

# INTRODUCING THE CONCEPTS OF CRITICAL THINKING TO SOME HIGH SCHOOL TEACHERS IN SEGOU AREA

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## **Abstract**

*The only way you can learn anything well is to reason through it. There is no shortcut to that. Therefore, if teachers ask their students to reason about the content of the lessons, they have to be willing to engage in thinking themselves, and they must have a crystal clear concept of what good thinking looks like. However, the problem is that critical thinking is not well known to most educators (R. Paul, 1995, 1997). Therefore, this study aimed to promote critical thinking in Mali via a workshop. Five private high school teachers of English participated in the project. A questionnaire was given to assess their prior knowledge before the course begins. After four weeks of readings and discussions, the participants showed a much improved understanding of critical thinking and its role in education. The implication for this study is that all teachers must be educated in the vocabulary, standards, and intellectual traits of critical thinking.*

**Key words:** *critical thinking, theories of critical thinking, the elements of reasoning, Intellectual standards.*

## **Résumé**

*Tout apprentissage passe par le raisonnement. Il n'y a pas de raccourci pour cela. Si les enseignants demandent à leurs élèves de raisonner sur le contenu des leçons, ils doivent eux aussi être prêts à réfléchir et ils doivent avoir une idée claire de ce à quoi ressemble une bonne réflexion. Cependant, le problème est que la pensée critique n'est pas bien connue de la plupart des éducateurs (R. Paul 1995, 1997). Par conséquent, cette étude vise à promouvoir la pensée critique via un atelier. Cinq professeurs d'anglais de lycée privé ont participé au projet. Un questionnaire a été remis pour évaluer leurs connaissances préalables avant le début de la formation. Après quatre semaines de lectures et de discussions, les participants ont montré une bien meilleure compréhension de la pensée critique et de son rôle dans l'éducation. L'implication de cette étude est que tous les enseignants doivent connaître le vocabulaire et les traits intellectuels de la pensée critique.*

**Mots clés :** *pensée critique, théories de la pensée critique, éléments et standards intellectuels.*

## **1. Introduction**

The idea for this study was clearly identified from the researchers' attendance to group webinar sessions. After each session, a debate about the topic of the day was organized. New ideas that could be used to improve teaching and learning were discussed among the teacher attendants. However, through the discussions, a large number of the teachers showed little interest in the researcher's suggestions of pushing students to be more active and making the classes more critical thinking directed. The problem is that critical thinking is not included the curriculum of teacher training centers, and as a result, most teachers do not know what critical thinking is and how to teach for it. Besides, Malian educators receive very little opportunities for a continuous professional development in teaching.

Therefore, through this project, the researcher shared with some fellow teachers the experience he gained from his research and participation in a critical thinking program. The participants were helped to use Doctor Richard Paul's critical thinking concepts by name. Blooms' Taxonomy is an even better-known critical thinking theory, but Paul's approach was selected for its simplicity and its use of standards.

Critical thinking has been defined in a number of ways but with one central idea. For the purpose of this project, critical thinking is defined 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 structures inherent in thinking and imposing intellectual standards upon them" (R. Paul, 1992. p.1).

Lately, critical thinking scholars have acknowledged that critical thinking cannot be a mere teaching of skills, it is also important that individuals develop the dispositions to look at the world through a critical lens. Thus stressing that a critical thinker not only has the ability (the skills) to seek reasons, truth, and evidence, in a given situation, but also that he or she has the disposition to seek them (P. A. Facione, 1990 as summarized by E. Lai, 2011).

## **2. Benjamin Bloom's Taxonomy of Educational Objectives**

The intent of Bloom's Taxonomy was to develop a classification system for three domains: the cognitive, the affective, and the psychomotor. Work on the cognitive domain was completed in 1956 and

is commonly referred to as *Bloom's Taxonomy of the Cognitive Domain* (B. Bloom et al., 1956).

The major idea of the taxonomy is that what educators want students to know can be arranged in a hierarchy from less to more complex. The levels are understood to be successive, so that one level must be mastered before the next level can be reached.

The original levels by B. Bloom et al. (1956) were ordered as follows: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. L. Anderson and D. Krathwohl, (2001) revised Bloom's Taxonomy to fit the more outcome-focused modern education objectives, including switching the names of the levels from nouns to active verbs, and reversing the order of the highest two levels.

Paul found Bloom's as cited in R. Paul, (1995) analysis "very rewarding reading", particularly the sections of analysis, synthesis and evaluation. These sections reveal that most of the cognitive processes characterized as essential to higher order thinking in fact presuppose use of the basic concepts of critical thinking: assumption, fact, concept, value, conclusion, premise, evidence, relevant, irrelevant, fallacy, argument, inference, point of view, bias, prejudice, authority and so forth (R. Paul, 1995, p.218). Paul has concluded, however, that teachers who depend solely on Bloom for learning how to think critically tend only to ask questions of analysis, synthesis and evaluation. "According to most advocates of critical thinking, no net set of recipes can foster critical thinking in students" (R. Paul, 1995 p.218).

R. Paul's (1995) biggest problem with B. Bloom's (1956) taxonomy is that "knowledge" is not something that can be given by one person to another. It cannot simply be memorized out of a book or taken whole cloth from the mind of another. Knowledge, rightly understood, is a distinctive construction by the learner, something that issues out of a rational use of mental processes. To expect students to assent before they have developed the capacity to do so rationally is to indoctrinate rather than to educate them and to foster habits of thought hostile to the educative process (R. Paul, 1995).

### **3. Paul's Approach to Critical Thinking**

Richard Paul's "Elements and Standards of Reasoning" are outlined in several publications, as well as on his website. Paul argues that

there are two essential dimensions of thinking that students need to master in order to learn how to upgrade their thinking. They need to be able to identify the “parts” of their thinking, and they need to be able to “assess” their thinking. Paul refers to the “parts” as the “Elements of Reasoning” which he assesses through the “Standards of Reasoning” (hereafter referred to as the Elements & Standards’).

### **3.1. *The Elements of Reasoning***

R. Paul (1997), describes eight Elements of Reasoning:

1. All reasoning has a Purpose.
2. All reasoning is an attempt to answer some Question At Issue
3. All reasoning is based on Assumptions.
4. All reasoning is done from some Point of View.
5. All reasoning is based on Information-e.g. data 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.
8. All reasoning leads somewhere, or has Implications and Consequences.

Paul explains that each of these structures has implications for the others.

If you change your purpose or agenda, you change your questions and problems. If you change your questions and problems, you are forced to seek new information and data. If you collect new information and data... (R. Paul, 1997, p.5)

R. Paul (1997, p.3) writes about the value of these elements of reasoning. Once we progress from thought which is purely associational and undisciplined to thinking which is conceptual and inferential, thinking that attempts in some intelligible way to figure something out, in short, to reasoning, then it is helpful to concentrate on what can be called the “elements of reasoning”

### **3.2. *Intellectual Standards***

R. Paul, (1997), also identified seven Standards of Reasoning used to assess the Elements of Reasoning. They are; clarity, accuracy, precision, relevance, depth, breadth, and logic.

R. Paul (1997, p.26) defends the use of standards:

Universal intellectual standards are standards which must be applied to thinking whenever one is interested in checking the quality of reasoning about a problem, issue, or situation. To think critically means having command of these standards. To help students learn them, teachers should pose questions which probe student thinking, questions which hold students accountable of their thinking, questions which through consistent use by the teacher in the classroom, become internalized by students as questions they need to ask themselves. The ultimate goal is for these standards to become infused in the thinking of students, forming part of their inner voice, which then guides them to better and better reasoning.

In making a case for intellectual discipline, L. Elder (1997, p.1) states that, “It is impossible to envision an intellectually rigorous academic environment devoid of standards”. Without them, there would be no means of assessing the intellectual performance of students, no criteria by which to judge their work.

## **4. Methodology**

This project is a contribution to promoting critical thinking (what it is and why it is important). The researcher was the trainer and five volunteers were the teacher-learners. The course was based on explanations of critical thinking concepts.

### **4.1. *Recruitment of Participants***

Even though this idea of familiarizing English teachers with thinking concepts was triggered by a conversation with teachers in Bamako, the project was conducted in the region of Segou because those who are teaching outside the capital city are even more isolated and, consequently, less well informed about the novelties brought to shape the way language is taught.

After obtaining an authorization from the director of the teaching academy of Segou to conduct the project in the region, a meeting was arranged with a teacher of English who claimed to know all the others. He proposed to distribute copies of an invitation letter that was brought. The next day, he provided the names and contacts of four of his colleagues. The volunteers were called to give more details about the course and the research plan. From these conversations, the initial plan had to be modified to match the time tables of the participants. Classes were scheduled in the week-ends, but due to a situation of teachers' common strike meetings could take place throughout the week.

#### **4.2. Course design**

The training was conducted using a variety of sources such as books, articles, and web-based materials. The relevance and reliability of all these documents were checked. The teaching program included the study and practice of critical thinking concepts. All the volunteers (five in total) were selected for the training. Before delving into the reading materials for the course, the participants were asked to complete a questionnaire and were observed in their respective classroom<sup>1</sup>.

#### **4.3. The participants' Background Information**

The background characteristics include the gender, the age, the number of teaching experience, and the institution from which the respondent has graduated. Unfortunately, there was no female participant. By the end of the workshop, a teacher volunteered to join in. He was welcomed but was not formally considered a member of the group.

Teacher1 is 36 years old. Teacher1 has graduated from *ENSup (Ecole Normal Supérieure)* and has a teaching experience in English at high school level for 1 year.

Teacher2 is 27 years old. Teacher2 has graduated from the Faculty of Letters and Language Sciences<sup>2</sup>. Teacher2 graduated from the Teacher Training Institute of Koro and has been teaching for six months.

After graduation from the Faculty of Letters and Language Sciences, Teacher3 entered education in high school a year

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<sup>1</sup> The data obtained through the teachers' classroom observation will be examined in a separate paper.

<sup>2</sup>Teacher training institute.

ago following careers in Junior high school. He is now a 29 years old teacher.

Teacher4 is 35 years old. Teacher4 has also graduated from *ENSup* and has a teaching experience of 3 years in high school.

Teacher5 is 28 years old. Teacher5 graduated from *ENSup* and has only four months of teaching experience in high school.

## 5. Taking action

### ***5.1. The Pre-Meetings-Analysis of the Questionnaire***

Not surprising was the fact that none of the teachers had a coherent grasp of what critical thinking is, and what it involves. Question one of the questionnaire “What is critical thinking (how does it differ from mere thinking?)” yielded responses which show their misconceptions of critical thinking. The five respondents had a similar view of critical thinking. For example, “We think critically in order to oppose to somebody else’s belief, view” (Teacher2). Out of the five teachers, none was able to name an “Element” of critical thinking as defined by Paul. All the participants answered “NO” to having read an article or book on critical thinking. Materials on critical thinking concepts were, then, given for the first class meeting.

### ***5.2. Week One : Introduction to Critical Thinking***

A week before the first class meeting, the participants were given reading materials based on critical thinking concepts (See appendix). The purpose of these readings was to expand and enrich their understanding of critical thinking. After reading one or more of the articles, their responses to the questionnaire were returned to them, and they were asked to do the following task:

*Describe how your understanding of critical thinking has changed as the result of your reading and reflecting.* After completing this task in week one, the participants self-evaluated and realized that they had been misinterpreting critical thinking. They also realized the importance of the course.

### ***5.3. Week Two: Discussion Involving Paul's System of Thinking***

The participants started by reflecting on their own definitions of critical thinking. In Week one, their understanding of critical thinking was enhanced via several readings. In week two (after a break of one week), we narrowed to one framework for critical thinking: Paul's framework for critical thinking. The participants were given reading materials ten days ahead of the next class meeting (See appendix)

In order to practice using Paul's Critical Thinking tools, the class was engaged in a discussion. The participants were encouraged to make suggestions about what topic the class should, and were then asked to vote on the topics that were suggested. After a few minutes waiting for them to make a choice, the researcher made his own suggestion, "abortion". That topic was chosen by the class. The teachers were roughly split down on whether or not the practice should be legal.

Both the pros and cons were given twenty minutes to write their reasons for holding their positions on a sheet of paper. At the end of the twenty minutes, the two cross-examined one another using the Elements and Standards to assess why the other side held the views they held (i.e. Purpose, Information, Point of View, etc.), and whether those reasons stood up to assessment (i.e. Logical ? Relevant ? Clear ?) (This idea was taken from S. Scanlan, 2006).

The participants were then asked to revise their papers before another cross examination. They found this exercise to be a lot of fun, taking great delight in their critical thinking new tools that would allow them to assail their peers' position. The key, though, was to get them to explicitly use the elements and standards by name.

All the participants discussed the usefulness of Paul's framework for thinking critically across the disciplines as well as in professional and personal life. Teacher5 said, "The intellectual standards allow doing things more effectively. I think we should tell our learners about these."

### ***5.4. Week three: video projection***

This week a video of the international conference on critical thinking was projected. The conference was animated by Richard Paul. The participants enjoyed even more the explanations from the author himself.



### ***5.5. Week four : redefining critical thinking***

To evaluate the participants' understanding of critical thinking by the end of the project, they were asked to redefine it in their own words.

## **6. Results and discussion**

This study, although small in scope, contributed to the promotion of critical thinking with the hope that both in-service and pre-service teachers will understand the importance of critical thinking in education and show a lot more interest in it.

### ***6.1. What was done***

On the first day of the project, the participating teachers were given a questionnaire that asked what they know about critical thinking. The data obtained from this questionnaire showed that the teachers had serious misunderstandings of the nature of critical thinking. Therefore, a high priority was placed on helping the course participants see what critical thinking is and why it is important to language learning and teaching.

Having defined critical thinking, and having gotten the teachers to see its importance, the correct ideas of what critical thinking is were established by introducing Richard Paul's Elements and Standards. Reading materials including a pie chart listing the Elements, and a listing of the Standards at the bottom were handed out. In order to practice using Paul's Elements and Standards, the teachers were engaged in a discussion. This allowed them to explicitly use the Elements and Standards by name.

### ***6.2. What was Learnt***

What can be retained is that critical thinking is unknown to most Malian high school teachers. Most of them are stacked with the "traditional" teaching methodologies. Through this action research project, the participating teachers gaining insights into critical thinking and its role in learners' education.

### ***6.3. Evidence of Improvement in the Teachers' Conception of Critical Thinking***

Before the beginning of the workshop, the participants viewed critical thinking as an opposition of thoughts. For example, "We think critically in order to oppose to somebody else's belief..." (Teacher2). "It is this continuous pursuit of finding mistakes in what we hear and events occurring around us" (Teacher5). In addition, none was able to name an "Element" of critical thinking as defined by Paul.

By the end of the training, the participants were asked again to define critical thinking<sup>3</sup>. This was to see where they are in their understanding of critical thinking after the course. This time they were asked to use the SEEI method (State the definition, Elaborate on the definition, Exemplify the definition, give examples and non-examples, Illustrate; prove an image that represents the concept). The course participants' redefinitions of critical thinking proved that they have made a considerable improvement in their understanding of the concept:

S= Critical Thinking is the ability to enlighten views in order to avoid bias.

E= Critical Thinking requires a clear vision of both one's information and those of others. For the betterment of the final decision one needs to, fair-mindedly and empathically, be engaged in a systematic analysis of the given information.

E (+Non-E)= Asking questions is indicative of critical thinking. Root learning will lead one to reproduce others ideas without deep understanding.

#### **2..1.1. I= A lamp-because critical thinkers need to see clearly what they are looking at and where they are going (Teacher1)**

S= Critical Thinking is the ability to elaborate on your own understanding of things.

E= To become a critical thinker you need to be able to analyze and assess thinking in terms of intellectual standards using affective and/or cognitive strategies.

E (+ Non-E)= examples of Critical thinking are actions like making judgments based on criteria and standards; creating solutions and analyzing contents or materials through the

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<sup>3</sup> For some personal reasons, Teacher3 was not able to complete this task.

breaking of the constituents parts. Non-examples include the remembering of information

**2..1.2. I= the work of a watch maker- because critical thinking implies the breaking up of things into their constituents parts with patience (Teacher2)**

S= Critical Thinking is the skill of reflecting on your own thinking and improving it.

E= To think critically you need to understand what causes problems in your thinking and solve them. Thinking critically you need also to monitor the role of Intellectual Traits and develop them.

**2..1.3. E= The example of critical thinking is making an important decision for your life when you try to consider everything, including information, your social role and point of view, assumptions and implications (Teacher4)**

I= I see Critical Thinking as a puzzle because you need to put every possible thing to its position to get the whole picture of a problem.

**2..1.4. Teacher5' Redefinitions of Critical Thinking**

S= Critical thinking is digging deep inside the self in order to find one's quest.

E= To elaborate, critical thinking is the means to uncover hidden treasures buried under tons of psychological and mental rubble. It is a very thorough and thoughtful process that strives to remove all the superficial layers of arrogance, cowardice, close-mindedness, hypocrisy, conformity, laziness and unfairness. Through critical thinking we can dive deep into our thoughts and reflect on the real and exact essence of what is ailing us; it is the road to discovery of the long awaited Holy Grail.

E (+ Non-E) = Examples of critical thinking are trying to find solutions to problems, making a decision regarding a certain issue, analyzing the reasons behind some action. Non-examples include speaking about one's own plans, telling a story that took place in the past.

I= gold mining – because critical thinking searches for thoughts lost within one's self.

One has to keep in mind that four weeks is a relatively short time, especially considering the fact that critical thinking is a life-long journey. It would be unrealistic to expect the participants to move multiple levels up over such a short period of time. On the other hand, the teachers' redefinitions of critical thinking prove that they have made a leap in their understanding of the concept.

## 7. Conclusion

Besides exemplifying and encouraging open-mindedness, this project also sought out open-minded persons to participate. It started with a questionnaire designed to draw out the participants' current conceptions of critical thinking, and then connected these with the framework as conceptualized by Paul. With these teachers who used this course to develop as thinkers, the researcher was able spread the understanding of critical thinking to some extent. However, critical thinking being a lifelong journey, it is hoped that the participants will continue to develop as thinkers. This study is the first step to a project of spreading theories of critical thinking and critical pedagogy. A meeting will be held in the coming months with the participants to elaborate an action plan for integrating critical thinking in the classroom.

## 8. References

**ANDERSON Lorin & KRATHWOHL David**, 2001, *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

**BLOOM Benjamin, ENGLEHART Max, FURST Edouard, HILL Walker and KRATHWOHL David**, 1956, *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York, Toronto: Longmans, Green.

**ELDER Linda**, 1997, Collaborative learning, collaborative mislearning. *Education Week*, 45.

**LAI Emily**, 2011, *Critical thinking: A Literature Review*. Pearson's Research Reports

**PAUL Richard**, 1997, *Critical thinking: Basic theory and instructional structures*. Wye Mills, MD: Foundation for Critical Thinking.

**PAUL Richard**, 1995, *Critical thinking: How to prepare students for a rapidly changing world*. Santa Rosa, CA: Foundation for Critical Thinking.

**PAUL Richard**, 1992, *Critical Thinking: What, Why and How*. New Directions for Community Colleges, 77, 5-24.

**PAUL Richard and ELDER Linda**, 2006, *Critical thinking: The nature of critical and creative thought*. Journal of Developmental Education, 30(2), 34–35.

**PAUL Richard, ELDER Linda and BARTELL Ted**, 1997, *California teacher preparation for instruction in critical thinking: Research findings and policy recommendation, Sacramento, CA*: California Commission on Teacher Credentialing.

**SCANLAN Stephen**, 2006, *The Effect of Richard Paul's Universal Elements and Standards of Reasoning on Twelfth Grade Composition*. School of Education, Alliant International University, US.

## 9. Appendix

### Authorization to Conduct the Project



### Participant Questionnaire

<b>Full Name</b>
<b>Name of school where you teach</b> <b>Age</b> <b>Years of teaching experience</b>
Do you have any commitments such as personal obligations that may affect your participation in this course? If so, please explain and provide any dates of absences you foresee.
Have you read an article or attended any conference on critical thinking? YES <input type="checkbox"/> NO <input type="checkbox"/>

### Sharing Own Thoughts

Before delving into the reading material, let's start by sharing your own thoughts. Based on what you've learned in the past and your own experience, please respond to these three questions:

What is critical thinking (how does it differ from "mere" thinking?) Please write from your OWN knowledge here. Please do not quote or summarize others' thinking (no citations in this case).

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.....  
.....  
.....

.....Are there any components of critical thinking?

If yes, what are they?

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.....  
.....

What standards do you use when you evaluate your learners' thinking?

### **Some course supports**

*Edward M. Glaser, (1941) Defining critical thinking. An Experiment in the Development of Critical Thinking, Teacher's College, Columbia University,*

*Steven D. Schafersman, (1991). An introduction to critical thinking*

*Barry, E.V., (1984). Critical Thinking: What it is and what it is not.*

*The Elements of*

*Thought.* <http://www.santarosa.edu/~dpeterso/permanenthtml/lessonFRAME.html>  
*SiteURL:* <http://www.santarosa.edu/~dpeterso/index.htm>

*In a video clip, Dr. Paul provides a brief description of the eight elements of thinking.*  
[http://www.youtube.com/watch?v=VPg\\_cGAfIkQ&feature=player\\_embedded](http://www.youtube.com/watch?v=VPg_cGAfIkQ&feature=player_embedded)