd.pdf?sequence=1

Abstract

The purpose of this study was to identify factors that influence the development of critical thinking skills of student nurses from entrance to exit in an associate degree in nursing program. Three research questions guided this study: (1) What pedagogical factors influence the development of critical thinking skills from entrance to exit for students in an associate degree in nursing program? (2) What personal factors influence the development of critical thinking skills? (3) What other factors influence the development of critical thinking skills? A qualitative research approach was implemented with a purposive sampling of ten graduates from an associate degree in nursing program who had increased their critical thinking skills substantially, as measured by the Critical Thinking Assessment developed by Assessment Technologies Incorporated. In-depth, semi-structured interviews were done with the ten graduates looking at their perceptions of the factors that increased their critical thinking skills during the nursing program. This study found that the pedagogical factors that influenced the development of critical thinking skills were curriculum design and integrative learning activities. Curriculum design was further broken down into acquiring foundational concepts, progressing from simple to complex concepts, and applying learning in the clinical area. The subcategories of integrative learning activities included tests, case studies, simulations, and care maps. The biggest surprise in this area was that all of the participants mentioned testing as a factor that improved their critical thinking skills. Personal factors identified were curiosity, confidence, and perseverance. Other factors included faculty support and reinforcement in and out of the nursing program. Three conclusions were drawn from this study. First, curriculum design is a key factor in promoting critical thinking. Second, personal characteristics promote the development of critical thinking. Finally, reinforcement promotes the development of critical thinking. Practice implications and recommendations for future research were also provided.

Quotes

-The intellectual roots of critical thinking can be traced to the teaching, practice, and vision of Socrates, who established the importance of asking probing questions rather than just accepting ideas as worthy of belief. He set the basic constructs of critical thinking, including such actions as reflectively questioning common beliefs and explanations and carefully distinguishing those beliefs that are reasonable and logical from those that lack adequate evidence or a rational foundation (Paul, Elder, & Bartell, 1997).

-From his work came an increased sense of the pragmatic basis of human thought and its grounding in actual human purposes, goals, and objectives (Paul, Elder, & Bartell, 1997).

-Another prolific writer about critical thinking is Paul, a leader in the philosophical group of critical thinking theorists. Paul and Elder (2008) defined critical thinking as the “art of analyzing and evaluating thinking with a view of improving it” (p. 4). Paul, Elder, and Bartell (1997) identified interrelated and interdependent components of critical thinking, to include the ability to engage in a reasoned discourse that operates in the context of intellectual standards, to use analytic inferential skills, and to commit to a fundamental value orientation that incorporates certain traits and dispositions.

-Whereas Brookfield takes a more radical political and affective stance toward critical thinking, Paul espouses a more rational model that does not acknowledge the ambiguity associated with many of the situations in which decisions are made.

-Critical thinking has been identified as a need in nursing because it is needed to practice sound clinical judgment (Alfaro-Fevre, 2004; Facione & Facione, 1994) and is essential in dealing effectively with the vast range of situations encountered in the healthcare field (Glen, 1995; Paul & Heaslip, 1995).

-In about the same period, Francis Bacon, in Advancement of Learning, laid the foundation for modern science with his emphasis on the information-gathering processes. His book could be considered one of the earliest texts on critical thinking (Paul, Elder, & Bartell, 1997).

-In the 20th century, Dewey recognized the deep need for critical thinking in life and in education. Dewey was recognized as the modern-day founder of the critical thinking movement (Ennis, 1993). From his work came an increased sense of the pragmatic basis of human thought and its grounding in actual human purposes, goals, and objectives (Paul, Elder, & Bartell, 1997).

-Although Bloom‟s taxonomy is considered indicative of critical thinking, there are critics who believe it to be limited in understanding the essence of critical thinking (Paul, 1985).

-A consensus definition of critical thinking has remained elusive for many years. (Paul, 1990).

-Opponents to the skills perspective advocated a skills plus dispositions approach (Brookfield, 1987; Paul 1993).

-Critical thinking is a “mode of thinking –about any subject, content, or problem – in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them” (Paul, Fisher, and Nosich, 1993, p. 4). This definition draws attention to the concept of thinking about one‟s own thinking, which is an essential component of critical thinking.

-There are three hierarchical levels of thought associated with critical thinking. Level 1, lower order thinking, is unreflective and frequently

Referenced From

Paul, R. (1995). Critical thinking: How to prepare students for a rapidly changing world. Santa Rosa, CA: The Foundation for Critical Thinking.

Paul, R., Binker, A. J., Martin, D., & Adamson, K. (1995). Critical thinking handbook: A guide for redesigning instruction. Santa Rosa, CA: The Foundation for Critical Thinking.

Paul, R., & Elder, L. (2002). How to improve student learning. Santa Rosa, CA: The Foundation for Critical Thinking.

Paul, R., & Elder, L. (2008). The miniature guide to critical thinking concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking

Citation # V.22

Sullivan, D.L. (2010). *Perceptions of critical thinking: Is critical thinking important to employers and employees-a local EMS example.* (Conference PowerPoint). Narrowing the Gulf Conference. Slides 1-31. [PDF+]

URL

http://www.spcollege.edu/criticalthinking/documents/2010SpringCTI/SullivanPerceptionsofCriticalThinking.pdf

Abstract

A Local 2009 EMP Study:
Perceptions from employers and employees
Qualitative, phenomenological study
19 Potential employees
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., of proprietary, hospital hospital-based program, community college, vocational technical institution)?
Was the program attended and completed, a certificate or and associate degree program?
Did the education and training program provide adequate critical thinking education in the curriculum?

Quotes

-Richard Paul Model of Critical Thinking: Using Standards, Elements, and Traits
-*Remaining Slides provide overview of how Paul model was used.

Referenced From

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

Citation # V.23

Cleveland, S. J. (2009). *The experience of nurse facilitators of support groups for nurses with chemical dependency in California.* (Doctoral Dissertation). University of South Africa Institutional Repository. 1- 162. [PDF+]

URL

http://umkn-dsp01.unisa.ac.za/xmlui/handle/10500/3132

Abstract

Chemical dependency in the health profession is a growing concern. With easy access to controlled substances, many nurses divert prescription drugs and even work while under the influence. Nurses who are under the influence and working with patients are an obvious public hazard. Many states in the USA have non-punitive programs to offer recovery to nurses with chemical dependency and return them to work. In California this program is named the Diversion Program. Part of the requirements of successful completion of the Diversion Program is to attend weekly meetings called support groups. These support groups are facilitated by other nurses experienced in the field of chemical dependency. This study explored the experiences of nurse facilitators of support groups for nurses with chemical dependency in the California, USA, Diversion Program. Data were collected through twelve individual interviews selected through purposeful, non-probability convenience sampling. A phenomenological research design was used that was descriptive, explorative, and contextual. The data analysis revealed four major themes: (1) experience of communication within the Diversion Program; (2) experience of the structure of the Diversion Program; (3) experience of their role within the Diversion Program; and (4) experience of facilitation of support groups. The study revealed that even though many of the nurse facilitators¨ experiences were positive with respect to the support groups they expressed concern about the communication patterns within the Diversion Program. To offer support for the nurse facilitators, guidelines and a conceptual framework were created to enhance their experience and mitigate their feelings of marginalization from the Diversion Program.

Quotes

-Critical thinking as it pertains to patient safety involves the nurse taking charge of issues and situations as they present themselves by being self-directed, self-monitored, self-disciplined, and self-corrective (Paul & Elder 2001:1).

Referenced From

Paul, R. & Elder, L. 2001. The Miniature guide to critical thinking. Dillon Beach, California: Foundation for Critical Thinking.

Citation # V.24

Wang, Y.H. and Liao, H.C. (2012, March). The promotion of critical thinking in baccalaureate nursing English programs. *African Journal of Business Management*. (6.9). pp. 3188-3196. [PDF+]

URL

http://www.academicjournals.org/ajbm/pdf/pdf2012/7Mar/Wang%20and%20Liao.pdf

Abstract

This study investigates whether or not the incorporation of critical thinking skills into English communication classes could generate positive effects in the learning outcomes of baccalaureate nursing students. An experimental design for experimental group and control group was used in this study. 59 nursing students were randomly selected and distributed into an experimental group (29 students) and a control group (30 students), who were freshmen at Chung Shan Medical University in Taichung, Taiwan. To collect data and verify the feasibility of applying the critical thinking model to nursing English programs, a critical thinking skill pre-test and post-test, a student satisfaction questionnaire, and individual / focus group interviews were conducted in the study. Research results indicated that students participating in an English communication class incorporating critical thinking skills attained significantly better critical thinking skills than other students. In addition, these students were more satisfied with their class. The findings demonstrate that when used effectively, the critical thinking model can facilitate a systematic critical thinking process, empower student reflections, lead to a self-directed learning process, and create an analytic dialogue between teachers and students in clinical nursing situations.

Quotes

-Critical thinking is an important component of nursing education and practice. Every day, nurses encounter crucial situations in which they must make important decisions. Hence, they need to practice critical thinking, a higher-order thinking skill, to transcend simple problem solving and involve reasoned judgment and evaluation (Alfaro-LeFevre, 1999; Beyer, 1995; Paul, 1992 and 1993).

-Critical thinking is a mode of thinking about any subject, content, or problem. It is an ability which students can use to improve their thinking quality by skillfully managing their thought structures and the surrounding intellectual stimuli (Paul and Elder, 2001).

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Referenced From

Paul R (1992). Critical thinking: What, why, and how. In. C. Barnes (Ed.), Critical thinking: Educational imperative. San Francisco: Jossey-Bass, pp. 3-24.

Paul R (1993). Critical thinking: What every person needs to survive in a rapidly changing world. Santa Rosa, CA: The Foundation for Critical Thinking.

Paul R, Elder L (2001). The miniature guide to critical thinking: Concept and tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # V.25

Skipton, M.D. (2009). *Teaching and learning for real-world relevance: a discourse on how teachers can enable the students to learn and whether business schools can enable teachers to teach.* (Conference Paper). ASAC Conference, Niagra Falls, Ontario. 1- [PDF+]

URL

http://ojs.acadiau.ca/index.php/ASAC/article/viewFile/591/500

Abstract

Real-world relevance in business schools is even more important than ever. Focusing on undergraduate business degree programming, this paper explores practical issues and concerns around teaching for relevance. We present a conceptual model to outline some of the potential solutions for addressing problems of relevance in teaching and infrastructure within business schools.

Quotes

-Fundamentally, real-world relevance in management education requires a skeptical, situational critical thinking approach (Elder & Paul, 2005).

-We are aware that this list is in the context of management teaching and, as such, limited. The entire complement of so-called “soft-skills”, including interpersonal behavioral and communicative skills, teamwork and leadership skills, also is needed by students to become most effectively real-world relevant. Following Elder and Paul (2004), we would argue, however, that critical thinking in the real-world situational here-and-now must be fundamental to the development of powerful soft skills.

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Referenced From

Elder, L. & Paul, R., (2005), The Miniature Guide to the Art of Asking Essential Questions. Dillon Beach, CA: The Foundation for Critical Thinking. (Also, see: www.criticalthinking.org)

Citation # VI.1

Larsgaard, J. (2012). Critical http://www.abis-fbd.org/wp-content/uploads/2012/06/JRBIS2012_v5.pdf#page=107thinking in business information systems courses. *Journal of Research in Business Information Systems.* (5.5). 102-131. [PDF+] http://www.abis-fbd.org/wp-content/uploads/2012/06/JRBIS2012_v5.pdf#page=107

URL

http://www.abis-fbd.org/wp-content/uploads/2012/06/JRBIS2012_v5.pdf#page=107

Abstract

Critical thinking has become a major emphasis at many universities across the United States. At the same time,identifying effective teaching methodology for critical thinking remains an elusive concept for many educators. This research included an instructional design for teaching critical thinking about scholarly works. The design focused on a scaffolding methodology that guides students to apply the Paul and Elder (2007) identified Elements of Thought and Intellectual Standards to sentences, paragraphs, and finally to articles. Findings in this research indicated that the instructional design in this study resulted in significantly greater increases in student's critically thinking skills, as measured by the Eniss and Millman's (2005) CCTT-X critical thinking assessment instrument, then the critical thinking instructional design that has been the approved method at the site university.

Quotes

-The design focused on a scaffolding methodology that guides students to apply the Paul and Elder (2007) identified Elements of Thought and Intellectual Standards to sentences, paragraphs, and finally to articles.

-The intellectual roots of critical thinking (Paul, Elder, & Bartell, 2009) are traceable to the teaching practice and vision of Socrates 2,500 years ago.

-Paul and Elder (2007) regard Socratic questioning as the heart of critical thinking.

-Paul (1990) defined critical thinking as that mode of thinking about any subject, content, or problem in which the thinker improves the quality of his or her thinking by skillfully taking charge of the schema inherent in thinking and imposing intellectual standards upon them. Paul and his colleague Elder (Paul & Elder, 2006) advocate critical thinking based on eight elements of thought that are used with sensitivity to intellectual standards that they have identified.(Lists Elements and Standards)

-The treatment group instructional design incorporates the Paul and Elder Elements of Thought and Intellectual Standards and researcher modified related guiding questions as illustrated in the Critical Thinking Elements of Thought and Intellectual Standards handout (Appendix A).

-Traditional group was based on the Paul and Elder (2006) critical thinking elements and standards model as described in Appendix A. However, the instructional design for the Treatment group instruction was different from the instructional design for Traditional group.

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Referenced From

Paul, R. W. (1990). Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. (A. Binker, Ed.) Rohnert Park, CA: Center for Critical Thinking and Moral Critique.

Paul, R., & Elder, L. (2006). The Miniature Guide to Critical Thinking Concepts and Tools. Dillon Beach, California: The Foundation For Critical Thinking.

Paul, R., & Elder, L. (2007). The Thinker's Guide to Analytic Thinking. Dillon Beach, California: Foundation for Critical Thinking.

Paul, R., Elder, L., & Bartell, T. (2009). Critical Thinking.org A Brief History of the Idea of Critical Thinking. Retrieved 8 25, 2010, from

Citation # VI.2

Guntin, JA. (Spring, 2012). Teaching what to think vs. teaching how to think in college. *Polygon:Miami-Dade College*. (24) 1-12. [PDF+]

URL

http://www.mdc.edu/hialeah/polygon/Guntin1.pdf

Abstract

The purpose of this study is to see whether or not helping psychology students identify content issues, conclusions, reasons, and ambiguity using the SEEI model will have an impact on development of thinking. Although research indicates that significant gains in critical thinking are both perceived and experienced by college students (Tsui, 2002), competence in critical thinking is lower than it should be at every stage of schooling. (Norris, 1985). Psychology students enrolled in CLP1006 will be encouraged to utilize the SEEI (State, Elaborate, Exemplify, and Illustrate) model to assist them in identifying content issues, conclusions, reasons, and ambiguity during the semester. At the end of the semester, they will rate their own level of thought in a self-assessment format as measured by Paul and Elder's stages of critical thinking development (i.e. unreflective thinker, challenged thinker, beginning thinker, practicing thinker, advanced thinker, and accomplished thinker.) As a result of the intervention, it is expected that practicein using the SEEI model will have a positive effect in critical thinking development.

Quotes

-It is clear that the literature offers multiple paths towards CT. I choose Paul and Elder (2009) hierarchical organization of CT development on the basis of simplicity of their model and clarity of their definitions.

- All students will obtain a rubric containing information about the Stages of Critical Thinking Development as presented by Paul and Elder and will complete a three to four page pre-self assessment rating their level of critical thinking.

Referenced From

Paul, Richards, Elder, Linda (2009). The miniature Guide to Critical Thinking Concepts and Tools (The Foundation for Critical Thinking).

Citation # VI.3

Collins-Gilchrist, C. (2012). The evaluation of a self-management physiotherapy programme for adults with cystic fibrosis. *Doctoral Thesis: University of Portsmouth*. 1-94 [PDF+]

URL

http://eprints.port.ac.uk/8936/4/Microsoft_Word_-_Thesis_15th_May_2012.pdf

Abstract

This study aims to investigate the problems of adherence to physiotherapy for adults with cystic fibrosis (CF), and to develop an intervention in the form of a self management physiotherapy programme (SMPP) to improve the ability to adhere to physiotherapy treatment and thereby postulate a new and improved model of physiotherapy clinical practice. Physiotherapy is an integral part of the daily treatment and management for CF (Association of Chartered Physiotherapists in Cystic Fibrosis ACPCF)/CF Trust, 2011; Pryor et al., 2010) as it aims to keep the airways clear of secretions, encourages exercise/activity to keep as fit and as healthy possible, promotes good posture in order to reduce the impact of osteoporosis and the development of adverse respiratory mechanics in the chest wall (kypho-scoliosis) andreduces the risk of musculo-skeletal joint pain. Physiotherapy, which is one component of the complex and time consuming treatment regimens for CF, provides challenges in balancing the optimal treatment needed to maintain a good health status with the burden of regular daily treatment, which may affect a persons quality of life (QoL) and make adherence to treatment difficult (Christian, 2007; Daniels, 2010; Kettler, Sawyer, Winefield, & Greville, 2002). Of all of the treatment regimens carried out by people with CF, daily physiotherapy is the least liked (Daniels, 2010; Ireland, 2003; White, Stiller, & Haensal, 2007; Zindani, Streetman, Streetman, & Nasr, 2006) and has the lowest levels of adherence which can result an increased frequency of chest infections, pharmacological costs and hospitalisation in addition to a reduced quality of life (QoL). Physiotherapy treatment has been perceived by some people with CF as being ineffective, time consuming and its clinical benefits not always discernable (Llorente, Bousono, & Martin, 2008; Myers & Horn, 2006). Whilst highlighting adherence as a significant issue, the CF literature does not provide explanations or strategies to address this problem because studies into adherence to physiotherapy for adults with CF are in their infancy, as it is only in recent years that people with CF are living longer into adulthood.

Quotes

-Reflection requires the use of critical thinking skills in order to assess how effective the action research process has been. Critical thinking seeks to ‘think beneath the surface’ in a logical and fair way and in doing so, questions information, conclusions and points of view (Paul & Elder, 2006).

-Critical thinking (Castle, 2009; Paul & Elder, 2006) is the art of analysing and evaluating thinking, with a view to improving it. It is a self-directed, self-discipline which exercises clarity, accuracy and precision in thinking with the aim of eliminating bias and distorted thinking processes.

-Reflection requires the use of critical thinking skills in order to assess how effective the action research process has been. Critical thinking seeks to ‘think beneath the surface’ in a logical and fair way and in doing so, questions information, conclusions and points of view (Paul & Elder, 2006).

-

Referenced From

Paul, Richard, Elder, Linda (2006). The miniature Guide to Critical Thinking Concepts and Tools (The Foundation for Critical Thinking).

Citation # VI.4

Skipton, MD & Cooper, T. (2009), Teaching and learning for real-world relevance: a discourse on how teachers can enable students to learn, and whether business schools can enable teachers to teach. Ontario: *ASAC Conference*. 1-15. [PDF+]

URL

http://ojs.acadiau.ca/index.php/ASAC/article/viewFile/591/500

Abstract

Real-world relevance in business schools is even more important than ever. Focusing on undergraduate business degree programming, this paper explores practical issues and concerns around teaching for relevance. We present a conceptual model to outline some of the potential solutions for addressing problems of relevance in teaching and infrastructure within business schools.

Quotes

-Fundamentally, real-world relevance in management education requires a skeptical, situational critical thinking approach (Elder & Paul, 2005; Currie 2008). This is so that students can become “Players” who can put themselves inside the here-and-now...

-Following Elder and Paul (2004), we would argue, however, that critical thinking in the real-world situational here-and-now must be fundamental to the development of powerful soft skills.

Referenced From

Paul, R. & Elder, L. (2004). The Miniature Guide to Critical Thinking Concepts and Tools, 4th Edition, Dillon Beach, CA: The Foundation for Critical Thinking.

Elder, L. & Paul, R., (2005), The Miniature Guide to the Art of Asking Essential Questions. Dillon Beach, CA: The Foundation for Critical Thinking. (Also, see: www.criticalthinking.org)

Citation # VI.5

Claris, L & Riley, D. (2012). Situation critical: critical theory and critical thinking in engineering education. *Engineering Studies. [No PDF]*

URL

http://www.tandfonline.com/doi/abs/10.1080/19378629.2011.649920

Abstract

Over the last decade, there has been an increased focus on developing critical thinking (CT) skills within the engineering curriculum. Typically, the practice of CT occurs fragmentarily in a singular, limited context, within one of several ABET learning outcomes. Drawing on critical theory, theories of moral development, and pedagogies of liberation, we examine and challenge conceptions of CT presently used in engineering education. We develop a reflexive view of CT, leading to CT not only within but also about engineering. In this framework, CT can no longer be reduced to the application of skills, but is reconceived as creative action resulting from reflective engagement with epistemic assumptions. We implemented this integrative approach to CT across multiple course contexts and educational outcomes in engineering, finding that thinking critically about engineering can challenge power/knowledge relationships, critique engineering epistemologies, engage in reflective and reflexive practice, and work relationally for social justice

Quotes

Could Not Access

Referenced From

Citation # VI.6

Soffe, SM, Marquardt, MJ & Hale, E. (November, 2011). Action learning and critical thinking: a synthesis of two models. *Action Learning: Research and Practice*. (8.3). 211-230. [PDF+]

URL

http://dx.doi.org/10.1080/14767333.2011.614927

Abstract

Recent scholarship and the news media have identified a lack of critical thinking and ethical behavior in the business world. These deficiencies have led to faulty decision-making, ineffective planning, and frequent organizational dysfunction. This situation has focused attention on both practitioners in the field of business and on the university programs that educate them. A number of upper-tier universities have begun to address these important issues by exploring ways of revising their Master of Business Administration programs to place greater emphasis on their graduates' ability to think critically and consider ethical implications before and after taking action. The authors propose a potential means of addressing these issues in both the business and academic environments through a synthesis of two well-established models based on the constructs of critical thinking and action learning. This synthesis has the potential to produce symbiotic and synergistic effects that may provide educators and practitioners with a new tool for encouraging critical thinking and ethical behavior. The implications for future research and practice are also discussed.

Quotes

-To begin addressing the issue of poor critical thinking skills and poor ethical decision-making, a synthesis of two models, Marquardt's action learning model and Paul and Elder's critical thinking model, is proposed.

-There are many definitions of critical thinking. For our purposes, we will use the definition offered by Paul and Elder:
Critical thinking is that mode of thinking – about any subject, content, or problem – in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual
standards upon them.

-As will be seen later in this paper, Paul and Elder (2002) have developed a model of critical thinking that incorporates the skills and attributes that the scholars cited previously have identified as essential to the critical thinker. It is for this reason that their model was chosen for the synthesis recommended in this paper.

-This theoretical construct aligns with Paul's (1995) articulation of critical thinking as either weak or strong. The weak-sense critical thinker is a highly skilled but selfishly motivated pseudo-intellectual who works to advance one's personal agenda without seriously considering the ethical consequences and implications. In this sense, the weak-sense critical thinker is often highly skilled but uses those skills selectively so as to pursue unjust and selfish ends (Paul 1995). The strong-sense critical thinker skillfully enters into the logic of problems and issues to see the problem for what it is without egocentric and/or socio-centric bias.

-Critical thinking theorist and educator Gerald Nosich (2009) makes an explicit connection between reflection and critical thinking by arguing that thinking must possess a meta-cognitive dimension for it to be critical. Richard Paul takes
this idea further by adding the necessary application of standards to properly judge thinking (Paul 2007).

-The essence of the Paul and Elder model of critical thinking has three basic parts: the elements of reasoning; intellectual standards; and intellectual traits/virtues....

-Paul and Elder explain the elements of thought as that which makes up the fundamental analytical structures of human reasoning...

-Paul and Elder framework focuses on standards that are trans-disciplinary in nature: standards that apply within and across all domains of thought. They are based in non-technical language so that they can be understood and so that the insights can be transferred across domains.

-Paul (1995, 537) defines the traits or virtues of a critical thinker in the following way:Intellectual virtues: The traits of mind and character necessary for right action and thinking; the traits of mind and character essential for fair-minded rationality; the traits that distinguish the narrow-minded, self-serving critical thinker from the open-minded, truth-seeking critical thinker. These intellectual traits are interdependent.

-The authors of the present paper believe that the power of melding the Paul and Elder critical thinking model with Marquardt's action learning model is derived from the symbiotic and synergistic relationships that it potentially could
achieve, allowing the new model to attain several goals simultaneously.

-If acquired, the ability to think critically would not only bear fruit in the professional and academic lives of set members, but as Paul and Elder (2002) and Marquardt (2005) point out, in their personal lives as well

Referenced From

Nosich, G. 2009. Learning to think things through: A guide to critical thinking across the curriculum. 3rd ed. Upper Saddle River, NJ: Prentice-Hall.

Paul, R. 1995. Critical thinking: How to prepare students for a rapidly changing world. Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R. 2007. Critical thinking in every domain of knowledge and belief. Key note address at the 27th Annual International Conference on Critical Thinking, July 23–26, in Berkley, CA.

Paul, R., and L. Elder. 2001. The miniature guide to critical thinking: Concepts & tools. Santa Rosa, CA: Foundation for Critical Thinking.

Citation # VI.7

McGuire, L., Howes, P., et al. (2011, May). Leadership as advocacy: the impact of a Title IV- supported MSW education on a public child welfare agency. *Journal of Public Child Welfare-Special Issue:Child Welfare Advocacy and Public Relations.* (5.2-3). 213-233. [No PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/15548732.2011.566761

Abstract

University/child welfare collaborations funded by Title IV-E have flourished since the 1990s. This article explores a case study of one such collaboration with success in moving master's in social work (MSW) graduates into leadership positions in the public child welfare agency, allowing them the opportunity to advocate for changes within the system. Qualitative data was collected from key informants to provide a history and context for the collaboration. Focus group data collected from the student-employees was analyzed to gain information about their contributions as administrators. Transformational leadership theory was determined to be a contributing factor in understanding the potential impact that MSW graduates may have in internally advocating for positive change in the public child welfare system.

Quotes

Could Not Access

Referenced From

Paul, R. & Elder, L. (2004). The Miniature Guide to Critical Thinking Concepts and Tools, 4th Edition, Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # VI.8

Bays, CL & Hermann, CP. (2010, July/August). An evidenced-based practice primer for infusion nurses. *Journal of Infusion Nursing*. (33.4) 220-225. [PDF+]

URL

http//journals.lwwcom/journalofinfusionnursing/Abstract/2010/07000/An_Evidence_Based_Practice_Primer_for_Infusion.7.aspx

Abstract

Evidence-based practice (EBP) is the process of using current, best evidence to guide nursing care and improve patient outcomes. This article discusses the differences between research and EBP, reviews the process of EBP, and applies EBP guidelines to central catheter infections, a clinical problem relevant to infusion nursing.

Quotes

-Expert opinions and patient contributions can be evaluated using standards for critical thinking, for example, clarity, relevance, significance, consistency, and completeness. Critically appraising the evidence is a time-intensive but essential step in EBP.

Referenced From

Paul, R. & Elder, L. (2004). The Miniature Guide to Critical Thinking Concepts and Tools, 4th Edition, Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # VI.9

Reed, GG. (2005, July). Deprovincialization, confronting, invisible privilege, and other act of social imagination: critical thinking for a global age. (Paper*).Third Annual Meeting of the Imagination in Education Group*, Vancouver, B.cC 1-14.

URL

http://scholar.google.com/scholar?start=160&hl=en&as_sdt=5,48&sciodt=0,48&cites=3632478920216070946&scipsc=

Abstract

The implications of globalization for education have not been been sufficiently explored. The literature regularly addresses the grand scale globalization issues like the digital divide, democratization, and cultural homogenization but the more personal acts of social imagination that underpin the large issues are not as readily considered. If globalization is taken to be the “intensification and extensification of social relations across space” (Kelly & Olds, 1999, 11) then cultivating the tools for building sound and lasting social relations among human beings should be a paramount educational concern. Imagination might have a crucial role to play in this process, but what would this look like and where do we begin? What sorts of imaginative and critical thinking practices should we engage in to foster the development of individuals who can work across cultural difference? What specific imaginative processes and actions should we engage in to move beyond stereotypes, expand our global awareness, and build capacities to move in unfamiliar cultural spaces? Moving toward new awareness, understanding, and capacity across cultural boundaries and borders involves critical thinking, disengaging from taken-for-granted worlds, and overcoming the patterns of “otherizing” that are so much a part of our ordinary consciousness.

Quotes

-Paul and Elder (2003) in their discussion of critical thinking have identified a set of eight “intellectual traits or virtues” that overlap and underscore the list presented by Francione. Their list includes : Confidence in reason, Intellectual perseverance, Fair-mindedness, Intellectual humility, Intellectual integrity, Intellectual autonomy, Intellectual empathy and Intellectual courage (12). The characteristics that are of particular interest to this discussion are those that assume relationship and that have an ethical base.

-

Referenced From

Paul, Richard and Elder, Linda. (2003). The miniature guide to critical thinking. The Foundation for Critical Thinking. www.criticalthinking.org.

Citation # VI.10

Roberts, C. (2011, August). *Teachers: professional leaders making a difference*. (Conceptual Framework)-Midway College Teacher Education Program, Midway, KN . 1-61. [PDF+]

URL

http://eagles.midway.edu/ted/documents/Conceptual%20Framework%20091504%20v6.pdf

Abstract

Midway College Teacher Education Program Mission: The Teacher Education Program is predicated on the belief that there are four important roles its graduates should reflect in the world of practice. First, graduates must demonstrate mastery of a body of knowledge consisting of conceptual and pedagogical constructs. Second, graduates must demonstrate leadership and critical thinking. Leadership is developed through higher level problem solving and decision making skills, involving mentoring, modeling, and facilitating. Leadership requires attention to diversity along with receptivity and understanding of varied cultural values and attitudes. Third, graduates must demonstrate positive dispositions towards self and others, towards purpose and towards their frame of reference. Accordingly, the program emphasizes collaborative and cooperative learning, self-reflection, and attention to life experiences as a means of demonstrating dispositions. They seek to understand human diversity and continually refine teaching practices to deliver enriched learning. Finally, graduates will show a mastery of professional knowledge. Professional knowledge incorporates thinking through action research, problem solving, and decision making. Knowledge embraces diversity through interdisciplinary learning, multiple intelligences, ways of knowing and learning styles. These combined dispositions contribute to the formation of a true professional educator. They will enable graduates to make a difference embodied by inclusive classrooms, encouragement of high achievement from all students, self-actualization as a model, and positive change in the lives of individual students.

Quotes

-None Found

Referenced From

Paul, R. & Elder, L. (2008). The Miniature Guide to Critical Thinking Concepts and Tools. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # VI.11

Lombardo, T. (2011). Integrative, holistic wisdom-based futures education. Cynthia Wagner (ED). *WorldFuture* 2011: *Moving from Vision to Action*. (pp1-21). Bethesda, MD: [PDF+]

URL

http://www.centerforfutureconsciousness.com/pdf_files/Articles/IntegHolWisdFutEducationMay2011.pdf

Abstract

Futures education provides the ideal framework for providing college students with a high quality integrative and holistic education. In this paper, I describe the evolution and structure of such a futures-focused educational program. Many lines of thought and diverse themes—a result of work I have done within the Center for Future Consciousness—have contributed to the development of this program. I highlight some of its key features, including the multi-faceted enhancement of future consciousness; the development of character virtues and wisdom; inter-disciplinary and psychologically holistic education; deep learning and higher cognitive skills; and sustainability and environmental ethics. Further, I describe general grading criteria, assignments, and the student-teacher learning community within this program. The overall thrust of the program is two-fold: to enhance the quality, depth, and breadth of the student's mind, and to facilitate the development of individuals who can contribute to the betterment of human society in the future.

Quotes

-Critical thinking is operationally defined using Richard Paul's set of standards of critical thinking, as well as his identified virtues of critical thinking (developed together with Linda Elder) (Paul, 1993; Paul and Elder, 2006).

Referenced From

Paul, Richard Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World. Rohnert Park, CA: Foundation for Critical Thinking, 1993.

Paul, Richard, and Elder, Linda The Miniature Guide to Critical Thinking, The Foundation for Critical Thinking, 2006 - http://www.criticalthinking.org/files/ Concepts_Tools.pdf .

Citation # VI.12

Kabanova, I. (2008). IT in humanities seminar: shifting student learning attitudes. (SOTL project). Saratov State University, Saratove, Russia 1-7 [PDF+]

URL

http://web.ceu.hu/crc/sotl_fel/Kabanova_project.pdf

Abstract

The project is connected to the course which will be taught in spring 2009 “Introduction to Literary Studies: English Metaphysical Poets” in the new format, adding to traditional classroom, face-to-face teaching the virtual learning space opened by Moodle course management system, and analyzing information technologies’ (IT) influence on student learning. The expectation is that traditional methods of developing expert level in reading fiction and poetry will be significantly helped by tasks done online. Reading expertise goes hand in hand with developing critical thinking in students.

Quotes

-Critical thinking – “is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness” (R.Paul, M. Scriven, 1987). To these formal logical criteria of CT Kerry Walters adds imagination, insight and intuition, constituting essential components of “the pattern of discovery” (1990) and important in art and literature studies.

Referenced From

Paul, R. W. (1995). Critical thinking: How to prepare students for a rapidly changing world. Santa Rosa, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2001). Critical thinking: Tools for taking charge of your learning and your life. Upper Saddle River, NJ: Prentice Hall.

Paul, R. & Elder, L. (1997). The Elements and Standards of Reasoning: Helping Students Assess Their Thinking. Foundation For Critical Thinking. http://www.criticalthinking.org/resources/articles/content-thinking.shtml

Paul, R., & Elder, L. (2008). The Miniature Guide to Critical Thinking Concepts and Tools. Foundation for Critical Thinking Press, 2008.

Citation # VI.13

Blakey, A J. (2007, June). *Experiences of critical thinking, critical action, and critical being in health science tutorials.* (Masters Thesis). Health Sciences University of Otago, North Dundein, NZ. 1-162. [PDF+]

URL

http://otago.ourarchive.ac.nz/bitstream/handle/10523/1867/BlakeyAltheaJ2011MHealSc.pdf?sequence=3

Abstract

Critical thinking remains one of the most debated topics in higher education. On the premise that graduates still leave higher education with limited thinking skills and that critical thinking concepts are now diffuse and difficult for some to use in practice, Barnett formulated his concepts of critical thinking, critical action and critical being. In 'Higher Education: A Critical Business' (1997) Barnett describes how educating for critical thinking is a fundamental purpose of higher education and that existing critical thinking concepts fail to realize the emancipatory potential that such an education offers. Higher education plays a crucial role in clinical education, and tutorial groups are upheld as sites for developing critical thinking. Such groups can be challenging to teach which means teachers face difficulties in developing conceptions of critical thinking as well as putting them into practice. This study examines Barnett's work for utility in these practice situations. Four case studies of small teaching groups were investigated; teaching sessions were videotaped in naturalistic settings, tapes replayed to teachers and students, and responses to them taped using Interpersonal Process Recall (IPR). Responses were transcribed alongside interviews with group teachers. Data were analysed and themes developed in terms of teachers' and students' perceptions of their own thinking processes, the nature of critical thought, critical action and critical being in teaching and learning, and what students and teachers do to enhance these critical processes. Data were also examined for meaning in terms of Barnett's theories. Themes developed include autonomy, the critical thinking process, collegial teachers and peers, extending thinking and being changed as a person. Results supported Barnett's theory in that critical thinking is purposeful and individualistic but also that critical thinking can result in suboptimal student outcomes, that true critical actions occur in social contexts and that critical being begins with the realization of one's values and has potential to develop in undergraduate education. This thesis offers many ways for teachers to inform their practice when teaching for critical thinking, action and being and also offers advice for students in higher education. Students who wish to develop these critical processes need to work hard, take risks, choose actions depending on what is going on around them and develop the ability to apply critical thinking and action to all life experiences. Students also need to realize their own values but this might mean facing the possibility that they appear a little different to others in professional life.

Quotes

- In my experience, students and staff have also, at times, become accustomed to a didactic style and alongside this expectation seem to expect that more teaching, rather than better quality teaching is the way to build competent, critically thinking professionals. According to research (e.g. Paul, 1990; Biggs, 1999) these are all common problems and because of such issues, many teachers find managing groups and developing critical thinking stressful and unfulfilling.

-Some critical thinking authors agree on one point, that the purpose of critical thinking is positive and benefits both the self and others (e.g. Paul, 1990..).

-One of the largest groups of critical thinking concepts is concerned with thinking skills and abilities. These terms are frequently used in the literature, often interchangeably. Such concepts are published widely as self-help books, training guides and form the basis of internet sites, and as such are readily accessible. These resources are popular with those seeking to improve study skills and beginner teacher practitioners (e.g. Cottrell, 2005; Paul & Elder, 2006).

-Paul and Elder (2006) present similar concepts, but also suggest that critical thinking should form the basis of everyday problem solving as well as at work. Their 'Mini-Guide to Critical Thinking, Concepts and Tools', contains chapters on 'Checklist for Reasoning' and 'A Template for Problem Solving'. According to these authors, the quality of decisions made depends on good critical thinking and that 'shoddy' thinking is costly both economically and in terms of quality of life.

-Whilst Cottrell (2003; 2005) presents her concepts of critical thinking as individual skills, Paul and Elder (2006, above) present theirs as parts of a critical thinking 'process'.

-Attitudes will have different relationships with critical thinking. Elder and Paul (1998) described how they believed attitudes were the antecedents of critical thinking and that attitudes actively encourage critical thinking.

-Richard Paul, who, alongside Barnett dominated certain aspects of the critical thinking debate in the late 20th century, has viewed creativity and lateral thinking as both integrated and inseparable from critical thinking and that ground breaking work is seldom generated by known processes or systematic instruction alone (Paul, 1993).

-Many, many more quotes...

Referenced From

Elder, L. & Paul, R. (1998) Critical Thinking: Developing Intellectual Traits. Journal of Developmental Education, 21(3).

Paul, R. (1990). Critical thinking: What every person needs to survive in a rapidly changing world. California: Center for Critical Thinking and Moral Critique, Sonoma State University.

Paul, R. (1993). The logic of creative and critical thinking. American Behavioural Scientist. 37(1), 21-39.

Paul, R. & Elder, L. (1997). White paper: Consequential validity: Using assessment to drive instruction. Retrieved from: www. criticalthinking.org June 2010

Citation # VI.14

Szypszak. C. (2011). Teaching law in public affairs education: synthesizing political theory, decision making, and responsibility. *Journal of Public Affairs Education*. (17.4) 483-499. [PDF+]

URL

http://www.naspaa.org/JPAEMessenger/Article/VOL17-4/03_Szypszak.pdf

Abstract

Consideration of the law and the legal process is essential for students of public affairs who are preparing for responsibilities as leaders, managers, and policy makers. In their foundational courses, public affairs students are likely to encounter political theories about the constitutional law framework on which administrative authority is based. They may also have an option to study discrete aspects of the law deemed especially relevant to public administration, such as agency rulemaking or basic federal employment law. This article argues that public affairs students should have the opportunity to study law in a course designed to integrate consideration of legal foundations, a range of basic law subjects that public officials commonly encounter, and practical concerns such as complying with public ethics laws, managing litigation, and hiring lawyers. With the benefit of such an integrated approach, students will more clearly see the interrelationship of policy and law, further develop analytical and decision-making skills, and better understand the importance of personal responsibility for promoting the rule of law from which their authority will be derived.

Quotes

-Research shows that teaching for “deep” learning, as opposed to “surface” learning, requires challenges to existing mental models and long-standing beliefs (Bain, 2004; Moore, 2007; Paul & Elder, 2004).

Referenced From

Paul, R., & Elder, L. (2004). The miniature guide to critical thinking concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking.

Citation # VI.15

Tolone, WJ, Lee, SW, Xiang, WN, et al. (2011). *Effective scenario composition for the revelation of blindspots in critical infrastructure protection planning.* (Conference Paper) 1st Annual IFIP Working Group 11.10 International Conference on Critical Infrastructure Protection. George Washington University, WA DC. [PDF+]

URL

http://scholar.google.com/scholar?start=170&hl=en&as_sdt=5,48&sciodt=0,48&cites=3632478920216070946&scipsc=

Abstract

Abstract: Integral to effective critical infrastructure protection planning is the assessment of infrastructure vulnerabilities, which aims to provide planners with the insights into potential disruptions. For such a task, a set of scenarios is widely regarded in both academic and professional communities to be one of the best tools. Unfortunately, while scenarios are used extensively, they often are not used to their full potential, as scenario composition frequently
occurs using a non-systematic “back-of-envelope” approach that relies solely on ease-based heuristics. As a consequence, planners are often subject to “blind spots” that minimize, if not exacerbate, the effectiveness of Critical Infrastructure Protection Plans. While recognizing that proper tools and technologies can play an important role in the revelation of blind spots, in this paper we focus specifically on this need for proper methodologies and frameworks to facilitate
effective scenario set composition. In particular, we present our methodology for scenario set composition, we examine the role of ontological and geospatial analyses during the construction of scenario sets, and present our critical infrastructure interdependency framework to guide the planning process.

Quotes

-Our methodology for scenario set composition draws from work by McNally (2005), Miller and Waller (2003), Alcamo (2001), Swartz (1991), Moore (2006), and Paul and Elder (2006).

Referenced From

Paul, R. and Elder, L. (2006) The Miniature Guide to Critical Thinking: Concepts and Tools. The Foundation for Critical Thinking.

Citation # VI.16

D'Angelo, J. & Kline, S. (2012, May/June). *Online educational simulations: exploring questions, context, and moral development.* (Conference Paper). International Communication Association Virtual Conference. Phoenix, AZ . 1-21. [PDF+]

URL

http://www.icavirtual.com/wp-content/uploads/2012/04/No35_DAngelo_VC_Template.pdf

Abstract

Critical thinking and argument skills are significant for developing a range of competencies for participating in society, including moral development. Hence, the focus in this research is on argument discourse skill, and on exploring the effectiveness of a particular intervention – online educational games - as a context for enhancing argument skills, and serving as a platform for moral development. This research examined a specific computer simulation called Place Out of Time, which involved 168 students in five schools from middle through graduate school over a 10 week time period. Here two studies are presented. The first focused on argumentative discourse, finding that students utilize questioning in distinct ways not before accounted for in literature. The second situated these findings by exploring evidence of larger educational development. It is concluded that this context, and online educational simulations, may present a unique and especially effective context for development of argumentation skills, as well as moral development.

Quotes

-Critical thinking advocates contend that a cultivated critical thinker “raises vital questions and problems, formulating them clearly and precisely” (Paul & Elder, 2001, p. 1).

Referenced From

Paul, R., & Elder, L. (2001). The miniature guide to critical thinking: Concepts and tools. Dillon Beach, CA: Foundation for Critical Thinking Press.

Citation # VI.17

Nickerson J. & Olsen, T. (2010). *A Guide to Understanding, Learning, and Practicing Critical Thin*king. (Monograph). Olin Business School Publication. St. Louis, MO. 1-40. [PDF+]

URL

http://www.hbs.edu/rethinking-the-mba/docs/washington-u-guide-to-business-critical-thinking-at-olin-school.pdf

Abstract

This monograph offers concrete practical steps—what is referred to as critical thinking—that, when followed, can lead to superior problem formulation and solving. To do so, the next section defines critical thinking by first exploring the notion of intelligent thinking. It explains why critical thinking skills are valuable to business students and executives. The monograph then delves into the different types of thinking processes such as deduction and induction and identifies common biases, fallacies, and impediments that can arise from thinking. The next section discusses the importance of disposition; that is, the need to be responsible for your own job. The remaining sections introduce the elements of thinking, processes for thinking about business and policy questions, and methods for learning critical thinking skills. It is hoped that this information will be useful in elevating your thinking skills.

Quotes

-One of the many useful sources on critical thinking referenced herein comes from the Foundation for Critical Thinking (FCT).Critical Thinking @ Olin states that critical thinking is the mental process of actively and skillfully:
•raising vital questions and problems
•formulating them clearly and precisely
•gathering and assessing relevant information using abstract concepts to effectively interpret information
•coming to well-reasoned conclusions and solutions, testing them against relevant criteria and standards
•thinking open mindedly with alternative systems of thought, recognizing assumptions, application, and practical consequences
•and communicating effectively with others in figuring out solutions to complex problems
-Many definitions exist for critical thinking; but all of them have much commonality. Critical thinking invokes dispositions, elements of thought, thinking standards, and processes to advance the likelihood that individuals address appropriate and useful issues and develop inferences, answers, or problem solutions that are creative, well reasoned, and useful.

Referenced From

Paul, R., and L. Elder (2006). Critical Thinking: Concepts and Tools. Dillon Beach, CA: The Foundation for Critical Thinking.

Citation # VI.18

Golding, C. (2009). That's a better idea! Philosophical progress and philosophy for children. *Childhood & Philosophy*. Rio de Janeiro: (5.10). 223- 269. [PDF+]

URL

http://scholar.google.com/scholar?start=190&hl=en&as_sdt=5,48&sciodt=0,48&cites=3632478920216070946&scipsc=

Abstract

Philosophy for Children is an important educational programme that engages children in philosophical inquiry as the means to make sense of the world. A key to its success is that participant's progress with making sense of the world or, more colloquially, they develop better ideas. Although philosophical progress is essential to the value of Philosophy for Children, there is little written on this important concept and what is written tends to be merely suggestive. The result is that teachers and students often find themselves lost in the dialogical, open inquiry of Philosophy for Children where
there is no pre-determined end-point or uncontroversial 'right' answers they can move towards. This paper will uncover the seed of a conception of philosophical progress in the current Philosophy for Children literature and then 'grow' this into a more adequate conception of philosophical progress. I argue that philosophical progress in Philosophy for Children should be conceived of as the movement from philosophical problems to philosophical resolutions, or in other words, from incongruous and inadequate conceptions to transformed conceptions where the problems no longer occur. A framework of philosophical inquiry helps students to keep their bearings as they move from philosophical problems to philosophical resolutions, and helps them to identify milestones that indicate they are getting somewhere. They know they have made progress not because they have the 'right' answer, but because they have better conceptions that are in greater reflective equilibrium in comparison with the incongruous and inadequate conceptions they started with and in comparison with alternative resolutions. My recommendation is that such a conception of philosophical progress become a core feature of the Philosophy for Children programme so it can provide needed scaffolding for the essential aim of making philosophical progress.

Quotes

-Appendix 2 lists a number of the characteristic moves that students could make at different stages of philosophical inquiry in order to make philosophical progress. For example, if students have suggested some possible resolutions,
the next stage is elaboration, so their next move could be to say something like "Building on that you could say …" or "An example of this view is…" This list is also influenced by: Splitter and Sharp (1995, 56-57); Paul (1994, ch22; 1995), Paul and Elder,(2002)...

-There are numerous standards proposed for judging that one philosophical position is better than another. For example, the intellectual standards suggested by Paul are: clarity, accuracy, relevance, fairness, precision, plausibility, consistency, logicalness, breadth, depth, completeness and significance (1994, 473; Paul & Elder, 2002, 10).

-

Referenced From

Paul, R. W. (1994). Critical Thinking (revised 3rd ed.). Melbourne: Hawker

Paul, R. W. (1995). Socratic Questioning and Role-Playing. Santa Rosa CA: Foundation for Critical Thinking.

Paul, R. W., & Elder, L. (2001). The Miniature Guide to Critical Thinking: Concepts and Tools. Santa Rosa CA: Foundation for Critical Thinking.

Paul, R. W., & Elder, L. (2002). The Miniature Guide to the Art of Asking Essential Questions. Santa Rosa CA: Foundation for Critical Thinking.

Citation # VI.19

Molnar, D.R. (2007, June). *Serving the world: A cross-cultural study of national culture dimensions and servant leadership*. (Doctoral Dissertation). Capella University, Minneapolis, MN. 1-139. [PDF+]

URL

http://www.olagroup.com/Images/mmDocument/Molnar%20Dissertation%202007.pdf

Abstract

Since its introduction into the leadership and management literatures by Greenleaf, servant leadership has harbored the potential to act as an intellectual and emotional bridge between worldviews. Development of this bridging structure offers enormous heuristic utility for organizations entering new, international markets. Such organizations must attend to the social and cultural norms of the peoples with whom they interact or face possible conflict between incommensurate worldviews and probable failure in those markets. Hofstede's cultural typology has been used by organizations for many years as a framework for understanding national cultures at a high level. This study combines Hofstede's typology with Hebert's compression of Laub's six servant leadership subscores, (a) values people, (b) develops people, (c) builds community, (d) displays authenticity, (e) provides leadership, and (f) shares leadership, into the single factor, servant leadership, to arrive at filtering criteria for the World Values Survey (2006) dataset. The result is an instrument of 35 World Values Survey variables covering 3,282 respondents from 23 countries in the Northern Hemisphere. These 35 variables are used to construct a Servant Leadership Index (SLI) intended to measure servant leadership at the general study level. Statistical procedures are used to explore relationships between Hofstede's cultural typology dimensions Power Distance (PDI), Individualism and Collectivism (IDV), Masculinity and Femininity (MAS), and Uncertainty Avoidance (UAI) and the SLI at the study level. Along with this, the influences of several WVS demographic variables upon the SLI are computed. The outcomes of this study are centered on the correlative and influential relationships gender has upon the applicability of servant leadership to the sample population.

Quotes

-Other researchers (Powell, 2005; Thompson, 2004; Willmott, 1992) describe the characteristics and challenges of the postmodern era: "How can we adapt to reality when reality won't give us the time to master it before it changes, again and again, in ways we can but partially anticipate" (Paul & Elder, 2002, pp. 1-5)?

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education, Inc.

Citation # VI.20

Osborne, R, Kriese. P, et al. And Never the two shall meet?: Student vs. faculty perceptions of online courses. *Journal of Educational Computing Research.* (40.2) 171-182. [PDF+]

URL

http://baywood.metapress.com/app/home/contribution.asp?referrer=parent&backto=issue,2,7;journal,26,181;

Abstract

The education literature is blossoming with work on perceptions of distance education, online teaching, hybrid courses, and the like. Although this literature is important for helping faculty to understand the costs and benefits for teaching in these newer formats, little attention has been paid to documenting potential differences between student expectations for taking and faculty perceptions about teaching online courses. The current project gathered perceptual data from students and faculty about online courses. Findings suggest that differences between student and faculty perceptions of online courses might create barriers that diminish the effectiveness of the teaching-learning environment in such courses.

Quotes

-For theoretical guidance, we turned to such well known views as Kuhn's (1999) developmental model, Paul and Elder's (2002) work establishing a relationship between student thoughts, feelings and desires and Smith's (2002) characteristics of critical thinkers.

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education/FT Press.

Citation # VI.21

Lechasseur, K, Lazure, G. & Guilbert, L. (2011, September). Knowledge mobilized by a critical thinking process deployed by nursing students in practical care situations: a qualitative study. *Journal of Advanced Nursing*.(67.9) 1930-1940. [No PDF]

URL

http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2648.2011.05637.x/abstract;jsessionid=15F9E6ADFCF4AF9D22B74A612EB9115D.

Abstract

Aim. This paper is a report of a qualitative study of mobilization of knowledge within the critical thinking process deployed by female undergraduate nursing students in practical care situations.

Background. Holistic practice is based on variety of knowledge mobilized by a critical thinking process. Novices and, more specifically, students experience many difficulties in this regard. Therefore, a better understanding of the knowledge they mobilize in their practice is important for nurse educators.

Design. A qualitative study, guided by grounded theory, was carried out. Sixteen nursing students, registered in an undergraduate programme in an Eastern Canadian university, were recruited. Descriptions of practical care situations were obtained through explicitation interviews in 2007. A sociodemographic questionnaire, semi-structured interviews and field notes were also used. Data were analysed using an approach based on grounded theory. An additional stage of analysis involved data condensation.

Findings. Various types of knowledge guide nursing students' practice. These include intrapersonal, interpersonal, perceptual, moral/ethical, experiential, practical, scientific and contextual knowledge. The mobilization of these types of knowledge is only possible when the process of critical thinking has attained a higher level, giving rise to a new knowledge that we have termed combinational constructive knowledge rather than aesthetic knowledge.

Conclusion. Clarification of the types of knowledge guiding the practice of student nurses and of the role of critical thinking in their mobilization could lead to innovative educational strategies. The findings provide guidance for the revision and development of both academic and clinical training programmes.

Quotes

Could not access

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education/FT Press

Citation # VI.22

Zarei, AA, (2012). The relationship between critical thinking and L2 grammatical and lexical knowledge. *English Linguistics Researc*h. Takestand: Iran, (1.1.). 104-110. [PDF+]

URL

http://sciedu.ca/journal/index.php/elr/article/view/1313/687

Abstract

The present study was conducted to investigate the relationship between critical thinking and L2 grammatical knowledge on the one hand, and the relationship between critical thinking and lexical knowledge on the other. To fulfill this objective, a 60-item vocabulary and grammar subtest of the TOEFL test and an 80–item Watson Glaser Critical Thinking questionnaire were distributed among 150 male and female Iranians studying English as a foreign language at Azad University in Takestan, Iran. Data were analyzed using Pearson correlation procedure. The result of data analysis indicated that the correlation between vocabulary and critical thinking was not statistically significant. The correlation between grammar and critical thinking was not statistically significant either, but there was a strong trend towards a positive relationship

Quotes

-Paul, Elder, & Bartell (1997) point out that the rational roots of critical thinking are ancient and go back to the teaching practice and insight of Socrates 2500 years ago.

-Paul et al. (1997) maintain that self-assessment is a crucial factor to critical thinking, and only those students who learn to assess their own thinking are critical thinkers. A critical thinker is able to reflect, explore, and analyze, and can choose to think in these advanced, complicated ways. To be a critical thinker is in fact announcing our reason and intellect with our emotions, attitudes, and dispositions.

-In addition,Paul and Elder (2002) hold that developing critical thinking is a progressive process which requires hard work , and becoming an excellent thinker is not possible by just taking a beginning course. So, the crucial characteristics of a critical thinker demand a long-lasting period of development.

-The relationship between critical thinking and learning is fairly well-documented. Paul and Elder (2005) assert that there is a key insight that makes a connection between critical thinking and learning; human thinking is the only capacity which is used to learn. We can learn well when we think well, and when we think poorly during learning, we learn poorly.

-Furthermore, Paul and Elder (2005) give four reasons why critical thinking is becoming more and more important: "accelerating change, intensifying complexity, escalating interdependence, and increasing danger" (p.12).

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Referenced From

Hale, E. (2008). A critical analysis of Richard Paul’s Substantive Tran-disciplinary conception of critical thinking. Unpublished doctoral dissertation, Union University of Cincinnati, Ohio.

Paul, R., & Elder, L. (2002). Critical thinking: tools for taking charge of your professional and personal life. Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2005). A guide for educators to critical thinking competency standards. Dillon Beach, CA Foundation for critical thinking.

Citation # VI.23

Houghton, S. (2009). Evaluating difference in the foreign language classroom: Teaching approaches, syllabus design and student reactions. *Stellenbosch Papers in Linguistics PLUS,* (39). 29-44 [PDF+]

URL

http://sun025.sun.ac.za/portal/page/portal/Arts/Departments/linguistics/documents/SPILPLUS39-Houghton.pdf

Abstract

Foreign language learners do not necessarily have naturally occurring encounters with speakers of the target language and instead tend to be presented with cultural difference as a matter of course through teaching materials, culture expressed through the target language and perhaps through teacher stories. Various scholars (Allport 1954; Barna 1982:327; Brislin
1984, 1986; Hewstone and Giles 1986; Gudykunst and Hammer 1988; Kim and Gudykunst1988) have asked how students should evaluate culture difference when it does arise and what guidance should be given by the teacher, bearing in mind how easy it can be to fall back on stereotypes and prejudice in the face of the unknown. What learning objectives can and should be set within teaching approaches that deal with the evaluation of cultural difference in foreign language education, and why? To date, I am not aware of any research that has specifically addressed these questions but detailed analysis of the relevant literature seemed to suggest the following three teaching approaches.

Quotes

-Teaching Approach 1: Teachers should train learners to adopt a non-judgemental stance towards difference and engage in intellectual empathy to take the perspective of others (Bennett 1993:60; Byram and Zarate 1994:29; de Bono 1990:95; Gudykunst 1998:232; Paul and Elder 2002:26).

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Referenced From

Paul, R. and L. Elder. 2002. Critical thinking: Tools for taking charge of your professional and personal life. Financial Times Prentice Hall, Upper Saddle River, NJ: Prentice Hall.

Citation # VI.24

Jensen, RS. (2011. May). *Effect of curricular sequencing of human patient simulation learning experiences on students' self-perceptions of clinical reasoning abilities.* (Doctoral Dissertation). School of Nursing, Indiana University. Bloomington, IN. 1-189. [PDF+]

URL

https://scholarworks.iupui.edu/handle/1805/2715

Abstract

It is unknown whether timing of human patient simulation (HPS) in a semester, demographic (age, gender, and ethnicity), and situational (type of program and previous baccalaureate degree and experience in healthcare) variables affects students' perceptions of their clinical reasoning abilities. Nursing students were divided into two groups, mid and end of semester HPS experiences. Students' perceptions of clinical reasoning abilities were measured at Baseline (beginning of semester) and Time 2 (end of semester), along with demographic and situational variables. Dependent variable was Difference scores where Baseline scores were subtracted from Time 2 scores to reveal changes in students' perceptions of clinical reasoning. Students who were older and had previous healthcare experience had higher scores, as well as students in the AS program, indicating larger changes in students' perceptions of clinical reasoning abilities from Baseline to Time 2. Timing of HPS, mid or end of semester, had no effect on Difference scores, and thus students' perceptions of clinical reasoning abilities.

Quotes

-Paul & Elder (2002)Critical thinking is that mode of thinking-about any subject, content, or problem-in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them (p.15).

-Paul & Elder (2008)The art of thinking in such a way as to: 1) identify its strengths and weaknesses, and 2) recast it in improved form (where necessary) (p. 20)

-Paul & Elder (2009) The art of analyzing and evaluating thinking with a view to improving it (p. 2)

- Some critical thinking definitions (Paul & Elder; Rapps et al., 2001) are similar to those provided for metacognition, which is commonly described as thinking about one‘s thinking.

Referenced From

Paul, R., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Prentice Hall.

Paul, R., & Elder, L. (2008). The nature and function of critical and creative thinking. Dillon Beach, CA: Foundation for Critical Thinking.

Paul, R., & Elder, L. (2009). The miniature guide to critical thinking concepts and tools. Dillon Beach, CA: Foundations for Critical Thinking Press.

Citation # VI.25

Hess, JH. (2011). *Improving intelligence in a counterinsurgency or counter-terrorism environment through application of a critical thinking-based framewor*k. (Doctoral Dissertation). School of Human Resource Education and Workforce Development University of Louisiana . 1 -158. [PDF+]

URL

http://etd.lsu.edu/docs/available/etd-11022011-091541/unrestricted/Hessdiss.pdf

Abstract

The intelligence community is responsible for providing competent analysis and assessments pertaining to the many significant geo-political situations that may potentially or do effect the nation's interests. The intelligence community has always experienced challenges living up to that charge, and while it may merely be a case of the nature of the profession, there are always lessons that can be learned and processes that may improve the analytical processes. Critical thinking is a cognitive process that may be able to provide that improvement to the analytical processes, and when an analytical framework is built by applying these cognitive skills, the analytical effort may become more focused and meaningful.

This study examined an intelligence analysis framework that was built using specific cognitive critical thinking skills. It was demonstrated that intelligence analysis did improve, specifically with the novice analysts that participated, and there was demonstrated specificity in the respondents' analyses. A panel of experts provided insight and content assurance that demonstrated the intelligence analysis and products produced were valuable for operational usage. Finally, successful historical counterinsurgencies were examined in relationship to the analytical framework that was utilized in order to understand how this analysis can lead to operational success.

Quotes

-There were two main schools of thought, Facione's (2010) and Paul and Elder's (2002), pertaining to the teaching and implementation of critical thinking skills; they include applying critical thinking skills to one's cognitive ability, or applying critical thinking skills in a domain-specific manner. Domain-specific refers to taking those specific cognitive skills that critical thinking may enhance and apply them to a specific discipline. In other words, changing or enhancing the process that one utilizes when conducting his analysis or solving a problem for instance.

-As mentioned in chapter one, there were two predominate schools of thought pertaining to critical thinking; Facione (2010), and Paul and Elder (2002). Facione's (2010) research has focused on critical thinking aspects that can be applied domain-specifically, while Paul and Elder's (2002) focus was more toward critical thinking as a stand-alone cognitive ability that generally improves thinking.

-The U.S. Army Intelligence Center at Fort Huachuca does not subscribe to one specific methodology, but teaches from both Facione (2010) and Paul and Elder (2002). While I believe there was value in teaching both approaches, Paul and Elder's research may be difficult for an analyst to apply in very specific environments.

Referenced From

Paul, R. & Elder, L. (2002). Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life. Upper Saddle River, NJ: Pearson.

Citation # VII.1

Lock, PA. (2010). *Transcending time through professional development: the freedom writers institute.* (Doctoral Dissertation). in Leadership for Educational Justice. University of Redlands, Redlands, CA. 1-231. [PDF+]

URL

http://gradworks.umi.com/3422228.pdf

Abstract

Using a social justice lens of critical theory, social re-constructionism and human rights education, this research reports the perceptions, in respect to human rights and education, of individuals who have been involved with the Freedom Writers Institute. A life history case study portion focuses on the work of Holocaust survivor Renée Firestone, who has worked as a human rights advocate for over 30 years, as well as the career of Erin Gruwell, including her creation of the Freedom Writers Foundation. Findings suggest that leaders can benefit from the mentoring they receive from other people, and that the context of supportive mentoring occurs within the context of friendships. A phenomenological case study portion focuses on educator participants in the Freedom Writers Institute. Findings suggest four major results: (1) power is misused in educational hierarchies; (2) human rights education is excluded from the curriculum; (3) the inclusion ofHolocaust survivor testimony in the curriculum is beneficial and serves as a gateway to the inclusion of human rights education; and (4) the Freedom Writers Institute strengthens teachers' relationship with their students, provides a variety of pedagogical approaches as well as a sense of encouragement and rejuvenation for the participants, and incorporates a strong familial network of support from other Freedom Writer Institute participants. Further research is recommended to study the perceptions of individuals in regards to the impact of having survivors of genocides other than the Holocaust speak to students; to study what components of the Freedom Writer Institute (FWI) are actually being incorporated into classrooms by the Freedom Writer Teachers (FWTs); to study the perceptions, regarding the effectiveness of the techniques learned at the FWI, of non-FWTs who work at school sites with FWTs; to examine and compare the grades, standardized test scores, and/or graduation rates; to study the perceptions of students whose teachers have been trained at the FWI; to study the perceptions of administrators and/or Board Members who have FWTs on their staffs; and to study the perceptions of parents whose children are enrolled in an FWT's classroom.

Quotes

-Because learning occurs within the context of relationships, students need experiences that challenge them to interact with adults who are committed to social justice for all people (Paul, 1993).

-Didactic Model: Defined by Paul (1992), the didactic model is "teaching by telling" (p. 464), and is synonymous with the banking and factory models of education. The student is told by the teacher what to believe and think about a subject, and it is the student's job to remember what was said and reproduce that information upon demand (Paul, 1993).

-Intellectual Courage: As defined by Paul (1992), intellectual courage is the willingness to face – and assess fairly and honestly – ideas, beliefs or viewpoints which have not been given a serious hearing, regardless of one's strong negative reactions to them. (Lock goes on to discuss Intellectual Empathy, and Humility.

-Perennialism: Perennialism builds upon the interests of the dominant power group, and tends to resist attempts at multicultural education (Paul, 1993).

-Paul and Elder (2002) wrote that social rules and laws have often mistakenly been taken to be inherently ethical in nature..."No culture sees itself as indoctrinating its young or discouraging intellectual development." Richard Paul.

-Based on a behaviorist theory of learning, all three models have viewed learning in a reductionist manner, where achievement has been equated with standardized test scores and results (Paul, 1993; Paul & Elder, 2002, Giroux, 2009b; McNeil, 2009). Perennialism has emphasized a "back to basics" approach, and has promoted the belief that a certain body of information has existed and needs to be perpetuated throughout the ages (Paul, 1993).

-Although great works of Western thought have been emphasized in perennialism, multicultural literature has not (Lindsey, Graham, Westphal, & Jew, 2008; Lindsey, Jungwirth, Pahl, and Lindsey, 2009; Paul, 1993).

-Richard Paul and Linda Elder (2002) referred to the banking model as the didactic model. Students have been passive learners who have been filled with knowledge transmitted to them via teachers and textbooks. A standard curriculum has been offered with minimal room for multiculturalism or diversity.

-Lower order thinking skills have been enforced, and students have been asked not to think critically, but rather only to be filled with knowledge, able to repeat what they have learned (Paul & Elder, 2002).

-Because learning occurs within the context of relationships, students need experiences that challenge them to interact with adults who are committed to social justice for all people (Paul, 1993).

-Paul (1992) challenged this model (Banking) when he asserted the following: "Students need skill and practice in moral reasoning, not indoctrination into the view that one nation rather than another is special in enunciating moral principles" (p. 243).

-I have striven to help students develop disciplined thinking so they become self-directed and reflective thinkers as they master intellectual and ethical skills and abilities (Paul & Elder, 2006).

-Paul (1992) defined egocentrism as "the tendency to view everything in relationship to oneself – to be self-centered, or to consider only

Referenced From

Paul, R. (1992). Critical thinking: What every person needs to survive in a rapidly changing world. Rohnert Park, CA: Foundation for Critical Thinking.

Paul, R. (1995). Critical thinking: How to prepare students for a rapidly changing world. Dillon Beach, CA: Foundation For Critical Thinking.

Paul, R., and Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education.

Citation # VII.2

Mader, JN.(2012, Spring). Creating critical thinking in world history surveys: innovations with primary sources, film, and the internet. *Middle Ground Journal*. (4). 1-15. [PDF+]

URL

http://resources.css.edu/academics/HIS/MiddleGround/articles/mader.pdf

Abstract

In most colleges and universities, a World History survey course is an essential part of the liberal arts curriculum. It is the belief by many colleges and universities that a student taking one or two world history courses (as well as other parts of a core curriculum) would be challenged to examine the ultimate meaning of life, their place in the world, and their responsibility to others. Moreover, students, having historical context, would have a better understanding of the human experience and garner appreciation of other cultures. In essence, students would be more knowledgeable and analytical of their past historically and could then become more productive citizens. . .

I will share some of what I have done over the past several years teaching world history by having my students write small, but quality papers. Much of my teaching is still a work in progress, as I am constantly revamping my pedagogy.

However, I believe that there are certain strategies and rules for collegial composition that have proven to be successful in an ever-changing student environment. There are many different options out there, and I hope to evolve year by year.

Quotes

-In fact, recent studies in pedagogy are working to make students of history “active learners” and “critical thinkers”; not simply automatons taking copious notes without any sense of what they are absorbing.

Referenced From

Paul, R. and Elder,L.(2002) Critical Thinking: Taking Charge of Your Professional and Personal Life (Upper Saddle River, NJ: Financial Times/Prentice Hall, 2002).

Reed, J and Komrey, JD. (2001, June) Teaching Critical Thinking in a Community College History Course: Empirical Evidence from Infusing Paul’s Model. *College Student Journal*, (35:2). 201-215.

Citation # VII.3

Price, K. (2007, March) Debating the value of professional boundaries and expertise. *Focus on Health Professional Education: A Multi-disciplinary Journal.* (8.3) 116-124. [NO PDF]

URL

http://search.informit.com.au/documentSummary;dn=039756481688030;res=IELHEA

Abstract

In this paper my intent is not to argue against inter-professional/disciplinary education or learning, or practice per se (or however they may be referred to but hereafter due to space limitations abbreviated to IPE). Rather I seek to promote the value of professional boundaries (however fuzzy) and professional expertise (however fragmented) to meet the complex and unpredictable health and social care needs of members of society. A belief that IPE will prevent poor health and social care practices and poor outcomes for persons of society has created demands for changes to how health and social care professionals are prepared in their undergraduate program, and then as professionals how they are expected to work together

Quotes

Not Accessed

Referenced From

Paul, R. and Elder,L.(2002) Critical Thinking: Taking Charge of Your Professional and Personal Life (Upper Saddle River, NJ: Financial Times/Prentice Hall, 2002).

Citation # VII.4

Kaura, J. (2006, April). *Influences on ethics: experience, media, and history of ideas.* (Paper). University of Phoenix Online Docs. 1-7. [MS Word Doc]

URL

http://scholar.google.com/scholar?start=50&hl=en&as_sdt=5,48&sciodt=0,48&cites=17769812211380647393&scipsc=

Abstract

Ethics play an important role in every aspect of life. Whether raising children or running a business, ethical principles guide the path people walk in order to accomplish their goals. This piece will discuss some of the influences on ethics and how they affect people's lives. The first influence that will be discussed is experience and an example will be provided. In addition to experience, some discussions will be proved on how the media influences ethics with an illustration. After the media's influence on ethics has been introduced, the history of ideas will be provided and how they have affected society. Finally, an overview and some closing comments will be provided.

Quotes

-According to Paul and Elder (2002), experiences are events that happen to people, not things they make happen. The quality and significance of these experiences depend on how the interpretation accounts for inconsistencies and contradictions within the mind (Paul & Elder, 2002).

-The news media can have a strong influence on how the world is seen by humanity and what meaning or importance is given to certain events (Paul & Elder, 2002). This same source states that the media also tries to tell people who to fear, who to trust, who to respect, who to criticize, what to consider trivial, and what to consider important. The media also influences public views about capital punishment, law enforcement, penitentiaries, inmates, punishments, and many other issues related to enforcing the law (Paul & Elder, 2002).

-According to Paul and Elder (2002), one of the best ways for a person to open his mind to different experiences is to read books that were printed in the past. These two authors go on to say that this activity allows the reader to take a unique perspective and gives them the ability to think beyond the assumptions and principles used in modern times. By reading only current works, people filter the thoughts and ideas through misconceptions that are assumed true (Paul & Elder, 2002).

Referenced From

Paul, R. & Elder, L. (2002). Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life. Upper Saddle River, NJ: Prentice-Hall.

Citation # VII.5

Wyatt, Scott. (2010) *Linking student achievement to professional learning communities in a juvenile court school setting*.(Doctoral Dissertation). University of Redlands. CA. 1-148. [PDF+]

URL

http://gradworks.umi.com/34/27/3427814.html

Abstract

Purpose. The purpose of the study was to provide verifiable data regarding the impact Professional Learning Communities (PLCs) have on student achievement in the Juvenile Court School (JCS) system. A second purpose was to measure staff perceptions regarding their support and beliefs about the use of PLCs in the JCS setting.

Methodology. This was a qualitative/quantitative study to determine if the implementation of PLCs impacted student achievement on standardized tests such as the California High School Exit Exam (CAHSEE), General Equivalency Diploma (GED), and California Standards Tests (CSTs). The type of research that this study utilized was a mixed-method qualitative-quantitative analysis, which focused on the student achievement of JCS students. The data collection instruments were questionnaires, a survey, and interviews of all JCS school staff in the JCS setting. The quantitative data consisted of standardized test scores on the CSTs, the CAHSEE, Academic Performance Index (API), and GED of students in the JCS setting.

Findings. Data analysis revealed that student achievement has increased since the implementation of the PLCs in the SBCSS JCS programs in 2004-2005. Overall, the majority of the JCS staff at all JCS sites believed that the PLCs contributed to the increase in student achievement on standardized tests. Further, the majority of the JCS staff felt that their principals had high expectations for the staff and for the students. A majority of the JCS staff also believed that they were a significant part of the PLCs process, which empowered them to be stakeholders in the decision-making process at their sites.

Quotes

-In this model, authoritative answers are replaced by authoritative standards for engagement in the communal, dialogical process of inquiry. (Paul, 2002).
- In this model (banking, didactic) students are taught what to think and not how to think. (Paul, 2002).
-As critical pedagogues, school administrators are enticed to question the origins of policy and norms, including their own personal biases and frame of mind. They see education as a public, communal, dialogical, and dialectical process in which learning is always a reciprocal process by individuals who question and seeks the truth. In this model, authoritative answers are replaced by authoritative standards for engagement in the communal, dialogical process of inquiry (Paul, 2002).
-According to Paul (2002), students need to learn how to think by “by raising live issues that stimulate students to gather, analyze, and assess that content.”
-

Referenced From

Paul, R. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education.

Citation # VII.6

Carl, LC. (2007, November). *Assessment technology institute test scores, NCLEX-RN PassFail nursing program evaluation and catastrophic events in Pennsylvania*. (Doctoral Dissertation). in Educational Leadership: University of Phoenix, AZ. 1-181. [PDF+]

URL

http://gradworks.umi.com/3292150.pdf

Abstract

Determining if a nursing graduate could pass the registered nurse licensing examination on the first attempt is complex (Haas, Nugent, & Rule, 2004). Nationally, the pass rate decreased from 81.7% in 2005 to 73.7% in 2006, showing a downward trend in a nursing candidates' ability to pass the licensing examination (National Council of State Boards of
Nursing, 2006d). The declining pass rate leaves a pool of candidates unlicensed to practice nursing in the event of a public health crisis when a large number of nurses are critical to mitigate mortality and morbidity (Aiken, Clarke, Cheung, Sloane, & Silber, 2004; American Association of Colleges of Nursing, 2006; Centers for Disease Control,
2006b; U.S. Department of Health and Human Services, 2006b; Veenema, 2003; World Health Organization, 2006d). The problem is that there is a lack of knowledge regarding whether or not Assessment Technology Institute (ATI) test scores can predict first time pass rates (ATI, 2003) to identify students at-risk for failure who need remediation. This
retrospective, quantitative, correlational research study analyzed the total population of associate degree in nursing students in a university in Pennsylvania who took the 2003- 2006 ATI tests. The scores were analyzed in relation to first-time pass–fail attempts to determine any correlation between test scores and the ability of a graduate to pass the
registered nurse licensing examination on the first attempt. A novel nursing program performance improvement model was created to measure student pass-fail rates and to identify a nursing program at-risk-for success or failure. The data derived from the model could drive evidence-based decision-making to refine the system of nursing education, mitigate the nursing shortage, and provide a healthy supply of nurses to meet the 21st
century health care challenges in Pennsylvania.

Quotes

-The ability to provide leadership through modeling could inspire a shared vision with students enabling nursing leaders to use nursing and leadership theory grounded in critical thinking to strengthen test-taking capabilities while self-modulating rigorous academic standards before a student sits for the NCLEX-RN examination (Cardin & McNeese-Smith, 2005 Gardner, 1993; Irwin & Burckhardt, 2005; Kirby & Goodpaster, 2002; Paul & Elder, 2002).

Referenced From

Paul, R., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River: NJ: Prentice Hall.

Citation # VII.7

Recker, JC. & Alter, S.(2012) Using the work system method with freshman information systems students. J *ournal of Information Technology Education : Innovations in Practice.* (11) 1-24. [PDF+]

URL

http://eprints.qut.edu.au/47976/2/47976.pdf

Abstract

Executive Summary: Following calls for innovation in IS curricula, we report on use of a simplified version of the Work System Method in a freshman Information Systems course and study how the students performed when analyzing IT-reliant work systems in business settings. Experiences and results from an undergraduate introductory Information Systems course indicate that undergraduates can benefit from analyzing IT-reliant work systems. Their analyses tend to reflect their lack of business background, but doing these analyses can help as a first step toward appreciating the business situations in which information systems are used. We present a series of implications for improving the class experience
related to teaching work system ideas and including IT-reliant work systems as an essential part of an introductory information systems course.

Quotes

-Universities in many countries have been reviewing their curriculums to ensure that students are offered degrees that will equip them well for live in a world of global forces and rapid change. Many these curriculum changes recognize the importance of information technology and the challenges of “information technology in use in a modern world” (Miliszewska et al., 2010), which is the core application field of the information systems (IS) discipline (Paul, 2010).

-A number of papers revealed inadequate critical thinking. We identified a number of occurrences of inadequate critical thinking (Paul and Elder, 2002) in the student reports, in some cases similar to challenges faced by postgraduate students when analyzing IT-reliant systems.

Referenced From

Paul, R. W. and L. Elder (2002) Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life, Upper Saddle River, New Jersey: Prentice Hall.

Citation # VII.8

Gambrill, E. (2012, April). Informed practice and policies: challenges and opportunities. Rencontre Annuelle Des Services Sociaux/Newsletter. 1-8. [PDF+]

URL

http://rass.inesss.qc.ca/fileadmin/doc/INESSS/ServicesSociaux/RASS_2012/Pr%C3%A9sentations/compl%C3%

Abstract

Our ethical obligations to clients call on us to make informed decisions and to make best efforts to minimize avoidable suffering in a context of limited resources, clashing values, and rampant propaganda in the helping professions including inflated claims about "what we know" and "what we do not know." How can we do this? What are the obstacles? What promising developments can help us to address these obstacles? These questions are at the heart of this presentation. Toward their exploration, four related questions arise:

1. What are we now doing?
2. What should we be doing?
3. How can we close the gap between what we do and what we should do?
4. What norms of discourse (talking and writing) contribute to finding answers (e.g., welcoming critical questions)?

Views and innovations that address these questions are discussed including involving clients and potential clients in all phases of making practice and policy decisions.

Our ethical obligations to clients provide a guide for selection of practices and policies. They include beneficience, avoiding harm, informed consent (autonomy and self-determination), and social justice (e.g., equity). We are obligated to try to minimize avoidable miseries and maximize equitable distribution of scarce resources, attending to various kinds of costs, while dealing with clashing values and misinformation in the media as well as in professional sources, promoted in part by the biomedical industrial complex (Gambrill, 2010a; Moncrieff, 2008; Rapley, Moncrieff, & Dillon, 2011). Our ethical obligations suggest directions to make informed (in contrast to uninformed or misinformed) decisions.

Quotes

-We can hone our critical thinking skills (Gambrill, 2012b) and related values that encourage their use. Consider values described by Paul and Elder (2002).

• Courage: Critically appraise claims regardless of negative reactions.
• Curiosity: An interest in deep understanding and learning.
• Intellectual empathy: Accurately understanding and presenting the views of others.
• Humility: Awareness of the limits of knowledge including our own; lack of arrogance such as promoting bogus claims of effectiveness.
• Integrity: Honoring the same standards of evidence to which we hold others.
• Persistence: Willingness to struggle with confusion and unsettled questions

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Prentice Hall.

Citation # VII.9

Lium, KL. (2010). *Exploring aesthetic reading, multicultural literature and social consciousness with 11- and 12-year old resistant readers.* (Doctoral Dissertation). for Educational Leadership-University of Redlands, *CA*. 1-174. [PDF+]

URL

http://gradworks.umi.com/3422227.pdf

Abstract

This qualitative case study establishes a methodological approach to the pragmatic exploration of aesthetic reading using multicultural literature with 11- and 12-year old resistant readers. It offers a theoretical analytic framework that sets forth specific elements of Rosenblatt's (1978) emphases of aesthetic reading, aesthetic synthesis and social consciousness which was applied to the varying reading responses of 11- and 12-year old resistant readers. The utilization of the analytic framework for data analysis established that aesthetic reading, aesthetic synthesis and social consciousness can be fostered when resistant readers are provided with a contextually sensitive reading environment. Specific selections of multicultural literature were introduced to 27 readers, 5 of whom were deemed as resistant to the reading process. Within this environment, all readers responded to the selected literature over a three month period through journal writing, open-ended literary responses, whole group discussions, art based projects and semi-structured focus group interviews. Analysis of these data sources for five specific resistant readers revealed that they do demonstrate all elements of aesthetic reading given its propositional definition derived from Rosenblatt's (1978) work. The work implies that given careful text selection and a sensitive experiential classroom environment that resistant readers can read aesthetically.

Quotes

-When students develop intellectual humility, defined by Paul & Elder (2002) as the ability to become aware of one's own biases, prejudices and the limitations of one's own viewpoint, and intellectual empathy defined by Paul & Elder (2002) as putting oneself in the place of others in order to understand their experiences and their lives, we help students to become socially aware of similarities and differences, and students begin to develop a sense of social consciousness and social responsibility.

-Paul (1992) has referred to this very same education model as the didactic model, defining education as a stagnant process that transmits information through lecture and textbooks that are chosen based on their ability to transmit Western thought and Western ideology. Under this model of education, Paul (1992) argued that what is learned are "superficial fragments, typically soon forgotten," and what is missing is "coherence, connection, and depth of understanding" (p. 293).

-As Paul (1992) has argued, critical thinking and learning steeped in critical theory requires that students learn how to gather, analyze, synthesize and assess information, and furthermore, requires that students learn how to enter sympathetically into the thinking of others.

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Referenced From

Paul, R. W. (1992). Critical thinking: What every person needs to survive in a rapidly changing world. Santa Rosa, 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 River, New Jersey: Pearson Education, Inc.

Citation # VII.10

Mawere, M. (2012, March). First philosophers and the history of philosophical thought: An appraisal of the Milesian thinkers. *Educational Research*. (3.3) 220-226. [PDF+]

URL

http://interesjournals.org/ER/pdf/2012/March/Mawere.pdf

Abstract

The question concerning the contributions of the first thinkers [who are believed to be the Milesian thinkers as they were natives of Miletus] to the history of philosophical thought has received different interpretations throughout the history of philosophy. On one hand there are historians of philosophy who argue that the Milesian philosophers did not make any new contribution to the history of philosophy. On the contrary are others who believe that it was only because of the Milesians' efforts that today we have philosophy as a discipline; otherwise philosophy as a discipline could have never come into existence. What remains interesting, however, is that philosophers on either side tend to be extreme, rigid and narrowly focused in their analysis of the contributions by the Milesian thinkers. This paper therefore invites and critically reflects on the arguments brought forth by philosophers on either side. The paper then makes a balance of the two conflicting positions before paying homage to the Milesian thinkers. The paper therefore is a contribution towards the history of philosophy and critical thinking among historians of philosophy.

Quotes

-As such, critical thinking is that 'intellectually disciplined process that yields philosophical thought'. The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit (Fisher and Scriven, 1997; Paul and Elder, 2002).

Referenced From

Paul R, Elder L (2002). Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life, Financial Times: Prentice Hall.

Citation # VII.11

Mirci, PS. (2008). In pursuit of educational justice and liberated hearts. C*APEA Education Leadership and Administration.* (20) 1-17. [PDF +]

URL

http://www.eric.ed.gov/PDFS/EJ965121.pdf

Abstract

This article contributes to a discussion about educational leadership programs related to social justice and diversity. It focuses on the development of social justice leaders through a doctoral program that culminates in a Doctorate in Educational Justice. The program's design is intended to empower graduates to act with hearts liberated through moral courage and competency in social discourse as a form of identity.

Quotes

-Moral courage occurs when a leader evaluates current beliefs he or she accepted uncritically, discovering them to be unjust while colleagues and friends still embrace them as true and justified (Paul & Elder, 2001).

-The potential consequences for being a social justice leader in the midst of others and the world may be severe (Paul & Elder, 2002). Given the human need for a sense of belonging, rejection and exclusion from one's social group can be
painful. Courage needs to be tempered with strong interpersonal abilities, the recognition that one exists in multiple human social systems characterized by differing beliefs, and the need to work as a social justice leader in ways that earn the leader the credibility and respect of others. Thus equipped, the social justice leader stands poised to contribute to the transformation of the world itself.

-Educational justice leadership necessitates recognizing that the current education system's theory of knowledge, learning, and literacy is didactic with an emphasis on teaching students what to think rather than how to think (Paul, 1992).

-Paul (1992) wrote that moral virtues provide a means for monitoring tendencies towards egocentrism (making one's own ideas and beliefs the center of all judgment to the exclusion of considering other people's perspectives),sociocentrism (acting in ways that evidence the belief that one's culture and social group are superior to others), and ethnocentrism (acting as if one's race and ethnicity are superior to all other groups). (Discussion of moral virtues.)

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Referenced From

Paul, R. (1992). Critical thinking: What every person needs to survive in a rapidly changing world.

Paul, R. (1995). Critical thinking: How to prepare students for a rapidly changing world. Santa Rose, CA: Foundation for Critical Thinking.

Paul, R.&Elder, L. (2001). Critical thinking: Tools for taking charge of your learning and your life. Upper Saddle River, NJ: Prentice Hall.

Paul, R. & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Prentice Hall.

Citation # VII.12

Ayodele, KO. (2011). Fostering adolescents' interpersonal behavior: an empirical assessment of enhanced thinking skills and social skills training. *Edo Journal of Counseling*. (4.1-2). 63-74. [PDF+]

URL

http://www.ajol.info/index.php/ejc/article/viewFile/72725/61641

Abstract

The study investigated the effect of enhanced thinking skills (ETS) and social skill training (SST) in fostering interpersonal behaviour among Nigerian adolescents. A pre- and post-test experimental-control group design with a 3x2 factorial matrix was employed for the study. Gender which was used as a moderator variable was considered at 2 levels along with two (2) experimental and one (1) control groups. The study participants were one hundred and twenty (120) Senior Secondary 2 and 3 students randomly selected from 3 chosen secondary schools in Sagamu LGA of Ogun State. One standardized instrument was used in collecting data while analysis of covariance and t-test statistical methods were used to analyze the generated data. Both the treatment programmes were effective in fostering interpersonal behaviour in the adolescents but Enhanced Thinking Skill was found to be more effective than Social Skill Training. The study also revealed that both ETS and SST did better with females compared to males. Based on the findings, it was recommended that all caregivers must continuously update their skills on the use of ETS and SST to help our youngsters live a meaningful and fulfilled live.

Quotes

-Also, there are studies and evaluation supporting the effectiveness of Enhanced Thinking Skills (ETS) in the workforce (Paul& Elder...).

Referenced From

Paul, R. and Elder, L. (2002) Critical Thinking: Tools for Taking Charge of your Professional and Personal Life. New Jersey: Financial Times Prentice Hall.

Paul, R. and Elder, L. (2006) Critical Thinking: Tools for Taking Charge of your Professional and Personal Life. New Jersey: Financial Times Prentice Hall Publishing.

Citation # VII.13

Simon, T. (2010,). *The relationship between campus climate and the teaching of critical thinking skills in community college classrooms.* (Doctoral Dissertation). College of Education-Walden University, Minneapolis, MN. 1-187. [PDF+]

URL

http://gradworks.umi.com/3423708.pdf

Abstract

Although critical thinking skills are important for all citizens participating in a democratic society, many community college students appear to lack these skills. This study addressed the apparent lack of research relating critical thinking instruction to campus climate. Critical thinking theory and Moos's organizational climate theory served as the theoretical foundation. The relationship between faculty's perceptions of three campus climate factors and their use of five critical thinking instructional techniques in the classroom was analyzed in this quantitative study. An online instrument based on the School-Level Environment Questionnaire (SLEQ) to measure campus climate and a researcher-designed measure of critical thinking instructional techniques was used in a nonexperimental correlational design. Responses from a purposive sample of 276 community college faculty in the western United States were evaluated using multiple regression analysis. Results indicated participatory decision-making was directly related, staff freedom was inversely related, and work pressure was not related to faculty's use of critical thinking instruction in their classrooms. This study contributes to positive social change by providing information that community college leaders can use to improve their students' critical thinking skills. As a result, students and graduates will be better prepared to contribute to the community and society at large by making better social and moral decisions.

Quotes

-Despite the varied definitions, most theorists agree that critical thinking represents a higher level of thinking, which leads to a more correct understanding of a concept or problem (Ennis, 1985; Halpern, 1998; McPeck, 1981; Paul & Elder, 2002).
-Some of the key definitions of critical thinking can be summarized as reflective-reasonable thinking (Ennis, 1985), reflective skepticism (McPeck, 1981), using cognitive skills for a desirable outcome (Halpern, 1998), and taking charge of one's own thinking to improve its quality (Paul & Elder, 2002).
-Paul and Elder (2002) described critical thinking as a metacognitive skill.
-Paul and Elder (2002) listed some additional challenges of this new age: (a) the power of the media, (b) new technology
such as DNA testing, and (c) trading freedoms for safety.
-Studies have indicated that most college faculty do not have a clear understanding of critical thinking (Paul, 2005). However, the training issue has been frustrated by recent changes in the make up of community college faculty.Community colleges are hiring a larger percentage of part time or adjunct faculty who come from industry instead of educational backgrounds (Lail, 2009; Lei 2007).
-In the first two parts of a three part series of articles, Elder and Paul (2008a, 2008b) offered seven ideas for developing critical thinking skills in the classroom.
1. Ask students to become familiar with a new concept and apply it to solve a related problem.
2. Put students in groups of three and ask one student in each group to read from the text, explaining what is understood and identifying what needs further study.
3. Use peer assessment for written assignments.
4. Teach students to assess their speaking. Ask students to teach a concept.
5. Teach students to assess their listening. Randomly call on students to summarize what has been said.
6. Design tests that test improvements in student thinking. Ask students to explain the logic of a chapter.
7. Make students work in the course. The more interactive the class, the more they will retain.
-Students need to develop the skills to evaluate course content themselves (Elder & Paul, 2008a).
-*In Learning to think things through*: *A guide to critical thinking across the curriculum*, Nosich (2005a) broke down critical thinking into three parts: (a) "critical thinking involves asking questions," (b) "critical thinking involves
trying to answer those questions by reasoning them out," and (c) "critical thinking involves believing the results of our reasoning" (pp. 5-6).
[Many other quotes...]
-

Referenced From

Elder, L., & Paul, R. (2008a). Critical thinking: Strategies for improving student learning. Journal of Developmental Education, 32(1), 32-33.
Elder, L., & Paul, R. (2008b). Critical thinking: Strategies for improving student learning. Journal of Developmental Education, 32(2), 34-35.
Paul, R. (2005). The state of critical thinking today. New Directions for Community Colleges, 2005(130), 27-38. 155
Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education, Inc.

Citation # VII.14

Rao, M. (2006). *Infusing critical thinking skills into computer curricula: an experience in teaching artificial intelligence.*(Paper). Information & Computer Science department King Fahd University of Petroleum and Minerals Dhahran 31261, Saudi Arabia. 1-20. [MS Word Doc]

URL

http://scholar.google.com/scholar?start=60&hl=en&as_sdt=5,48&sciodt=0,48&cites=17769812211380647393&scipsc=

Abstract

This paper describes some of our efforts in infusing critical thinking skills into a course on artificial intelligence while teaching it at universities in India, Australia, Japan and Saudi Arabia. Five basic thinking skills like parts-whole analysis, compare-and-contrast, decision making, causal explanation, prediction and generalization have been introduced at appropriate places in the course. To reinforce these thinking skills, metacognition (thinking about thinking) has also been employed towards the end of the course. Using a set of carefully chosen examples, we demonstrate that critical thinking skills can be naturally introduced in the course content of computer curricula at tertiary level. Our analysis shows that infusion of critical thinking skills into course content and their explicit introduction stimulates students thinking and improves their learning ability.

Quotes

-When content is approached in this lower order way, there is no basis for intellectual growth as there are no deep structures of knowledge formed and no basis for long term grasp and control. Critical thinking, in contrast, approaches all content explicitly as thinking and weaves new thinking into old. It is thinking about thinking while thinking in order to make thinking better (Paul & Elder, 2002).

Referenced From

Paul, R. & Elder, L. (2002). Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life. Prentice Hall.

Citation # VII.15

Kelly, MB. (2011). *Economic thinking for strategic leaders.* (Master's Thesis). US Army War College-Carlisle Banks, PA. 1-42. [PDF+]

URL

http://www.dtic.mil/dtic/tr/fulltext/u2/a553059.pdf

Abstract

Military senior leaders today operate within increasingly volatile environments characterized by greater information-processing demands and a need to solve ill-defined, novel, and complex problems. To ensure their organizations adapt for long-term success, strategic-level leaders require the cognitive skills to make sense of and successfully navigate within these complex environments and anticipate the future. To enhance the skills required to think strategically, the U.S. Army has taken a multidisciplinary perspective to educating its future leaders. Various thinking lenses are introduced to teach various thinking skills, with the exception of the discipline of economics. The U.S. Army should include Economic Thinking in any properly developed multidisciplinary framework for cognitive skills required of sound strategic thinkers. Failure to include this specific thinking skill could result in future Army leaders unprepared to analyze certain complex, ambiguous issues and craft informed decisions.

Quotes

-A preliminary to strategic and major analytical thinking is “Critical Thinking.”As noted by Elder and Paul, the advancement of society and quality of life is dependent upon the quality of our thought. Yet left on our own our thinking is fraught with biases, assumptions and downright ignorance. Critical thinking aims to improve the quality of thought through purposeful thinking that is structured and supported by intellectual standards

Referenced From

Richard W. Paul and Linda Elder, Critical Thinking: Tools for Taking charge of Your Professional and Personal Life, (Upper Saddle River, NJ: Prentice Hall, 2002), xx

Citation # VII.16

Wokabi, FG. (2006). *Critical thinking triad as a model for enhancing the quality and relevance of higher education in Kenya.* (*Paper). Department of Philosophy Kenyatta University, Nairobi, Kenya*. 1-11. [PDF+]

URL

http://www.daad.de/de/download/alumni/veranstaltungen/06_11_06/Presented%20papers/Copy%20of%20Francis%20Gikonyo.pdf

Abstract

This purpose of this paper is to show the significance of the Critical Thinking Triad in enhancing the quality and relevance of higher education in Kenya. In order to pursue this goal, it is necessary to clarify the key concepts that inform this paper namely: Education, Quality, Relevance, Critical Thinking, and Critical Thinking Triad.

In this paper, "education" is understood as the totality of the formal, informal and non-formal processes that discipline the human mind to think in a way that makes the human person functional and autonomous in a dynamic environment. As such, education is a lifelong process that begins before and also transcends the formal schooling system.

We conceptualize "quality" as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. The stated and implied needs that education in Kenya claims to address can be summed up in the terms "empowerment" and "autonomy". Education is expected to help learners identify, enhance and utilize their rational, creative, social and moral powers in a manner that fulfills them individually as well as facilitating national development. Such empowerment would lead to independence or autonomy in thought, belief and action. Quality education would therefore emphasize independent, analytical and creative thinking that leads to transformation of the learner to become an autonomous and responsible actor in human affairs

"Relevance" refers to relatedness, appropriateness or suitability of something taken in its context. The contemporary context that determines the relevance of education ischaracterized by intensified change, complexity and cross-cultural interaction. This context is described as globalization. Globalization refers to the contemporary social reality, which is characterized by change, complexity, interdependence and diversity. According to Giddens (1990) and Albrow (1994), it refers to the process by which human relations are increasingly being intensified. Consequently, economic, political, cultural and social distinctions are becoming less inhibitive. Advancement, especially in the telecommunications sector has compressed time and space and the world is gradually becoming a borderless forum for human interaction. Relevant education, in a globalized world, would therefore enable learners to manage change, deal with complexity and be functional in a cross-cultural setting. It would enable learners to discern and utilize opportunities that globalization offers as well as resolve the challenges it presents.

"Critical Thinking" is conscious, purposeful and disciplined mental activity that analyses and evaluates any subject, content or problem in a way that transforms the thinking process and the thinker as well.

"Critical Thinking Triad" refers to analytical, evaluation and transformation tools that are necessary for efficient and effective thinking. The analytical tools help the thinker to simplify complex ideas and thus make sense of any aspect of reality. As analytical thinking, critical thinking breaks down thought into its component parts in order to facilitate careful examination. Evaluation tools enable the thinker to assess and refine thought. As evaluative thinking, critical thinking applies universal standards on thinking in order to determine the quality and excellence of thought. The transformation tools facilitate improvement of attitudes, values and habits. They are useful in character formation. As transformative thinking, critical thinking fosters the development of intellectual dispositions that facilitate the sustainability of disciplined thinking. The critical thinking triad thus provides a means of transition from thinking to being.

Quotes

-The conceptual framework that informs the paper is Paul and Elder's (2002) conception of Critical Thinking.

-The analytical dimension of critical thinking involves identifying the fundamental structures or elements of any form of thinking. Thought comprises of parts namely: purposes, questions, points of view, information, inferences, concepts, implications, and assumptions. (Paul and Elder, 2001: 50).

-The evaluative dimension of critical thinking comprises of universal intellectual standards that are useful in assessing the quality of thought. They include: clarity, accuracy, precision, relevance, depth, breadth, logicalness, significance, and adequacy among others (Paul and Elder, 2002:98).

-The dispositions include: intellectual autonomy, intellectual faith in reason, intellectual humility and intellectual integrity among others. Paul and Elder (2002: 324-325) define these traits as follows: intellectual autonomy is characterized by the ability to take control of one's thinking. This sense of autonomy inclines one to habitual analysis and evaluation of one's thinking with a view to enhancing its quality.

-Criticality and creativity have been identified as indispensable components and goals of genuine education [Dewey (1916), Paul (1995), Wambari (2001 and 2002)].

Referenced From

Paul, R. 1995. Critical Thinking: How to Prepare Students for a Rapidly Changing World. California: Foundation for Critical Thinking.

Paul, R. and Elder, L. 2001. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Upper Saddle River, N.J.: Prentice Hall.

Paul, R. and Elder, L2002. Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life. Upper Saddle River, N.J.: Financial Times Prentice Hall.

Citation # VII.17

Rasch, D. (2008, May). S*ervice learning and the promotion of social responsibility*. (Doctoral Dissertation*).* University of Miami, Miami, FL. 1-219. [PDF+]

URL

http://scholarlyrepository.miami.edu/cgi/viewcontent.cgi?article=1044&context=oa_dissertations

Abstract

A number of scholars have identified a crisis in the field of education. Namely, students today are more self-absorbed and individualistic than ever before. In other words, they have few social commitments and lack a sense of community. This lack of social responsibility is particularly problematic in Colombia, where a privileged few enjoy all the spoils and the elite youth are groomed as the future leaders of the country. For many, hope is all but lost on these socially irresponsible students. On the other hand, some planners and critics believe that service-learning -- which connects community
service to the classroom -- is a remedy for this lack of social solidarity. With this in mind, service-learning has become increasingly popular during the past decade all over the globe, and particularly in Latin American countries such as Colombia. This research project is an evaluation of the service-learning program at one of the most elite high schools in Colombia. The project has two specific aims: (1) to document the impact of the program on the attitudes and behaviors of the students and (2) to assess the quality of the implementation of the program. In order to achieve these aims, three data collection methods – questionnaires, interviews, and focus groups – were used to paint a holistic picture of the program. Furthermore, a theoretical model of service-learning was developed as a benchmark to evaluate the program. The results revealed that the service learning program was having a minimal impact on students' attitudes and behaviors. In fact, the analysis showed that in many instances the program was simply reinforcing stereotypes and solidifying the social division in Colombia. The failure to achieve the desired outcomes may have been due to the fact that the program did not fulfill many of the required expectations of service-learning. In the final chapter, specific
recommendations are given to improve the program.

Quotes

- Paul and Elder (2002) also posited a similar argument that service-learning aids in the restructuring of personal belief systems.

Referenced From

Paul, Richard and Linda Elder. 2002. Critical thinking: Tools for taking charge of your professional and personal life. New York: Prentice Hall.

Citation # VII.18

Niewoehner, RJ. (2006, June). *A critical thinking model for engineering.* (Conference *Paper). 2nd International CDIO Conference: Linkoping University, Linkoping Sweden.* 1-12. [PDF+]

URL

https://www.e-education.psu.edu/drupal6/files/Niewoehner.pdf

Abstract

Richard Paul's model for critical thinking is adapted to the challenge of engineering education. The model is briefly described and exemplified by questions asked by engineers in practice. The paper concludes with exercises suitable for the undergraduate and graduate engineering program.

Quotes

- The analysis and evaluation of our thinking as engineers requires a vocabulary of thinking and reasoning. The intellect requires a voice. Richard Paul and Linda Elder, from the Foundation for Critical Thinking, have proposed a critical thinking model documented in various sources , including over a dozen Thinkers' Guides that apply this model to diverse disciplines.
-The *Engineering Reasoning Guide* follows Paul's model, providing a framework for analyzing and evaluating engineering reports, designs, graphics, and entire disciplines. It articulates the questions that exemplify maturing engineering reasoning. Several examples are provided of both excellence and disaster in engineering reasoning. The model is also applied to areas which touch engineering such as creativity, craftsmanship, and ethics.
-Elder (2006) cites a series of studies of higher education indicating that college faculty almost unanimously insist that the promotion of critical thinking ranks among the primary goals of their work. Lamentably, that same body of research indicates that few college professors can articulate a substantive understanding of critical thinking, and few can identify
the elements of their teaching that specifically develop critical thinking. This reference appeals for the development of a substantive view of critical thinking both within and across college faculties.
-The model depicted in Figure 1 provides an overview of Paul's model, which the guide develops, working from the base of the diagram up. The goal is the mature engineering thinker, and so that endpoint is described first with a brief discussion of the intellectual virtues might be expressed in the practice of engineering.
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Referenced From

Paul, R.W. and Elder, L., Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life, Prentice-Hall, Upper Saddle, NJ, 2002.
Paul, R.W. and Elder, L., Critical Thinking: How To Prepare Students For A Rapidly Changing World, Foundation for Critical Thinking, Sonoma, CA, 1995.
Paul, R.W. and Elder, L., A Miniature Guide to Scientific Thinking, Foundation for Critical Thinking, Sonoma, CA, 2003.
Paul, R.W., Elder, L., and Niewoehner, R.J., A Miniature Guide to Engineering Reasoning, Foundation for Critical Thinking, Sonoma, CA,

Citation # VII.19

Watson, G. & Glaser, EM. (2010). *Watson-Glaser II critical thinking appraisal*. (Guidebook). *NC Pearson Talent Lens: Bloomington, MN*. 1-60.[PDF+]

URL

http://us.talentlens.com/wp-content/uploads/WG2_TechMan_2012.pdf

Abstract

The Watson-Glaser Critical Thinking Appraisal® has a distinguished history, dating back to its initial development in 1925. Designed to measure important abilities and skills involved in critical thinking, it has been used in organizations as a selection and development tool and in academic settings as a measure of gains in critical thinking resulting from specific coursework or instructional programs. A Mental Measurement Yearbook review noted that the Watson-Glaser is distinguished by its voluminous research and validity studies (Geisenger, 1998). The Watson-GlaserTM II Critical Thinking Appraisal (hereafter referred to as Watson-Glaser II) is the newest revision. This revision was undertaken to incorporate enhancements requested by customers while maintaining the qualities that have made the Watson-Glaser the leading critical thinking appraisal over the last 85 years. Specific enhancements include:

•• More contemporary and business relevant items

•• Better face validity and applicability of items for individuals from countries other than the United States

•• Inclusion of a higher proportion of difficult items to better separate individuals along a continuum of critical thinking

•• Development of two 40-item forms that can be administered in approximately the same time as the previous Short Form, while discriminating among candidates as effectively as the previous 80-item forms

•• New reports, including a basic Profile Report, Interview Report, and Development Report

•• Interpretable subscale scores that provide information about three critical thinking skill domains; the ability to Recognize Assumptions, Evaluate Arguments, and Draw Conclusions

Quotes

-The critical thinking skills measured by the Watson-Glaser were articulated many years ago by Watson and Glaser (Glaser, 1937; Watson & Glaser, 1952), and they still correspond to critical thinking skills articulated in current models of critical thinking (Facione, 1990; Fisher & Spiker, 2004; Halpern, 2003; Paul & Elder, 2002).

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Financial Times Prentice Hall.

Citation # VII.20

McBride, K. (2010, Fall). Leadership in higher education: handling faculty resistance through strategic planning. *Academic Leadership: The Online Journa*l. (8.4). [HTML+]

URL

http://www.academicleadership.org/878/leadership-in-higher-education-handling-faculty-resistance-to-technology-through-strategic-

Abstract

People often recognize leadership in the concrete, mostly by identifying an effective or ineffective leader, but they have a much more difficult time explaining leadership in the abstract – what qualities result in transformational and visionary leadership. Often this lack of understanding does not surface until a crisis or challenge arises in an organization, when a gap occurs between what is and what should be. Higher education faces such challenges, and it needs transformational leadership, especially concerning faculty resistance to technology (Buckley, 2002; Hagner, 2000; Moore, Fowler, & Watson, 2007; Scott, 2003). As many organizations see online learning as their chance to be globally competitive in a highly competitive environment, they require the leadership to help them identify needs, plan for the future, and transition to this new method of delivering courses (Clark & Gottfredson, 2008). Studies show, though, that faculty resistance to change, especially technological change, is high (Bonk, 2010; Madsen, 2008). This causes a gap, a crisis and challenge. Colleges must have a plan to create an environment where campus leaders do not ignore or leave behind those resistant to change but instead collaborate with different groups in an effort to meet student needs through the use of technology where appropriate. Part of this plan should include instructional designers who can help transform colleges into learning agile organizations.

Quotes

-Paul and Elder (2002) call this “intellectual perseverance,” an essential aspect of higher-order thinking (p. 29). Leaders must inculcate in their organizations the quality of critical thinking. The more stakeholders who practice advanced critical thinking, the more learning agile the organization will be. Critical thinkers “do not see opposing points of view as a threat to their own beliefs. They see all beliefs as subject to change in the face of new evidence or better reasoning. They see themselves as lifelong learners” (Paul & Elder, p. 96).

-According to Paul and Elder (2002), those who dominate and those who submit both seek to get their own way, one by fighting for supremacy and one by pleasing others (pp. 171-172). Both sets of actions result from irrational thinking. Paul and Elder list the following as characteristics of people who are thinking irrationally:

- ◦tuning out when people disagree with them;
- ◦using stereotypes to undermine those who disagree with them;
- ◦ignoring relevant facts or information that would undermine their position;
- ◦bringing everything to an emotional rather than logical basis; and
- ◦justifying their irrational positions in ways that ignore their true motives. (p. 302)

-To implement these seven strategies, leaders must identify the organization’s stakeholders. Once identified, leaders should listen critically to them, realizing that not all stakeholders may have relevant or valuable information for every issue (Mind Tools, 2010; Paul & Elder, 2002).

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Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Prentice Hall.

Citation # VII.21

Cuseo, J. (1991). *Course Content for a Comprehensive & Holistic First-Year Seminar: Topic Identification and Justification.* (Paper) Marymount College, Palo Verdes, CA. 1- 39. [PDF+]

URL

http://webs.wichita.edu/depttools/depttoolsmemberfiles/OFDSS/101%20FYS%20Research/content-FYS-evidence-10.pdf

Abstract

Unit 1- Introduction to Higher Education: The Power of College, the First-Year Experience, and the Most Powerful Principles of College Success-- Research-Based Rationale for this Unit

In this introductory unit, strong evidence should be supplied to students about why the college experience has the potential to be the most enriching experience of their life and one that will provide them with multiple benefits throughout life. The first year of college, in particular, is a critical stage of development during which students undergo the greatest amount of learning and personal growth. It's also the time when students experience the greatest challenges, the most stress, the most academic difficulties, and the highest dropout rate. This highlights the importance of the first-year experience, the importance of first-year courses designed to promote college success. This unit should point out the fact that there are numerous studies showing that new students who participate in first-year seminars (college-success courses) are more likely to continue their enrollment in college, complete their college degree, and get the most of their
college experience.

Unit 2-Liberal Arts: The Meaning, Purpose, and Value of General Education--Research-Based Rationale for this Unit

This unit will help students gain a deeper understanding and appreciation of the liberal arts--the core component of the college experience that embodies the essence of a college education and provides the foundational, transferable skills needed for success in all college majors, careers, and life roles. Students will acquire strategies for making the most of general education to gain a perspective on the whole world, to develop themselves as a whole person, and to enrich the
quality (and marketability) of their college experience.

Unit 3-Goal Setting, Motivation, & Character--Research-Based Rationale for this Unit

The road to success starts with identifying a desired outcome—an end goal, and then finding the means (succession of steps) to reach that goal. Studies show that setting specific goals is a more effective way to achieve success than simply telling ourselves that we're going to "try hard" or "do your best." This unit should identify the key steps involved in setting and reaching personal goals, self-motivational strategies for staying on track and moving toward your goals, and the inner qualities (virtues) associated with not only being a successful person, but also a person of character.

Quotes

-Although critical thinking has received the lion's share of attention in the higher education literature, creative thinking is also an essential higher-level thinking. Critical and creative complement one another; creative thinking is necessary to first generates new ideas, then critical thinking is necessary evaluate the new ideas that have been created (Paul & Ender, 2004).

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education.

Citation # VII.22

Goldberg, IY. (2011). *Reasoning and religion: the relevance of the academic study of religion to critical thinking pedagogy.* (Doctoral Dissertation). University of Waikato: New Zealand. 1-436. [PDF+]

URL

http://researchcommons.waikato.ac.nz/bitstream/handle/10289/5325/thesis.pdf?sequence=3

Abstract

In this thesis I inquire into method and theory debates within the academic study of religion, arguing for the potential of this broad field to enrich critical thinking pedagogy, especially with regard to worldviews and problems associated with the influences of worldviews on reasoning. I highlight the growing recognition within critical thinking literature that critical thinking pedagogy ought to include a sizable component devoted to worldviews, and argue for the relevance of the academic study of religion to this worldview component. An inquiry into three popular method and theory debates within the academic study of religion concerning the definition, comparison, and evaluation of religion(s), and into interreligious dialogue, helps cement this assertion. In my treatment of definition I attempt to put the close connection between religions and worldviews on firm ground. I also describe common misconceptions of religion and worldviews that should be of concern to critical thinking educators, and for which the academic study of religion is particularly apposite. Next I concentrate on how comparison of religions and worldviews is justified within the academic study of religion and on good and bad forms of comparison. My discussion of evaluation repeats this pattern: I look at debates over what constitutes good and bad evaluation in and of religions and worldviews, and the relevance of this subject to critical thinking. My foray into interreligious or cross-worldview dialoguing focuses on difficulties that are germane within the critical thinking domain. Although I do recommend the inclusion of these four subjects within critical thinking pedagogy, I take them primarily as a sample of a wider field of inquiry. This sample is meant to support a broader recommendation, namely: Just as education should be infused with critical thinking, so too should critical thinking be infused with the philosophy of the academic study of religion, and the fruits of its inquiry. This recommendation does not come without reservation. In the last chapter I discuss some of the problems that my suggestions bring up, first among which is the religious bias evident in much of what can be found under the auspices of the academic study of religion.

Quotes

[Many, many relevant quotes related to the Paul/Elder model-- too many to enumerate without re-writing the entire paper.]

-With the help of the work of Richard Paul and likeminded scholars I will make the case that there is a maturing recognition among writers on critical thinking that the missing element is in fact an appropriate treatment of worldviews.

-Teachers are generally unclear about what critical thinking is, or how to teach it (Paul, 1996). An entrenched emphasis on rote learning, didactic teaching, and other popular but problematic classroom practices has meant that current teaching ―discourages rather than encourages critical thinking and the values and dispositions essential to it (Paul,1992).

-Whether consubstantial or only largely so, the linking of informal logic and critical thinking saw an unmistakable increase in the popularity of critical thinking theory and instruction. Richard Paul (1996, p. 27) termed this the first wave of the modern critical thinking movement, a wave in which informal logic exercised the greatest influence.

-. . .Paul was writing in 1996, and was advocating for a new wave of research and instruction to remedy the limitations of that which preceded it. By 1996 it was fairly clear that research into critical thinking put the equation (or near equation) of critical thinking and informal logic in serious doubt. But actual teaching practice was another matter.

-In Paul‘s words, the critical thinking course ―can at best open the door to the beginning of critical thinking, provide an opening framework" (Paul, 1996, p. 28).

-As indicated, worldviews are central to Paul‘s thought. Worldviews, Paul writes, are ―our system of values, meanings, and interpretive schemes (1990, p. 109). They are ―the fundamental logical structures – the assumptions, values, and beliefs – that shape our own thought, our own feeling responses, and our own moral judgments‖ (Paul, 1993b, p. 192).

-The beliefs that we take for granted, the inferences we consider appropriate, and so the conclusions we draw, are – Paul highlights – ―the tip on an intellectual iceberg (Paul, 1993b, pp. 105–6). . .

-Johnson and Govier, like Paul, put forward a conception of argument that sees it less as the stand alone item of the standard approach and more as a node in a huge amorphous maze of thought. Also – again, like Paul – Johnson and Govier claim that ignorance of this maze of thought can lead to bad argument appraisal.

-Second, the plausibility of a claim, or the quality of an inference or an argument, depends on the plausibility of the worldview on which it relies (Paul, 1992b, p. 145).

-We must choose among a variety of possible systems for thinking about things, ‖ Paul writes, and we must do so wisely (1993b, p. 155).

This is where rationality with a capital R comes in: The more truly rational our worldview is, the closer our standards of reasoning will approximate the ideal, and the better our reasoning will be, all else being equal.

-The second major aspect of worldviews with which Paul is concerned is the incredibly strong hold that worldviews tend to have on reasoning.

Referenced From

Elder, Linda (1996).Thinking and Emotional Intelliggence. Inquiry: Critical Thinking Across the Disciplines, 16(2), 35–49.

Elder, Linda (2009). Diversity: Making Sense of It Through Critical Thinking. Retrieved July 20, 9 A.D., from http://www.criticalthinking.org/articles/diversity.cfm

Elder, Linda & Paul, Richard W. (1998). Critical Thinking: Developing Intellectual Traits. Journal of Developmental Education, 21(3), 34–36.

Nosich, Gerald M. (1996). The Need for Comprehensiveness in Critical Thinking Instruction. Inquiry: Critical Thinking Across the

Citation # VII.23

Fiester, S, Redfearn, J, et al. (2010). Lab safety and bio-terrorism readiness curricula using active learning and hands-on strategies as continuing education for medical technologists. *Journal of Microbiology & Biology Education*. (11.1) [MS DOC]

URL

http://lib-ojs3.lib.sfu.ca:8084/asm/index.php/jmbe/article/view/131

Abstract

Frequent reports of laboratory- (and hospital-) acquired infection suggest a deficiency in safety training or lack of compliance. To assess the need for continuing education (CE) addressing this problem, an original education needs assessment survey was designed and administered to medical technologists (med-techs) in Northeast Ohio. Survey results were used to design a learner-centered training curriculum (for example, Lab Safety and Bioterrorism Readiness trainings) that engaged med-techs in active learning, integrative peer-to-peer teaching, and hands-on exercises in order to improve microbiology safety knowledge and associated laboratory techniques. The Lab Safety training was delivered six times and the Bioterrorism Readiness training was delivered five times. Pre/posttesting revealed significant gains in knowledge and techniques specific to laboratory safety, security, risk assessment, and bioterrorism readiness amongst the majority of med-techs completing the CE trainings. The majority of participants felt that the hands-on exercises met their needs and that their personal laboratory practices would change as a result of the training course, as measured by attitudinal surveys. We conclude that active learning techniques and peer education significantly enhance microbiology learning amongst participating med-techs.

Quotes

-The proposed pedagogical methodologies span the cognitive learning outcomes predicted by Bloom (4), Paul and Elder (21), and Domin (9), as similarly shown to extend undergraduate student learning successes.

-

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Upper Saddle River, NJ: Pearson Education.

Citation # VII.24

Palliam, R. & Galfy, M. (2010). Investigating risk-return profile of graduates: a corporate accountability and social responsibility perspective. *International Journal of Business Research*. (10.2). [MS DOC+]

URL

http://www.freepatentsonline.com/article/International-Journal-Business-Research/252385734.html

Abstract

Critical thinking and acting with a certain sense of acumen are the fundamental objectives of higher educational institutions. However, a return on investment in education is always measured in terms of quantifiable economic costs and economic benefits. In assessing and evaluating the performance and the achievements of graduates in society, not all that is counted really counts and all that really counts may not have been counted. Graduates are best equipped when they are in a position to seek clarity, accuracy, precision, relevance, depth, breadth, logic, significance and above all, acting with fairness, and displaying responsibility and accountability. Factoring axiological issues into a risk return profile becomes important today when there is a risk of confusing quantity of higher education with quality of higher education. Conventional corporate financial returns do not capture the social and environmental costs and benefits of higher education. A major precursor to the enhanced professional recognition of higher education is the belief that students will choose to act in a manner beneficial to the community in which and for which they function. For students to maintain or enhance their moral and ethical identity, the broader community must perceive graduates as making choices that are aligned with the economic and social obligations expected of them Should students, in their discharge of their duties, do not have selfdirected principled reasoning capabilities, the consequences are that they will be less resistant to outside pressures or socialization strategies. Persistent absence of viable economic, social and political opportunities to improve one's life can lead to significant out-migration of the young generation in search of better opportunities for both education and employment. Social inequality accompanies corruption which undermines social cohesion. The poorer sections of society are the ones that can least afford corruption and they are the ones that bear the greatest burden ofcorrupt practices. This phenomenological study considers the risk-return profile of graduates within a corporate social responsibility perspective. The findings of this study are precursors for a major empirical study into risks and returns along social, psychological, political and economic dimensions to be conducted in the Gulf Countries.

Quotes

-Undoubtedly, investing one's energies in values that undermine more important national and societal goals, renders one to conduct one's way that undermines educational goals (Paul and Elder 2002:145).

Referenced From

Paul, R.W. and Elder, L. (2002) Critical Thinking: Tools for taking charge of your professional and personal life, Financial Times/ Prentice Hall Inc.

Citation # VII.25

Reese, RC. (2005). *The impact of a mental skills training program for enhanced performance on a varsity intercollegiate volleyball team: A case study program evaluation of an educational intervention.* (Doctoral Dissertation). Virginia Polytechnic Institute and State University, Blacksburg, VA. 1-406. [PDF+]

URL

http://nextstepfacilitations.com/wp-content/uploads/2010/02/Reese_PhD_Complete_120105.pdf

Abstract

The purpose of this case study was to answer 5 primary questions in order to determine the impact (efficacy, efficiency, and value) of the educational intervention known as the mental skills training program (MSTP) as implemented with the NCAA Division I volleyball team. The primary evaluation questions are (1) Was individual and/or team performance enhanced during the season? (2) How did the intervention of the MSTP impact individual and team mental toughness? (3) How did the intervention of the MSTP impact team communication and team chemistry? (4) How did the coaches and student-athletes view the investment of time and effort (value/worth)? (5) Was the program delivered effectively and efficiently?

The core mental skills that comprise the MSTP are goal setting, visualization, feelazation, energy management, and effective thinking which when integrated encourage mental toughness. The program evaluation contains an instructional design (ID) that incorporated a flexible curriculum to meet the weekly needs of the team. A modified Gerlach and Ely (1980) ID model is utilized to direct the design process and also as a prescriptive evaluation guide.

The evaluation utilized quantitative instruments including surveys, questionnaires, and assessments of the effectiveness and efficiency of delivery by the mental skills trainer. Qualitative data includes interviews and field notes consisting of observations, member checks, and peer debriefing.

The results of the data indicate individual performance and mental toughness were enhanced; team performance and mental toughness may have been improved. Team chemistry was enhanced while team communication was not. The program was considered valuable and worthwhile and was delivered effectively and efficiently. The decision components of the program yielded an 84.69% positive program evaluation rating.

In discussion of these results, team communication may be improved with a greater emphasis on teambuilding early in the program. Gains in mental toughness exceeded expectations, and a foothold has been established for future research in this area. Regarding team performance, expanding categories in survey instruments may yield a more positive evaluation. Finally, program evaluation may provide a viable research vehicle for applied sport psychology to demonstrate the efficacy of mental skills training for performance enhancement.

Quotes

-What is constructivist in the MSTP is the facilitative nature of instruction employed including Socratic questioning (Paul & Elder, 2002), cognitive apprenticeships, and social negotiation that all encourage metacognition.

-Socratic questioning for problem based learning [Paul & Elder, 2002]) while homing in MSTP Program Evaluation 124
on a specific problem or need. In this way, assessment and evaluation of effectiveness of the learning and of the program can be gauged qualitatively if not quantitatively.

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Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of your professional and personal life. Englewood Cliffs, NJ: Financial Times Prentice Hall.

Citation # VIII.1

Seibel, M. M. (March). *Community-based nutrition education through a paraprofessional model: and experiential learning perspective of peer education.* (*Doctoral Dissertation).* Agricultural and Extension Education: Virginia Polytechnic Institute and State University, Blacksburg,VA. 1-188. [PDF+]

URL

Seibhttp://scholar.lib.vt.edu/theses/available/etd-03222012-172605/el, MM. (2012, March).

Abstract

In community-based peer education models, it is necessary to understand the relationship between learning, context and paraprofessional identity construction. Social relations are important in community education program implementation (Merriam, Caffarella, & Baumgartner, 2007); impacting power structure within communities and organizations (Cervero & Wilson, 1994, 2006; Forester, 1989). This study explored the conceptual and practical role of experience in a paraprofessional educator model and focused on the situated, contextual experiences of paraprofessionals in the communities they work and live as unique, challenging, and potentially positive for learning outcomes. Schön's narrative dialogue of reflection (1983) proved to be the essential missing piece in working with community educators toward successful development and autonomy.

In-depth qualitative interviews with 19 paraprofessional community-based peer educators with a state level family nutrition program contributed to findings relevant to how social context, critical reflection, and identity development influence an understanding of experience and the ability to impact knowledge and behavior change in clients. Individual interviews and focus groups allowed narrative exploration of topics as they evolved throughout the study; giving voice to paraprofessional program assistants in a way not previously done. The findings of this study provide insight necessary for the assessment of new conceptualizations of practice for paraprofessional models in expanding community impact and highlight the need for assessment of contemporary program delivery in a way that fosters the continual development of lay educators through reflective practice. Recommendations are made for a reassessment of historically significant program models in order to embrace paraprofessionals as more broadly defined socially mediated and socially situated influential practitioners.

Quotes

-In order to adopt behavior change, process of thought impacts decision. "Critical thinking, when applied to decision-making, enhances the rationality of decisions made by raising the pattern of decision-making to the level of conscious and deliberate choice" (Paul & Elder, 2002, p. 143).

-Paul and Elder list the four keys to sound decision-making as: 1) to recognize that you face an important decision, 2) to accurately identify the alternatives, 3) to logically evaluate the alternatives, 4) and to have the self-discipline to act on the best alternative (p. 147).

Referenced From

Paul, R. W., & Elder, L. (2002). Critical thinking: Tools for taking charge of yourprofessional and personal life. Upper Saddle River: Prentice Hall.

Citation # VIII.2

Shafique, M. & Rao, M K. (2006). *Infusing parts-whole relationship critical thinking into basic computer science education.* (Paper). Department of Information and Computer Science, King Fahd University of Petroleum and Minerals, Dhahran 31261 Saudi Arabia . 1-6. [PDF+]

URL

http://ww1.ucmss.com/books/LFS/CSREA2006/FEC4041.pdf

Abstract

Improving the quality of student thinking should be given a high priority in any educational system as good thinking is essential in meeting the challenges of living in a rapidly changing and technologically oriented world. Research on thinking convinced that skillful thinking process can be inculcated in students if thinking skills are taught explicitly and are integrated into content instruction.

Basic critical thinking skills like determining parts-whole relationships, comparing and contrasting, classification, sequencing, finding reasons, and decision making play an important role in professional lives. These skills can be either imparted to the computer science students by offering special course(s) on critical thinking or can be infused into the course contents. Using the later approach, one model lesson on a topic from a basic computer science course proposed in CC2001 [1] as “Introduction to Computer Science” is presented in this paper. It is very natural to embed the critical thinking skills like determining parts-whole relationship into the course contents. The approach will enhance both the understanding of the computer science concepts as well as the critical thinking skills of the students.

Quotes

None

Referenced From

Paul, R. & Elder, L. “Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life”. Prentice Hall, 2002.

Citation # VIII.3

Faisal, K., Bagais, A.H., & Rao, K. (2006). *Finding reasons and conclusions in a basic computer class.* (Paper). Information and Computer Science Department College of Computer Sciences and Engineering King Fahd University for Petroleum and Minerals Dhahran, Kingdom of Saudi Arabia. 1-7. [PDF+]

URL

http://scholar.google.com/scholarstart=106&hl=en&as_sdt=5,48&sciodt=0,48&cites=17769812211380647393&scipsc=

Abstract

This paper discusses infusing the critical thinking skill of finding reasons and conclusions in a basic computer science course, ICS 201: Introduction to CS, which is the second course in the series of three introductory courses in our curriculum [8]. Software engineers usually use certain design in a program or algorithm without fully considering the effects of that decision. The critical thinking skill of finding reasons and conclusions enable them to reason more about their choice of design. Also, it helps them to convince the proponent to follow the decision they made with conviction.

Quotes

None

Referenced From

Paul, R. & Elder, L. Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life. Prentice Hall, 2002.

Citation # VIII.4

Frost, R. & Pels, S. (2010). Increasing MIS enrollments in the introductory course: teaching students to define MIS by doing it. *Issues in Information Systems*. (XI.2). 48-53. [PDF+].

URL

http://iacis.org/iis/2010/48-53_LV2010_1475.pdf

Abstract

This paper describes a redesign of the Introductory MIS (Management Information Systems) course to more accurately reflect the systems analysis and design focus of the MIS major. The redesign also packages the course so as to help recruit students into the major. These seemingly incompatible goals are both achieved by engaging and challenging students with interesting projects and concepts. The redesign is developed citing evidence from the literature and based on conversations.

Quotes

None

Referenced From

Elder, L., & Paul, R. (2002). Critical Thinking: Tools for Taking Charge of Your Professional & Personal Life. Prentice Hall.

Citation # VIII.5

Yucel, M. (2008). *Improving thinking skills of young learners through task-based learning*. (*Master's Thesis).* Çukurova University Institute of Social Sciences, Cukurova, Turkey. 1-139.

URL

http://scholar.google.com/scholarstart=106&hl=en&as_sdt=5,48&sciodt=0,48&cites=17769812211380647393&scipsc=

Abstract

Thinking skills are important both for the individual and the society. They are important for the individual in terms of personal and professional development and they are important for the society in terms of a democratic and developed society. One of the thinking skills, critical thinking, has a great role in our lives as the other thinking skills. A critical thinker is successful in all parts of life in general because a critical thinker can handle the everyday problems of life easily, can find a good job, be successful in education, is good at communicating with people and give reasonable decisions in life. Therefore, this study aims to find out whether critical thinking, one of the thinking skills, of young learners can be improved through task-based learning. This study is both a qualitative and a quantitative study which lasted during four months. Out of five 6th grade classes at Tarsus Fevzi Çakmak Primary School, 6/C was chosen and 10 students were randomly chosen from this class. The case group was administered a questionnaire at the beginning of the study to see the CT preferences of the participants. During the study, critical thinking was infused into the curriculum through designing the lesson plans in accordance with the language content and topics for the 6th grades determined by the Ministry of Education. The study was based on task-based learning however task-based learning was considered as an umbrella term. The lessons were based on the tasks requiring learners to use critical thinking skills. These lessons were
video recorded and transcribed. The researcher and two of her colleagues observed the students critical thinking skills through watching the videos. Each month, a Critical Thinking Scoring Rubric was used to assess the CT skills development of the participants. At the end of the study, the same questionnaire used at the beginning of the study was administered again to see whether there has been an improvement in learners' CT skills. Quantitative data was analyzed by using descriptive statistics as a component of case study. Research findings from qualitative data shed light on the efficacy of the use of tasks under the heading of task-based learning in improving critical thinking skills of 6th grade students.

Quotes

-Paul and Elder's (2002) definition of critical thinking is "the disciplined art of ensuring that you use the best thinking you are capable of in any set of circumstances" (p.7) They also have claim on critical thinking's necessity for all. They
state that one must learn how to become a critic of his/her own thinking, and only through this way s/he can enhance the thinking skills.
-Paul &Elder (2002) suggest that fair mindedness is an inseparable element of critical thinking skills. To think critically in the strong sense requires that we develop fair mindedness at the same time that we learn basic critical thinking skills, and thus begin to "practice" fair mindedness in our thinking. If we do, we avoid using our skills to gain unfair advantage over others. We avoid using our thinking to get what we want at the expense of the rights and needs of others.
-Paul& Elder (2002) say: "...Yet the quality of our life and that of what we produce, make, or build depends precisely on the quality of our thought. Shoddy thinking is costly, both in money and in quality of life" (Paul& Elder (2002, p.15).
-There are better and worse ways to pursue whatever you are after. Good thinking enables you to maximize the one and minimize the other (Paul &Elder, 2002, p.11).
-Mediative strategies include dialogical and dialectical thinking which Paul (in Costa, 1991) believes that only through them, people can develop a sense of what is most reasonable and he adds monological rules cannot do this. Dialogical thinking can be achieved through the use of Socratic questioning."
-

Referenced From

Paul, R.W. & Elder, L. (2002), Critical thinking: Tools for taking charge of your professional and personal life, New Jersey: Prentice Hall.

Citation # VIII.6

Trujillo, J. Esteban, P. & Giraldo, R. (2008). *Conceptual characterization in calculus with technological mediation using concept maps as follow-up strategy.* (Conference Paper). Concept mapping: connecting educators: Tallinn, Estonia & Helsinki, Finland. [PDF+]

URL

http://cmc.ihmc.us/cmc2008papers/cmc2008-p321.pdf

Abstract

Calculus is the language to express basic concepts of various scientific fields. A solid understanding of Calculus by students should be a key process in the learning process of students of diverse fields, it allows for a better performance in various knowledge areas. The use of specialized mathematical software empowers the student to visualize and integrate the concepts at hand and allows for the simulation and modeling of phenomena that the student finds in his/her environment. This way, concepts gain a particular importance , L. & Paul, R. (2002) Critical Thinking: Tools for Taking Charge of Professional and Personal Life New York: Prentice Hall. each student, furthermore, its integration the integration and understanding are reflected by the construction of concept maps both inside and outside the classroom.

Quotes

-Formulation of questions allowed students to reach conclusions or open new paths to explore (Elder & Paul, 2002).

Referenced From

Elder, L. & Paul, R. (2002) Critical Thinking: Tools for Taking Charge of Professional and Personal Life New York: Prentice Hall.

Citation # VIII.7

Gellin, A. (2003, December). The effect of undergraduate student involvement on critical thinking: A meta-analysis of the literature 1991 -2000. *Journal of College Student Development*. (44.6). 746-762. [PDF+]

URL

http://130.102.44.246/login?auth=0&type=summary&url=/journals/journal_of_college_student_development/v044/44.6gellin.pdf

Abstract

A meta-analysis of eight studies from 1991 to 2000 determined the effect of Greek life, clubs and organizations, faculty interaction, peer interaction, living on campus, and employment on critical thinking. Students involved in these activities experienced a .14 gain in critical thinking compared to students who were not involved.

Quotes

-Colleges and universities have long claimed that a primary goal of higher education is to help students develop the ability to think critically (Astin 1991; McMillan, 1987). The teaching of critical thinking can be traced
back to Socrates in ancient Greece. Socrates' teaching method was designed to encourage students to question common beliefs and distinguish between those beliefs that were logical and those that lacked sufficient evidence (Paul, 1990).

-Despite the increasing integration of critical thinking into higher education, there is evidence that those teaching critical thinking may not fully understand this construct. In California, faculty who taught critical thinking were interviewed to determine how well they understood this term and transferred critical thinking knowledge into their classrooms. The study revealed 12 areas where faculty lacked a clear comprehension of critical thinking. These ranged from an inability to articulate their concept of critical thinking to providing plausible examples of how they fostered critical thinking in the classroom (Paul, Elder, & Bartell, 1997).

-

Referenced From

Paul, R. W. (1990). Critical thinking: What every person needs to survive in a rapidly changing world (A. J. A. Binker, Ed.). Rohnert Park, CA: Center for Critical Thinking and Moral Critique, Sonoma State University.

Paul, R. W., Elder, L., & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations. Sacramento, CA: California Commission on Teaching Credentialing (ERIC Document Reproduction Service No. ED437379)

Citation # VIII.8

Duchscher, JE. (1999, March). Catching the wave: understanding the concept of critical thinking. *Journal of Advanced Nursing*. (29.3). 577 -583. [PDF+]

URL

http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2648.1999.00925.x/abstract

Abstract

As a practice-orientated profession, nursing is clearly guided by theoretical concepts. Concept clarification attempts to show speakers and readers how they can liberate themselves from the judgment limitations imposed by rigid, unexamined beliefs, by exposing differences in the interpretation of language and how that interpretation creates meaning. Critical thinking is one way nurses apply the process of inquiry. As a method of assessing, planning, implementing, evaluating and reconstructing nursing care, a critical thinking approach encourages nurses to challenge established theory and practice. Existing literature on critical thinking is confusing in its description of the process, and ambiguous in drawing relationships between critical thinking and the language currently used to illustrate the process of nursing. This paper examines elements and components of critical thinking as they relate to the language of nursing: problem solving, decision making, clinical judgment, reflection, and the nursing process. The purpose of this analysis is to illuminate the meaning and clarify the intent of critical thinking application to nursing practice. The paper begins by briefly outlining the historical aspects of critical social theory, suggesting that the foundational tenets of critical theory have influenced the development of critical thinking. The paper also critically compares the language used to describe critical thinking and that language that has traditionally defined nursing.

Quotes

-(Dialogical reasoning) Support for each view and the raising and countering of objections is integral to the process. (Paul, 1996)
-A second concept integral to critical thinking is dialectical thinking, which focuses on understanding and resolving contradictions. (Paul, 1990).

Referenced From

Paul, R. (1990) Critical Thinking: What every person needs to survive in a rapidly changing world. Center of Critical Thinking and Moral Critique, Sonoma State University, Rohnert Park, California.
Paul, R. (1996). An educators guide to critical thinking terms and concepts. Center of Critical Thinking and Moral Critique, Sonoma State University, Rohnert Park, California.
Paul R. Elder L. & Bartell T. (1997) California teacher preparation for instruction in critical thinking: research findings and policy recommendations. California Commission on Teacher Credentialing, Sacramento.

Citation # VIII.9

Graffam, B. (2007). Active learning in medical education: Strategies for beginning implementation. *Medical Teacher*.(29.1) 38-42. [PDF+]

URL

http://informahealthcare.com/doi/pdf/10.1080/01421590601176398

Abstract

Medical educators often deliver complex material in a format that does not allow the positive learning engagement recommended by cognitive researchers and theorists. Intentional engagement and active learning pedagogies change the nature of learning, while simultaneously improving knowledge gain and recall abilities. Students find the work more interesting and thereby put more effort into it. Historical perspective reveals that medical faculty need to make changes in their teaching methodologies. However, transforming pedagogical practice is difficult, as medical faculty have not had much exposure to pedagogical theory or training. While simple steps can be taken to alter basic lecture formatting, these steps may be unfamiliar to medical faculty. Seven methods for adapting parts of lectures are described. Practice with such methods may engender exploration of epistemological and cognitive aspects of deeper understanding.

Quotes

-Most instructors in higher education believe they promote critical thinking and active learning but, in fact, only 9% engage in these activities regularly. Only 8% can identify active learning in practice (Paul et al. 1997).

Referenced From

Paul R, Elder L, Bartell T. 1997. California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy Recommendations (Sonoma, CA, Foundation for Critical Thinking).

Citation # VIII.10

Tsui, L. (2001). Faculty attitudes and the development of students' critical thinking. *The Journal of General Education.* (50.1). 1-28. [No PDF-- Lengthy Article Review in Abstract]

URL

http://130.102.44.246/login?auth=0&type=summary&url=/journals/journal_of_general_education/v050/50.1tsui.pdf

Abstract

Literature Review

Critical thinking is viewed as a major teaching goal by faculty (Siegal, 1988). When 2,700 teachers from 33 two- and four-year colleges were asked to identify among a list of choices what they perceived as their primary teaching role, "helping students develop higher-order thinking skills" tied with "teaching students facts and principles" for the highest number of responses; each was selected by 28% of those surveyed (Cross, 1993). Yet, there is evidence that little critical thinking development actually takes place in college classrooms (Barnes, 1983; Braxton & Nordvall, 1985; Paul, Elder, & Bartell, 1997). This discrepancy between what is valued and what is pursued ought to be a perennial concern of practitioners and educational researchers alike.

A central premise of this study is that classroom instruction, and thus student learning, is intensely influenced by the actions of teachers. Teacher behavior is heavily guided by intent, which is in turn linked to teachers' personal self-efficacy. Presumably those faculty members who intentionally infuse critical thinking into their courses do so because they feel reasonably confident in their ability to execute the actions needed to achieve the desired outcome; those who lack such confidence are apt not to invest the necessary time and effort.

This study borrows from the conceptual framework of the exercise of human agency insofar as it recognizes that "teachers' beliefs in their personal efficacy to motivate and promote learning affect the types of learning environments they create and the level of academic progress their students achieve" (Bandura, 1993, p.117). A study by Gibson and Dembo (1984) examined differences between teachers possessing high instructional self-efficacy with those possessing low instructional self-efficacy. Findings reveal that the former group is more apt to devote classroom time to academic learning, provide assistance to those experiencing learning difficulties, and praise students for their accomplishment. Meanwhile, the latter group is more apt to spend time on nonacademic activities, give up on students when they do not achieve the desired results, and criticize students for failures. In their study, Woolfolk and Hoy (1990) found that teachers' sense of personal efficacy not only affected the choice of instructional practices, but also the educational orientation fostered inside the classroom. Teachers with a high self-efficacy supported the development of students' intrinsic interests and academic self-directedness; those with low self-efficacy adopted a custodial orientation, and were more likely to utilize extrinsic inducements and negative sanctions. There is also empirical evidence showing that instructional self-efficacy significantly impacts students' perceived academic performance (Midgley, Feldlaufer, & Eccles, 1989), as well as actual achievement (Ashton & Webb, 1986).

Instructional self-efficacy is by no means formed in a vacuum. Rather, it is molded by a wide spectrum of factors from one's background experiences and current contextual setting. In a study by Joan Stark et al. (1988), students and faculty at eight institutions were interviewed in an effort to investigate how courses are planned and taught. Results show that among the strongest influences on course planning are academic content, materials, student characteristics, and faculty beliefs. The importance of faculty beliefs was confirmed through another study examining influences on the planning of introductory college courses. Based on exploratory interviews conducted with 89 faculty members, researchers concluded that faculty members are most strongly influenced by their discipline orientations, scholarly and pedagogical backgrounds, and beliefs about the purpose of education (Stark et al., 1990b).

A current deficit exists in the research literature regarding faculty attitudes associated with the development of students' critical thinking skills. This study strives to redress this dearth through an in-depth investigation of the underlying faculty beliefs and perceptions that are related to instructional self-efficacy and teacher intentions towards critical thinking development efforts. This exploratory study was designed to probe faculty members' feelings on a wide range of...

Quotes

No Access

Referenced From

Paul R, Elder L, Bartell T. 1997. California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy Recommendations (Sonoma, CA, Foundation for Critical Thinking).

Citation # VIII.11

Lampert, N. (2007). Critical thinking dispositions as an outcome of undergraduate educatio*n. The Journal of General Education.* (56.1). 17 -33. [PDF+]

URL

http://www.jstor.org/discover/10.2307/25475782?uid=2&uid=4&sid=21101249126981

Abstract

This article discusses variance in critical thinking between arts and nonarts undergraduates. Research indicates that inquiry based curricula positively influence critical thinking and that learning in the arts is largely inquiry based. These findings and the study results indicate that learning in the arts positively influences undergraduates' disposition to think critically. Critical thinking ability is generally considered to be a desirable outcome of an undergraduate liberal arts education. In his book Assessment for Excellence, Alexander Astin (1993) states that “of all the skills that are considered basic to the purposes of a liberal education, critical thinking is probably at the top of the list” (p. 47). Erwin and Wise (2002) note that “generic critical thinking and problem-solving skills across the curriculum are mentioned in nearly every discussion of general education” (p. 69). Yet few empirical studies have tested the effectiveness of various instructional techniques in producing the outcome of improved critical thinking in undergraduates (Halpern, 1993; Tsui, 1998, 2002).

Quotes

-The roots of the construct of critical thinking can be traced back 2,500 years, to the teaching practice of Socrates, who developed a probing method of questioning the claims made by others (Paul, Elder, & Bartell, 1997).

-Contemporary scholars have defined the construct of critical thinking as reflective thinking focused on the evaluation of various alternatives (Ennis, 2002; Jones et al., 1995; Paul et al., 1997; Perry, 1999).

Referenced From

Paul, R., Elder, L., & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations. Sacramento: California Commission on Teacher Credentialing.

Citation # VIII.12

Nussbaum, M.E. (2008, August). Using argumentation vee diagrams (AVDs) for promoting argument-counter argument integration in reflective writing. *Journal of Educational Psychology*. (100.3). 549-565. [No PDF]

URL

http://psycnet.apa.org/journals/edu/100/3/549/

Abstract

This study examined a new prewriting tool, argumentation vee diagrams (AVDs), which are used to write reflective opinion essays. AVDs are based on the theoretical concept of argument-counterargument integration, which involves evaluating and integrating both sides of an issue before developing a final conclusion on a controversial question. In a test of the effectiveness of AVDs, 45 undergraduates at a large, southwestern university were randomly assigned to an experimental or control group. Both groups wrote 4 opinion essays over a 4-week period. The experimental group also received training on using the AVDs, including instruction on criteria for weighing arguments. Results indicated that AVD training was effective in enhancing argument-counterargument integration. Furthermore, examination of integration strategies used by participants revealed a new strategy, minimization, which was not previously part of E. M. Nussbaum and G. Schraw's (2007) argument-counterargument integration framework. Minimization involves curtailing the importance or extensiveness of a problem or advantage as a heuristic shortcut for weighing advantages and disadvantages. The role of critical questions and argumentation schemata in argument-counterargument integration is discussed. (PsycINFO Database Record (c) 2012 APA, all rights reserved)

Quotes

No Access

Referenced From

Paul, R., Elder, L., & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations. Sacramento: California Commission on Teacher Credentialing.

Citation # VIII.13

Lampert, N. (2006, September). Enhancing Critical Thinking with Aesthetic, Critical, and Creative Inquiry. *Art Education.* (59.5). 46-50. [PDF+]

URL

http://web.ebscohost.com.offcampus.lib.washington.edu/ehost/results?sid=5127f930-d112-4824-9764-b0326e74146e%

Abstract

Inquiry-based classroom activities require students to solve problems and answer questions that have more than one possible resolution. These types of activities stimulate critical thinking skills and dispositions in students (Burton, Horowitz, & Abeles, 1999; 2000; Housen, 2001; King 1990; 1992; 1994; 1995; 2002; King, Staffieri, & Adelgais, 1998; Lampert, 2006). PreK-12 art classrooms are rich with opportunity for inquiry-based activities for children and adolescents. This article reviews research on inquiry-based instructional techniques that enhance critical thinking and offers suggestions on ways to use aesthetic, critical, and creative inquiry in art classrooms to stimulate higher order thinking in art students.

Quotes

-This discussion focuses on the ways that critical thinking skills and dispositions can be developed through aesthetic, critical, and creative inquiry. Many researchers and theorists have defined critical thinking, and although each describes the construct in a slightly different way, most include language in their definitions that describes it as thinking which is focused on the evaluation of various alternatives Oones, Hoffman, Moore, Ratcliff,Tibbits, & Click, 1995; Paul, Elder, & Bartell, 1997...

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Referenced From

Paul, R., Elder, L., & Bartell.T (1997). California teacher preparation for instruction in criticai thinking: Research findings andpolicy recommendations. Sacramento, CA: California Commission on Teacher Credentialing.

Citation # VIII.14

Mandernack, J., Forrest, K., et al. (2009, March). The role of instructor interactivity in promoting critical thinking in online and face-to-face classrooms. *Merlot Journal of Online Learning and Teaching.* (5.1). 1-14. [PDF+]

URL

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Abstract

The current rise in online learning programs mandates that postsecondary faculty examine means of transferring successful, established critical thinking instructional strategies from the traditional classroom into the online environment. Theoretical arguments support, and even favor, the use of asynchronous learning technologies to promote students' critical thinking skills. The purpose of the current study is to examine students' application of critical thinking strategies when learning in a traditional, face-to-face environment compared to an asynchronous, online classroom. Results indicate that the mode of instructional delivery (face-to-face or online) is not as influential as the instructor's level of interactivity in promoting active engagement with course material. Findings suggest that the asynchronous component of online learning does not inherently prompt students toward enhanced critical thinking, but may serve as a vehicle for online instructors to encourage increased engagement and critical thinking.

Quotes

-The value and importance of critical thinking is well-established in higher education. Research (Paul, Elder & Bartell, 1997) indicates that an overwhelming majority (89%) of university faculty claim that the promotion of critical thinking is a primary objective of their instruction, yet only a minority (19%) are able to provide a working definition of the concept. The challenge in defining critical thinking lies in the complexity of this abstract intellectual goal.

-A plethora of research has been done in the traditional classroom environment to examine the relative value of various instructional strategies for the promotion of students' critical thinking abilities...Paul, 1995; Paul & Elder, 2003; Paul & Elder, 2004; Paul, et al.

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Paul, R. and Elder, L. (2003, Spring). Critical thinking: Teaching students how to study and learn. (Part III). Journal of Developmental Education, 26 (3). 36-37.

Paul, R. & Elder, L. (2004). The nature and functions of critical and creative thinking. The Foundation for Critical Thinking: Dillon Beach, CA.

Paul, R., Elder, L. & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy

Citation # VIII.15

Mazer, JP, Hunt, SK, & Kuznekoff, JH. (2007). Revising General Education: Assessing a Critical Thinking Instructional Model in the Basic Communication Course. *The Journal of General Education.* (56. 3&4) 173-199.

URL

http://muse.jhu.edu/results?section1=author&search1=Joseph P. Mazer

Abstract

This study examined critical thinking instruction in a required introductory communication course (N = 324). Experimental group participants received enhanced instruction using various active learning strategies, activities, and assignments. Results indicate significant improvement in their critical thinking skills. Implications for pedagogy and general education course design and assessment are discussed.

Quotes

-It is clear, however, that students will not improve their CT skills without specific and intentional instruction that targets higher-order reasoning (Barnes, 1983; Braxton & Nordvall, 1985; Paul, Elder, & Bartell, 1997).

-As general education course teachers and administrators design CT instruction, it is especially important to provide students with the tools necessary to evaluate argument quality. Paul (1995) introduces the concept of pseudo–critical thinking (PCT), defined as a form of intellectual arrogance masked in self-delusion or deception, in which thinking which is deeply flawed is not only presented as a model of excellence of thought, but is also, at the same time, sophisticated enough to take many people in. (p. 49)

-Paul (1995) claims that to combat PCT in the classroom, students must have the opportunity to construct meaning from the content they learn. He further argues that not only are student constructions of meanings important but this construction must be evaluated through a set of standards for the quality of the argument. Without this construction, integration, and evaluation, students are merely memorizing, reciting, and ultimately engaging in PCT.

Referenced From

Paul, R. W. (1995). Critical thinking: How to prepare students for a rapidly changing world. Santa Rosa: Foundation for Critical Thinking.
Paul, R., Elder, L., & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations. Sacramento: California Commission on Teacher Credentialing.

Citation # VIII.16

Demir, M., Bacanli, H., Tarhan,S., & Dombayci. (2011). Quadruple thinking: critical thinking. *Procedia Social and Behavioral Sciences.* (12). 545-551. [PDF+]

URL

http://www.dombayci.com/dosyalar/quadruplethinking-criticalthinking.pdf

Abstract

In this study, critical thinking from quadruple thinking (caring, creative and hopeful thinking ways) is discussed. The etymology of the term, history of critical thinking, its dimensions and the supporting thinking ways are given in the study. Besides, the creative thinking is compared with nonjudgmental thinking. Finally, the quadruple thinking is shown in the relationships between critical thinking and other thinking ways (caring, creative and hopeful).

Quotes

-Putting an emphasis on that critical thinking should not be mistaken with the concept of intelligence, Walsh and Paul (1988) regarded critical thinking as a skill that can be improved at every individual.

-As for 19th century, Comte and Spencer expanded the field of application of critical thinking and included it in social fields (Paul, Elder, Barter, 1997).

-Paul made a distinction between strong and weak critical thinking (Streib, 1992: 77)

-The most comprehensive listing concerning the sub-dimensions of critical thinking was made by Paul, Binker, Jensen and Kreklau (1990). These researches suggested that critical thinking has 3 basic sub-dimensions and include different proficiencies including these dimensions. These dimensions are; Affective Strategies bearing such proficiencies as thinking independently, self-centric or social insight achievement and using common sense; Cognitive Macro Strategies including proficiencies like refining generalizations and refraining from oversimplifications, comparing similar situations, transferring understandings to new structures, explaining issues, results or believes; Cognitive Micro Strategies bearing proficiencies such as being able to use critical vocabulary, being able to draw attention to reasonable differences and similarities, being able to investigate or evaluate premises.

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Referenced From

Paul, R., Elder, L. & Bartell T. (1997). California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy Recommendations. Sacramento California: California Commission on Teacher Credentialing. Foundation for Critical Thinking.

Citation # VIII.17

Hargreaves, A. & Grenfell, AT. (2011). *The use of assessment strategies to develop critical thinking in science*. (Paper), Queensland University of Technology. Brisbane, Australia. 1-11.

URL

http://w3.unisa.edu.au/evaluations/Full-papers/HargreavesFull.doc.

Abstract

Critical thinking skills are considered to be invaluable "generic" skills in science education, particularly at University level. Unfortunately, they are frequently not taught explicitly, the assumption being that students will learn from the implicit values buried deep within our teaching philosophies. In recent years some universities have been attempting to bring the teaching of such generic skills to the forefront, and so improve student learning of these most basic and important skills. This study was part of a larger project undertaken by the Science Faculty at Queensland University of Technology, designed to develop assessment methods that would encourage and develop particular critical thinking skills in university science students. Appropriate skills were identified and categorised into hierarchical skill levels, according to the SOLO taxonomy. The taxonomy was applied to various specific disciplines and to levels of teaching within those disciplines. The small project described in this paper consisted of a research inquiry method used to teach and assess critical thinking skills with third (final) year Microbiology students, studying Environmental Microbiology. Students worked in groups to identify an environmental problem, research the background, carry out investigations and present a report in the form of a scientific paper suitable for publication, plus a seminar. Feedback was provided at all stages of the project by assigned tutors. The project has been underway for three years, and the results are very promising. Students' abilities to develop hypotheses, critically assess data, solve problems, draw conclusions and investigate alternatives were demonstrated at high SOLO levels

Quotes

-There seems to be a widely held belief that students will learn by example (Paul, Elder & Bartell, 1997), will be able to discern via overt teaching of content the philosophy and principles that underpin our belief systems, and the "generic" skills that are essential to build, maintain and communicate that content.

-In an attempt to develop a more stringent and comprehensive definition, Scriven and Paul (date unknown) defined critical thinking as: The intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning or communication, as a guide to belief and action.

-In a large study designed to identify emphasis by academics on critical thinking in instruction, Paul, Elder and Bartell (1997) found that, while an overwhelming majority (89%) claimed critical thinking was a primary learning objective, only a small minority (19%) could clearly explain what critical thinking actually was, and only 9% were clearly teaching for critical thinking in a typical class session.

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Paul, R., Elder, L. & Bartell, T. (1997). California teacher preparation for instruction in critical Thinking: Research findings and policy recommendations. California Commission on Teacher Credentialing, Sacramento California. Publisher: Foundation for Critical Thinking.

Citation # VIII.18

Kouzmin, K, Witt, MT, Thorne, K. (2009). "Killing the king" in public administration:from critical epistemology to fractured ontology and limited agency. A review essay. *Public Administration Quarterly*. (33.3). 341-372. [PDF+]

URL

http://www.jstor.org.offcampus.lib.washington.edu/stable/pdfplus/41219988.pdf?acceptTC=true

Abstract

For Farmer (2005), "imagination", especially in the form of "open engagement", is the fundamental requirement for a critical reflexivity that allows each of us to become an "artist in the conduct of our life" (Farmer, 2005, p. xiv). Farmer illuminates a "moral reflection" by which materialist political economy is conjoined with post-structuralist (even post-modernist) linguistic/symbolic analysis in order to recover the arena of norms/values from the deadening embrace of technocratic praxis. Farmer (2005) presents an imaginative, critical Public Administration indicative of what Dahrendorf (1968, p. vii) refers to as "a social science of values." This involves the type of "big range", "morally- committed" theorizing that "weave[s] historical awareness into sociological [or public administration] generalizations" (Dahrendorf, 1968, p. vii). Farmer beckons academics and practitioners into an imaginative, critical public administration, akin to Habermas' s expansive "critical sociology," which "keep[s] us aware of what we are doing [...] irrespective of whether we are doing it consciously or blindly and without reflection. A critical sociology in this sense should view its subject precisely from an imagined [. . .] a priori perspective, as a generalized subject of social action" (Habermas, 1963, p. 228, cited in Dahrendorf, 1968, p. vii).

Quotes

-Paul, Elder and Bartell's (1997) study of 66 Californian universities and colleges found that while 89 per cent of the faculty interviewed claimed critical thinking was a primary objective of their instruction, only 19 percent could give a clear explanation of what critical thinking was.

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Paul, R.W., Elder, L. & Barteil, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations of the California Commission on Teacher Credentialing. Sacramento: Foundation for Critical Thinking.

Citation # VIII.19

Peirce, WP. (2005. June). The year of critical thinking at Prince George's Community College: An integrated professional development program. *New Directions for Community Colleges Special Issue: Critical Thinking: Unfinished Business*. (130) 79-85. [No PDF]

URL

http://onlinelibrary.wiley.com/doi/10.1002/cc.198/abstract

Abstract

This chapter describes the context, development, and fall 2004 implementation of the Year of Critical Thinking at Prince George's Community College, an effort to engage all full-time and adjunct faculty in teaching critical thinking in their classes.

Quotes

No Access

Referenced From

Paul, R.W., Elder, L. & Barteil, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations of the California Commission on Teacher Credentialing. Sacramento: Foundation for Critical Thinking.

Citation # VIII.20

Pollarda, NP, Lacksb, RB, & Grantb, PH. (2008). A comparative assessment of student learning outcomes in large online and traditional campus based introduction to criminal justice course. *Criminal Justice Studies: A Critical Journal of Crime, Law and Society. Special Issue: Criminal Justice Program Assessment*. (21.3). 239-251. [NO PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/14786010802355826

Abstract

The current paper discusses a comparative assessment of student learning outcomes in large online and traditional in class courses when teaching introduction to criminal justice. The courses were taught to over 500 students in a public, urban university in the southeast. Overall, the findings of the current study highlight that there are few differences regarding student performance and knowledge obtainment in the two courses. The only significant correlations with the delivery method were weakly related to the third exam grade and the class final grade. The online class received significantly higher grades on the third exam in comparison to the in-class group. However, the students' final grades and course delivery type were negatively correlated indicating that the traditional class received a significantly higher final grade than the online class. Lastly, the results revealed that students were less satisfied with the online course, which may have been attributed to technological problems during the semester.

Quotes

No Access

Referenced From

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Citation # VIII.21

Raiskums, BW. (2008). *An analysis of the concept 'Criticality' in adult education*. (Doctoral Dissertation). Capella University, Minneapolis, MN. 1-185. [PDF+]

URL

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Abstract

The concept criticality has emerged over the past 25 years as central to the field of adult education. At the same time, its conceptualization has been problematic to participants in the field because of vagueness and ambiguity of the term criticality and associate expressions and collocations of the word critical, such as critical thinking and critical reflection. The purpose of this study was to address the problem that it was not known how, and to what extent, the concept criticality was understood in the field of adult education. Response to the research question, "How is criticality conceptualized in the scholarly literature of adult education?" builds upon but transcends what has been contributed to understanding of criticality in adult education. This study applied a qualitative method of concept analysis in an approach that was designed to assess the maturity of the concept and its readiness for further research and utilization in the academic field of adult education. The method included a review of all available scholarly literature of the field from the past ten years. From that review, relevant literature was identified for analysis of the nature and physiology of the concept, as well as its characteristics, preconditions, boundaries, outcomes, anatomy, and pragmatic utility. Results of this study provide a clear, value-free conceptual foundation and working definition that will serve as a heuristic for further research, theory building, and practice.

Quotes

-Confusion also occurs when a concept label is used by theory builders and practitioners who are unaware of such differences in meanings. Paul (2005) claims, "Research demonstrates that most college faculty lack a substantive concept of critical thinking, though they mistakenly think otherwise" (p. 27). This problem is exacerbated by the introduction and popularity of seemingly homonymous and equally vague or ambiguous terms such as critical awareness, critical definition, critical paradigm, and critical reflection.

-Despite or perhaps due to the ubiquitous appearance of terms such as critical analysis, critical awareness, critical reflection, and critical thinking as naming central concepts in adult education, meanings of these somewhat homonymous terms remain problematic for instructors and learners alike (Brookfield, 2000b, 2003b; Facione &
Facione, 2007; Paul, 2005...

- The intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication as a guide to belief and action (Scriven & Paul, 2004).

-p. 3). Wilson-Robbins' approach involved interpretation and synthesis of ideas explored in other literature and resulted in a composite stipulative definition. Her reliance upon Paul and Elder's (2005) set of critical thinking competency standards provided an assessment framework for her study.

-Socrates established the necessity to probe and question beliefs before accepting them as truth (Paul, Elder, & Bartell, 1997). "I say that this even happens to be a very great good for a human being—to make speeches every day about virtue and the other things about which you hear me conversing and examining both myself and others—and that the unexamined life is not worth living for a human being" (Socrates as quoted in Plato, trans. 1984, "Apology", sct. 38). The terms Socratic method and Socratic inquiry derive from the system of discourse that Socrates and his followers practiced to further their owneducation (Conrad; Paul, Elder & Bartell).

-According to Paul, Elder, and Bartell, it is from this ancient tradition that emerged a recognized need to think systematically and to trace implications broadly and deeply in order to understand the deeper realities or ideals beneath surface appearances.

-Some individuals who have been exposed to characteristics of a critical person as represented by the media might imagine that critical awareness has to do with fault-finding (Paul & Elder, 2006b).

-The critical thinking philosophical frame has its roots in analytic philosophy and pragmatist constructivism, as well as the Greek Socratic tradition that dates back over 2,500 years to the ancient Greek ideal of "living an examined life" (Paul & Elder, 2007c, concluding paragraphs). The practicality and value of the purposes and goals of the concept
criticality are traceable to Socrates' teaching method of using probing questions to determine whether claims to knowledge based on authority could be rationally justified with clarity and logical consistency (Paul, Elder, & Bartell, 1997.)

- In the 20th Century, William Graham Sumner and John Dewey recognized the importance of criticism and reflective thought to a practical education for responsible citizenship (Paul, Elder & Bartell)

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Elder, L. (2007). A brief conceptualization of critical thinking. Retrieved March 14, 2008 from www.criticalthinking.org/.

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Paul, R. W. (2005). The state of critical thinking today. New Directions for Community Colleges 2005(130), 27-38. Retrieved May 11, 2007 from Academic Search Premier database.

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Citation # VIII.22

Nussbaum, EM. & Edwards, OV. (2011). Critical questions and argument stratagems: A framework for enhancing and analyzing students' reasoning practices. *Journal of the Learning Sciences*. (20.3). 443-488. [No PDF]

URL

http://www.tandfonline.com/doi/abs/10.1080/10508406.2011.564567

Abstract

This article explores the concepts of critical questions (from D. N. Walton, 1996) and integrative and refutational argument stratagems as an approach for teaching argumentation and critical thinking. A study was conducted for 6 months in 3 sections of a 7th-grade social studies classroom in which 30 students discussed and wrote about current events. One section served as a comparison group. Over time the experimental group made more arguments that integrated both sides of each issue. Collectively, the experimental group also successfully constructed salient critical questions, particularly in regard to weighing values and designing practical creative solutions. In-depth analysis of 1 student showed how conceptual structures and argument practices improved incrementally over time and how the appropriation of stratagems may have been facilitated by the dialectical nature of the intervention (e.g., using critical questions and stratagems successfully in discourse). The theoretical and practical importance of Walton's dialogue theory, and the critical question approach to argumentation, are discussed

Quotes

No Access

Referenced From

Paul, R.W., Elder, L. & Bartell, T. (1997). California teacher preparation for instruction in critical thinking: Research findings and policy recommendations of the California Commission on Teacher Credentialing. Sacramento: Foundation for Critical Thinking.

Citation # VIII.23

Asay, SM, Curry, BM. (2008). Implementing and assessing a critical thinking problem solving project. *A Special Issue on Assessment*: *Journal of Teaching in Marriage & Family*. (3.3). 375-398. [No PDF]

URL

http://www.tandfonline.com/doi/abs/10.1300/J226v03n03_07

Abstract

Critical thinking and problem solving have been identified as desirable outcomes for students in today's classrooms. Educators recognize that students need a well designed critical thinking curriculum that promotes problem solving, creative learning, and critical analysis of information. This article presents a discussion of critical theory as it relates to the adult learner. A research assignment is introduced that can be used at the university level to promote critical thinking. The assignment promotes the paradigm shift from teacher-centered to student-centered learning. Students apply scientific information and reasoning as they learn how to define problems, gather relevant information, analyze situations, generate creative potential solutions, and evaluate those solutions. An assessment rubric, used to evaluate the project, is included.

Quotes

No Access

Referenced From

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Citation # VIII.24

Ozmen, KS. (2008). *Current state and understanding of critical thinking in higher education*. (Paper). Gazi Eğitim Fakültesi Dergisi: Turkey. (28.2) 109-127. [PDF+]

URL

http://scholar.google.com/scholar?start=40&hl=en&as_sdt=5,48&sciodt=0,48&cites=16543850942364069428&scipsc=

Abstract

This paper reviews the literature of Critical Thinking (CT) in higher education of societies. Some cornerstone studies on CT are discussed in relation with the other influential works of educational pioneers by referring to key definitions. Also, the current state of CT skills, tendencies and beliefs of educators, the state undergraduates and graduate students in academic environments are accentuated so as to discuss the need of improving CT in our country.

Quotes

-Paul (1990) analyzed several definitions of critical thinking throughout his studies and he offers that one definition should retain a host of definitions, as no one definition covers all of the dimensions of critical thinking. He suggests that by using a combination of definitions, one can avoid the limitations of each (1990).

-Another important contemporary pioneer of critical thinking movement, Richard Paul (1990) models critical thinking in a similar way with the Facione's Delphi Report. He states that there are simply two kinds of critical thinking process, one is "the weak sense" and the other is 'the strong-sense'. He concludes that if you approach critical thinking as a method for defending your initial beliefs or those you are paid to have, you are engaged in 'weak sense critical thinking'. The purpose of weak-sense critical thinking is to resist and annihilate opinions (Paul, 1990). On the other hand, strong sense critical thinking requires us to apply the critical questions to all claims, including our own. By forcing ourselves to look critically at our initial beliefs, it creates a protection against self-deception and conformity.

-The common sense in modern education, theoretically, is not a different one. A number of 1972 studies encompassing 40,000 faculty members bythe American Council on Education found that 97 percent of the respondents indicated the most important goal of undergraduate education is to foster students' ability to think critically (cited in Paul, 2004 However, the current case is far more different than what is aspired to do so. An important study by Gardiner (cited in Paul, 2004), in cooperation with ERIC Clearinghouse on Higher Education, reveals the fact that whereas the faculties aim at developing critical thinking skills of the students and leading them to develop intellectual traits (dispositions), in practice the tendency ofeducation aims at facts and concepts in the disciplines, at the lowest cognitive levels, rather than development of intellect or values.

-Paul(2004) notes that "Every discipline; mathematics, physics, chemistry, biology, geography, sociology, anthropology, history, philosophy, and so on is a mode of thinking. Every discipline can be understood only through thinking.

-In the USA higher educational system, referring to reliable studies, (Steen, 1987; Gardiner, 1995, Paul 2004:2) claims that departments teach history but not historical thinking; education but not educational thinking, or biology but not biological thinking...

-When we pool our thinking to seek a connection between Fisher's and Paul's statements, we can interpret that in order to create 'a life-long learning ability and tendency', fostering CT skills and dispositions are as vital as the discipline being taught at faculties.

-Reviewing the vast amount of literature on critical thinking, the astonishing picture reveals the fact that there is still no certain consensus on the concept of CT. Ironically, in a sense, what is claimed to be promoted by the academicians is not clearly defined yet. The reason, and perhaps the result, of this fact, is defined by Paul as 'overconfidence in promoting CT' at faculties.

-Yet another result of a large study (Paul, Elder & Bartell, 1997) of 38 public colleges and universities and 28 private ones focused on the question: "To what extent are faculties teaching for critical thinking?" The study included randomly selected faculties from colleges and universities across California, and including prestigious universities such as Stanford, Berkeley, and the California State University. Among these "universities of ivory league", only a small minority could give a clear explanation of what critical thinking is (19%). Furthermore, according to their answers, only 9% of the

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Paul, W.R. (1993) Critical Thinking: How to Prepare Students for a Rapidly Changing World. Santa Rosa, CA: Foundation for Critical Thinking.

Paul, W.R., Elder, L. & Bartell, T. (1997). California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy Recommendations. Sacramento, CA: California Commission of TeacherCredentialing

Citation # VIII.25

Yucel, B. (2008, July). *An evaluation of needs, design, implementation and outcomes of development and learning course enriched with critical thinking based instructions. (*Doctoral Dissertation). Graduate School of Social Sciences of Middle Eastern Technical University, Ankara, Turkey. 1-380. [PDF+]

URL

http://etd.lib.metu.edu.tr/upload/12609763/index.pdf

Abstract

This study aimed to evaluate the development process of Development and Learning course according to critical thinking based instruction in the Faculty of Commerce and Tourism Education at Gazi University by using Stufflebeam's
Context, Input, Process, and Product evaluation model. Data were collected from various sources through qualitative and quantitative methods such as questionnaires, individual and focus group interviews, student journals, achievement test, and California Critical Thinking Disposition Inventory (CCTDI). The context evaluation results showed that there were problems in the attainment of course objectives and in the application of the effective instructional strategies for learning and improving thinking skills. Thereupon, at the input evaluation stage, the course was redesigned according to critical thinking based instruction. Pretest-posttest experimental study was carried out while implementing the redesigned course. Concerning the process evaluation, student journals pointed out that while critical thinking based instruction was effective on learning, thinking and metacognitive skills, students experienced some difficulties. Regarding the product evaluation, according to achievement pre-posttest and retention test results and CCTDI pre-posttest results, students in both groups showed a significant progress within a semester. However, there was no difference between treatment and
control groups. This study aimed to evaluate the development process of Development and Learning course according to critical thinking based instruction in the Faculty of Commerce and Tourism Education at Gazi University by using Stufflebeam's Context, Input, Process, and Product evaluation model. Data were collected from various sources through qualitative and quantitative methods such as questionnaires, individual and focus group interviews, student journals, achievement test, and California Critical Thinking Disposition Inventory (CCTDI). The context evaluation results showed that there were problems in the attainment of course objectives and in the application of the effective instructional strategies for learning and improving thinking skills. Thereupon, at the input evaluation stage, the course was redesigned according to critical thinking based instruction. Pretest-posttest experimental study was carried out while implementing the redesigned course. Concerning the process evaluation, student journals pointed out that while critical thinking based instruction was effective on learning, thinking and metacognitive skills, students experienced some difficulties. Regarding the product evaluation, according to achievement pre-posttest and retention test results and CCTDI pre-posttest results, students in both groups showed a significant progress within a semester. However, there was no difference between treatment andcontrol groups. On the other hand, in the focus groups interviews, the students from
the treatment groups expressed the contributions of the course to their teaching and thinking skills, understanding and participation. In conclusion, though quantitative data addressed that critical thinking based instruction did not create differencecompared to the traditional instruction, qualitative data delineated positive effects of this approach.

Quotes

MANY MORE QUOTES

-Indeed, Paul, Elder, and Bartell (1997) best delineate the importance of critical thinking in teacher education in their study entitled "California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy Recommendations".

-Critical thinking. Paul and Elder (2006) give a brief definition of critical thinking, "thinking explicitly aimed at well-founded judgment, utilizing appropriate evaluative standards in an attempt to determine the true worth, merit, or value of something" (p. xxiv).

-critical thinking is the art of thinking while thinking in order to make thinking better. It involves three interwoven phases: it analyzes thinking [by focusing on the parts of thinking in any situation-its purpose, question, information, inferences, assumptions, concepts, implications, and point of view], it evaluates thinking [by figuring out its strengths and weaknesses: the extent to which it is clear, accurate, precise, relevant, deep, broad, logical, significant, and fair], it improves thinking [by building on its strengths while reducing its weaknesses]. (p. xvii)

-Nine essential intellectual virtues are mentioned: independence of mind, intellectual curiosity, intellectual courage, intellectual humility, intellectual empathy, intellectual integrity, intellectual perseverance, faith in reason, and fair mindedness (Paul, 1991; Paul & Elder, 2006).

-Paul and Elder (2006) also point out that critical thinkers routinely apply the intellectual standards (clarity, precision, accuracy, significance, relevance, completeness, logic, fairness, breadth, depth) to the elements of reasoning (purposes,inferences, questions, concepts, points of view, implications, information, assumptions) in order to develop intellectual traits leading to high quality thinking as demonstrated in Figure 2.

-A summary of the teacher's role is given as follows by Paul et al. (1989):

• Help break big questions or tasks into smaller, more manageable parts
• Create meaningful contexts in which learning is valued by the students
• Help students clarify their thoughts by rephrasing or asking questions
• Pose thought-provoking questions
• Help keep the discussion focused

-In addition, four global strategies are suggested by Paul et al. (1989) for promoting critical thinking: Socratic questioning, role-playing, analyzing experiences, and distinguishing fact, opinion, and reasoned judgment.

-Paul et al. (1989) also assert that students should learn to analyze experience that they lived or the others lived. This helps them to improve their empathy skill, gain insights and develop intellectual virtues such as intellectual empathy,
intellectual courage, intellectual integrity, and confidence in reason.

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