

# Developmental Process of Critical Reading Proficiency of Iranian Agricultural Engineering Students in EAP

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**Abstract---** *Iranian students come from a cultural background in which critical thinking is not of high importance therefore they usually face difficulty in EAP courses in western universities. This research is a case study to investigate the developmental process of critical reading skill of three Iranian agricultural engineering master students during 21-weeks of an EAP course within the framework of Davies and Barnett (2015) and Blooms' (1956) taxonomy of critical thinking and pedagogy. The participants' answers to the Bloom's chart of critical thinking, voice recordings of the sessions, and my own observation notes were used as the data which was descriptively analyzed from critical skill, criticality, and critical pedagogy perspective. The results revealed that the first critical cognitive skills developed in the participants included interpreting, making inferences, and predicting the main ideas. The next critical skills that developed included analyzing causal relationships and synthesizing claims based on the students' own frameworks. Not developing critical character at the same pace as critical skills proved that developing criticality needs more practice and time allocation in EAP programs. Moreover, the ability to engage actively with reading materials, critical pedagogy perspective, did not develop as thriving as the critical skills and criticality in the participants.*

**Keywords---** *critical thinking; critical reading; critical skills; criticality perspective; critical pedagogy perspective.*

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## I. INTRODUCTION

With the rapid development of science and technology in the 21<sup>st</sup> century, human beings encounter a variety of value systems and thinking frameworks everyday all around the globe. This, accordingly, challenges people to decide how to position their own thoughts and their value systems in the dynamic world. Furthermore, replacing old information with new research results, especially in the realm of humanities, challenges people to decide to what extent they would accept and adapt to new situations as opposed to adhering to their previous value systems. This type of challenges and manner of thinking is the beginning of practicing critical thinking in everyday life.

Critical thinking and language learning are supportive of each other and go hand in hand (Li 2016). Therefore, in order to prepare students to effectively participate in English medium universities, English for Academic Purposes (EAP) must address students' abilities to use English critically (Wallace, 2003). Among the main macro-skills of language proficiency in EAP, critical reading is of great importance in that it is an imperative precursor to critical writing and also it promotes attaining new perspective towards existing knowledge and research (Wilson, 2016). Critical reading is mainly concerned with the fact that the way people read and interpret texts is dependent on their background knowledge, pre-understandings, and prejudices; so human knowledge is always an interpretative clarification of the world, not a pure, interest-free fact

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(Wallace, 2003). This illumination on the concept of critical reading makes its importance noticeable in tertiary programs since, firstly, it encourages students to re-examine part of a research or expand it in their own studies, and secondly, it promotes challenging the limitations and background of a research with the aim of inspiring readers to originate new theories and assumptions through evaluating the existing research from a different point of view (Bloom, 1956). In the following section, some relevant literature is reviewed to elaborate on the concept of critical thinking in higher education systems and to display the necessity of critical thinking training programs in EAP courses.

### **Review of the related literature**

To clarify the concept of critical thinking in pedagogy, two clear definitions could be stated. First is the definition by Ennis (2015, p.32) who defines critical thinking as a reasonable, reflective method of thinking that is focused on deciding what to believe or do; and second, is the definition by Vardi (2013, p.1) who explains critical thinking as a process of reasoning with the purpose of coming to a sound, justifiable decision, conclusion or judgment. Besides these definitions, there are two ways in the literature of EAP through which critical thinking is realized: thinking *about* the language, meaning analyzing how English is used to express ideas, and thinking *through* the language, meaning participating actively in using the language to explore and present ideas and arguments (wallac,2003; Lea & Street ,2006; Krashen, 1992; Huot,1988).

Students who are preparing for studying in an English-speaking context certainly need to go beyond the just four basic macro-skills of language learning. They need to develop a well-defined realization of the concept of critical thinking and critical reading in English to achieve the acceptable level of proficiency for academic communications (Moore, 2013). To emphasize the crucial role of critical thinking training programs in EAP, the results of Bagheri (2015) revealed that EAP students were proved to be in need for receiving critical thinking trainings to fulfill their tertiary requirements; but with General English language learners this was not a necessity to fulfill the requirements of the course. Similarly, other studies have proved that critical thinking is at the core of EAP courses and critical thinking training programs are essential to students' success in higher education (Dooley, 2010.; Canagarajah, 2002). This necessity is also reflected in the study of Nikoopour, Amini, and Nasiri (2011) which displays a significant correlation between critical thinking and effective use of language learning strategies such as cognitive, meta-cognitive, and social strategies which made the learning process more effectual.

Among the main macro-skills in EAP, critical reading is given more attention in the literature since the significance of developing a critical approach to reading has been emphasized by many scholars over the last decade ( Murawska, 2017;Chanock, Horton, Reedman, & Stephenson, 2012; Devereux & Wilson, 2008; Vered,2016). A very inspiring research on critical reading in EAP was conducted by Wilson (2016) in which she studied the realization and perception of the concept of teaching critical reading in EAP classes through analyzing three ethnographic case studies in Australia. After relating the pedagogy of these three EAP classes to Davies and Barnett's (2015) theories of critical thinking, she realized that all of these three cases focused to some extent on cognitive skills such as identifying main ideas, but teachers represented different approach to criticality and attention to critical pedagogy. Her results also revealed that students in some classes were fairly performative, while in other classes students were more engaged with the content of their reading task which Wilson describes as an indication of a developing critical disposition. Her results also elaborate that critical reading pedagogy is realized in different ways; but students' critical disposition development requires developing deeper skill of criticality to create critical meaning-makers. This study is inspired by Wilson's (2016) study in terms of theoretical framework and analyzing the developmental procedure of students' critical reading pedagogy with regard to critical skill perspective, criticality perspective, and critical pedagogy perspective.

### **Theoretical framework**

In order to base this study on a firm and rich theoretical framework I borrowed Davies and Barnett's (2015) framework on critical thinking within which the concept of critical thinking is associated with three main perspectives including skills perspective, criticality perspective, and critical pedagogy perspective. In this outline, **critical skill perspective** encompasses the required skills that make the process of critical thinking conceivable and feasible such as observation, analysis, interpretation, reflection, evaluation, inference, explanation, problem solving, and decision making. **Criticality perspective** aims at developing students' critical disposition, and **critical pedagogy perspective** encourages learners to actively engage with the world's issues and responsibly analyzing input on such issues. Furthermore, Bloom's (1956) taxonomy of critical thinking and pedagogy was used as the main framework for designing the instructional outline of this EAP course. It begins with simply recognizing and recalling current knowledge and gradually encourages students to seek more information through observation, questioning, comparing, inferring, and classifying to achieve the ability of analyzing and evaluating the existing knowledge with the aim of creating new ideas and originating theories for further studies.

### **Significance of the study and research questions**

Apart from the significance of critical thinking training programs in EAP, as elaborated before in the literature review, there has been much debate in the literature about cultural differences in the perception of the concept of critical thinking to the point that many studies considered critical thinking as a western approach to higher education (Atkinson, 1997; Manalo, Kusumi, Koyasu, Michita, & Tanaka, 2015; Paton, 2005). Many Iranian EAP students do not have much experience in critical reading and critical thinking because they come from an educational background in which emphasis has been laid on rote learning and memorization. They also come from a tradition and background culture in which critical thinking and questioning beliefs are not very welcome to the members of the society. Therefore, critical thinking training programs seem to be challenging and perplexing for most Iranian EAP learners. This study aimed at investigating the procedure of developing critical thinking skills in reading proficiency of Iranian EAP learners from the three perspectives of Davies and Barnett's (2015) framework.

### **Research question**

What is the process of developing critical reading skills in Iranian EAP students with respect to the critical skills, criticality, and critical pedagogy perspectives?

## **II. METHOD**

In this section, I will briefly describe the activities and the pedagogic procedure that happened during this EAP program by providing some actual examples of the students' discussions, debates, and writings extracted from the data of this study.

### **Participants:**

Participants of this case study included 3 female (named Azam, Maryam, and Somayeh) senior master students of agricultural engineering in plant pathology, pest management, and plant breeding at Azad University of Shiraz and Azad University of Varamin. They all had sat an academic IELTS exam 3 months prior to this course and had achieved the overall scores of 5.5, 5.5, and 6; therefore, I was sure they were almost at the same level of English language proficiency. The three of them were planning on pursuing their PhD studies in English speaking countries so they decided to take an

EAP course, with me as a private tutor, to learn and practice how to employ English effectively in a western academic contexts.

### Teaching material and rating rubric

The material used for the teaching part of this research included 21 academic papers on different aspects of plant pathology, plant protection, and plant breeding and seed science in agricultural engineering. Furthermore, Bloom's (1956) taxonomy of critical thinking in the form of an open-ended questionnaire, taken from Cambridge papers in ELT series 2019, was used as the instructional framework to lead the critical thinking training process (Appendix1).

In order to make a consistent and reliable analysis on the archived essays of the participants' throughout this study, I designed a marking rubric for critical thinking assessment of the data based on Bloom's taxonomy of critical thinking framework. It was a 6-item performance criteria with 3- rating scale rubric. By employing Bloom's hierarchical classification in this rubric, as the main six levels of critical performance, validity of this scale seems to be of high assurance.

Critical reading performance	Rudimentary	Satisfactory	Advanced
Identification and recall of information			
Organization and selection of the facts and ideas			
Use of facts, rules, and principles			
Separating a whole into component elements			
Combining ideas to form a new whole			
Developing opinions, judgments, and decisions			

### Data

Data of this study is comprised of my observation notes during the classes and students' research questions, debates, and short critical reviews submitted at the end of the each session. Furthermore, since one of the students used to record all the sessions for her own purposes, I asked her to share her recordings with me so I could analyze the conversations and discussions to explore and track the parts of the developmental procedure that were not apparent in the archived written data.

### Procedure and data analysis:

For the duration of 21 weeks I had a two-hour EAP training session every week with the participants. During the each session, one academic text on a specific aspect of agricultural engineering was studied; therefore, 21 texts were overall worked on throughout this research.

During this EAP course, I worked on two aspects of critical reading strategies simultaneously including thinking about English and thinking through English. The first aspect refers to comprehending the text and the second aspect refers to reading critically through the text followed a top-down approach in teaching reading comprehension meaning among the six main reading strategies presented in the literature of EFL, including predicting, visualizing, making connections, summarizing, questioning, and inferring, I used questioning, inferring, and making connection as the main instructional strategies. By employing these strategies, participants were taught to activate their prior knowledge to make sense of what is being read through connecting it with what they already knew.

For the critical thinking training part, the teaching methodology applied to the students were mainly based on the critical skill approach of Davies and Barnett's (2015) with an emphasis on reinforcing cognitive skills of observation, analysis, interpretation, evaluation, inferences, problem-solving and decision-making in reliance with different background knowledge and circumstances. To do so, I employed Blooms' (1956) chart of taxonomy of critical thinking and pedagogy (figure1) as an instructional framework to empower the critical skills of the participants.

The students were provided with one copy of this chart, as a worksheet, every single session. They were supposed to read through the chart, before reading the text, and subsequently they had to think through the reading process in a way to be able to answer the questions of the Bloom's chart. The participants were also required to write a short critical review on each academic text, they studied in each session, and create at least three more research questions for each paper to empower their different aspects of critical thinking and cognitive skills through writing about the reading materials.

Since the data of the study is descriptively analyzed based on the three perspectives of Davies and Barnett's (2015) framework, I will, first, elaborate briefly on these three perspectives in the following paragraphs and then describe what I found as the participants' developmental procedure in the achieved written and audio data.

### **Framework for data analysis**

1. **Critical skills perspective** is a structural pragmatic approach which focuses on the required skills for argumentative analysis such as interpreting, analyzing cause and effect, synthesizing claims, making inferences and predictions, evaluating and problem solving (Bloom, 1984). Some scholars consider teaching critical thinking as teaching and empowering these skills to the point that cognitive approach to reading has encouraged EAP teachers to reinforce these skills in students plus equipping them with some general reading strategies such as skimming and scanning, looking for main ideas, identifying topic sentences, reading for gist, guessing meaning from context and so on.
2. **Criticality perspective** suggests that a critical training program needs to develop a "critical character" or "critical disposition" in students (Davies and Barnett, 2015). From this point of view, critical disposition and criticality involve an openness to new ideas, the will to be well-informed and to use credible bases and observations, the ability to take a position and defend it, and to change positions if the evidence and reasons designate it (Barnett, 2015a). From this perspective, criticality is not defined just as a way of thinking; but it is defined as a way of being; therefore, critical readers are invited to respect and strive to read with an open mind to different author's positions while keeping up with their own position throughout reading a text (Zipin & Brennan, 2006). Therefore, just simply teaching methods that lead to understanding the main ideas of a text is not considered teaching critical reading from this point of view.
3. **Critical pedagogy perspective** refers to the capability of acting responsibly and ethically in facing the world and new ideas. This perspective which was the most advocated by Davies and Barnett (2015) emphasizes on active engagement with civil society, political discourse, and hidden structure of power. Confronting social ideologies such as capitalism, racism, and neo-liberalism is also emphasized in this perspective (Luke, 2002). Consequently, this perspective recognizes rational reasoning and exploration to criticize the ideology and main points of a text to not authorize the dominant discourse to serve and privilege those in power (Wallace, 2003).

The following section includes descriptive analysis of the data in 4 separate stages according to the developmental procedure that I found in reviewing the data.

### **Analysis of the first three weeks of the study**

During the first three weeks my main focus was on teaching the students to read through the text with the aim of identifying its main points and get a clear picture of authors' notions by activating their own prior knowledge on that topic and connect it with what they were reading from their own point of view. In this step, they were asked to use their own words to answer to the second part of the Bloom's worksheet (figure1) which included paraphrasing and summarizing of the reading material.

In this respect, over the first three sessions, participants showed reasonably good progress in their worksheets meaning they achieved a clear perception of the concept of paraphrasing and summarizing in EAP. Recorded audio data also revealed the same result as, Somayeh, one of the students, describes her reading development in the third session as:

"during these couple of sessions I learned how to respect my own ideas and framework, how to employ my own words in expressing my perception of what I read, and more importantly I learned how to avoid using the authors' sentences by simply just making some vocabulary changes as a paraphrase. Now I know that what I had been doing before this was definitely neither reading comprehension nor paraphrasing!"[taken out and translated from the audio data].

However, studying the worksheets at this stage revealed that the students were mostly struggling with getting a clear understanding of the texts' main points in that their replies to the first part of the worksheet were somehow ambiguous. This ambiguity was mainly due to not having a clear perception of the authors' perspectives and theoretical frameworks; and it was certainly not because of simply having problem with understanding new vocabularies and linguistic structures.

Another type of ambiguity found in the students' performance at this stage related to their answers to the fourth and fifth parts of the worksheet in which they were supposed to judge the text and write a critical review from their own point of view. Their ambiguous answers revealed that they were not able to get a clear perception of what was meant by rational judgment and critical review. This stage of the study was a clear exemplification of the cultural issues that Iranian students deal with in EAP courses and western academic contexts. They come from a culture in which they are encouraged to just learn what is written in the text books without any judgments and questioning. In this culture, no critical perspective would be welcome when it comes to education and respect to the authors. This dominant attitude and resistance to critical thinking was obvious in the conversations between the students in the second session's recorded audio file.

Azam, one of the students, expresses her ambiguity in these words: "I really do not get what you mean by juggling this writing?? If it was not good, it would not have been published in the first place!" [Extracted and translated from the audio data]

As it could be seen evidently, she confused the meaning of the concept of critical thinking with reading cynically and pessimistically through a text for the purpose of discussing it in a sarcastic way.

Therefore, during the beginning stages of this course my main focus was on teaching the concept of critical thinking practically through working on cognitive skills of critical thinking. We , as a team, practiced on getting involved with the reading materials from our own point of view and practiced to act responsibly within the framework of reading as a two-way interaction activity not simply a passive practice.

One of the students, Maryam, expresses her perception of the concept of critical reading at this stage as: "I was always happy with all parts of the texts I was reading without questioning it. Now I have a feeling of breathing again and actually being alive in the academic world. I am getting the power to produce new things this way". [Extracted and translated from the audio data]

Although they started to learn how to employ their critical skills at this level, the research questions created by them were very general and inept during the first three sessions. They simply challenged obvious points of a text to create new

research questions which could not be considered as professional research questions. Also, they did not show competence and confidence in writing satisfactory critical reviews on the academic reading materials during these weeks.

Descriptive analysis of the data from the Week 4 to week 10

To show the progress of developing critical skills and criticality in the participants at this stage of the study I begin with analyzing some research questions submitted by them in the 7<sup>th</sup> session.

The following is the abstract of an article, by Octave, Amborabe, Luini, Fleurat, and Robin (2005) extracted from the Journal of Plant Physiology and Biochemistry which was studied in the 7<sup>th</sup> session in this research. I have inserted the research questions submitted by the participants on this article in the following paragraph which is extracted from the written archived data:

"Antifungal effects of cysteine towards *Eutypa lata*, a pathogen of vineyards

Author: Octave, Amborabe, Luini, Fleurat, and Robin (2005)

#### Abstract

Cysteine inhibited mycelial growth of the pathogenic fungus affecting grapevines *Eutypa lata* Pers. Fr. Tul. and C. Tul. in a concentration-dependent manner. The threshold value was 0.5 mM. A 10 mM concentration induced a complete inhibition of growth and triggered necrotic processes as evidenced by an increasing number of nuclei stained by propidium iodide. In conditions mimicking the plant environment 6 mM cysteine induced dramatic modifications in the structural organization of the mycelium leading to death of the hyphae. The antifungal effect of the molecule increased at the acidic experimental pH (pH 4.1). The effect was highly specific to cysteine since modifying the molecular arrangement or masking the SH-function hindered the antifungal efficiency. Cysteine spectrum of action was broad among the various strains of *E. lata* tested. However, a lower efficiency was observed against fungal species intervening in other grapevine diseases (esca, black dead arm). Besides its direct antifungal effect, the role of cysteine presents particular interest in the fight against fungal pathogens since it triggered an excretion of ergosterol, a compound with elicitor properties. Therefore, cysteine may indirectly increase plant defense reactions."

Questions created by the students extracted from the data:

Azam: "since fungi are very sensitive to humidity, what if the study happened in a different setting in terms of climate and humidity?"

Maryam: "what could be the possible positive-effects or counter-effects of other side-treatments that are usually applied to vineries at the end of the rain season?"

Somayeh: "did the irrigating process performed properly since irrigating methods could have great effects on the pathogens and the final harvest of the vines?"

Maryam: "what was the quality of the soil? The estimation of the soil components is not mentioned in the article that could be potentially very effective on the results."

These questions display a great improvement in critical skills and criticality of the participants. Over these weeks they were invited to read the text with a notable respect for the authors' framework with an effort to develop the ability to evaluate the possibility of coming up with a new descriptive set of results for the same set of data from a different point of view. At this stage students were approximately on the track of reading between the lines and achieved the ability of discovering hidden theories of an author from a critical point of view.

The following is the abstract of the article by Kawchuk, Kim, and Nielsen (2011) extracted from the Canadian Journal of Botany and a very well-designed short critical review on it by one of the students in the 10<sup>th</sup> session. This review evidently represents a notable development in subjects' critical skills and at this step of the study.

A comparison of polypeptides from the wheat bunt fungi *Tilletia laevis*, *T. tritici*, and *T. controversa*

Author: L. M. Kawchuk, W. K. Kim, and, J. Nielsen

#### Abstract

Phenol-soluble polypeptides were extracted from teliospores of six races of each of *Tilletia laevis* and *T. tritici*, and eight collections of *T. controversa*. The polypeptides were separated by two-dimensional isoelectric focusing – polyacrylamide gel electrophoresis and the resulting patterns compared. [.....Intentionally deleted] There were 359 polypeptides common to all 20 races and collections. Another 56 polypeptides were found in only some races and collections, but none of these variable polypeptides were species specific, i.e., found in every race or collection of one species but absent from every race or collection of one or both of the other species. Therefore, no polypeptide could be correlated to a morphological or physiological feature typical of any one species. Furthermore, no correlation was found between the polypeptides and virulence. However, previous studies on interspecific hybridization, the overlap in spore morphology and germination requirements, and the high number of common polypeptides and absence of species-specific polypeptides demonstrated here prove a closer genetic relationship among the three fungi than is indicated by their current taxonomic designation. It is, therefore, proposed to treat them as varieties of one species: *T. tritici* var. *laevis*, *T. tritici* var. *tritici*, and *T. tritici* var. *controversa*.

A short critical review submitted by Maryam on above article in the 10<sup>th</sup> session:

"With the wheat bunt disease, infection of wheat occurs during germination in cool, wet conditions. Therefore, the most effective management strategy could be to treat seed with fungicide before planting. since there have been some unexpected reactions to different fungicides by different varieties of the same species which has not been mentioned or noticed in this article, so a good research question could be to investigate the possible different effect of some selected fungicides on these three " *T. tritici* var. *laevis*, *T. tritici* var. *tritici*, and *T. tritici* var. *controversa*: varieties of *T. tritici* . "



With regard to the fact that, in the literature "criticality" is defined as a way of being not simply a way of thinking (Barnett, 2015a), this period of the research could be considered as a beginning step for developing criticality in the participants since reviewing the recorded audio data revealed that they all agreed on developing a new critical character in their both academic and personal lives.

Azam describes this as "for my whole life I believed that there is only one visible world out there for every one! But no! it's not true! Now I believe that there are billions of worlds as many as the people who are living on this planet! There is no absolute description on a set of data! There could be as many descriptions as the number of readers for that writing! It's mind blowing!

Similarly, Maryam in the tenth session expresses that "I cannot believe I did not see my family's worlds up to now! I had no idea why they were doing what they used to do! now I do! they just see the world from their own point of view! that's not a fault. It's just a beautiful difference."

Analyzing the procedure of developing critical reading up to this stage (end of the tenth week) displays that they improved noticeably in term of critical skills. They could make strong arguments and discuss it with their classmates. They could read through a text from a different point of view and evaluate the whole process of the research. But developing a critical disposition was not at the same pace as developing the critical skills. It sounded like developing a critical character needed more practice and more time allocation. However, at this stage, the capability of acting responsibly and ethically, while reading a text, was not developed in the participants. I justify this partly due to the lack of proficiency and confidence in challenging social, political, economic issues related to the papers.

Analysis from the Week 11 to week 17

By the end of the seventeenth week they were confident in writing critical reviews and making logical comments on academic writings. They were able to write strong research questions on a paper and write a well-organized critical reviews on it. Their criticality was fairly well-developed at this stage and, interestingly, the participants started to develop attention to critical pedagogy at this step for the first time.

Reviewing the data shows that in the 12<sup>th</sup> and 13<sup>th</sup> sessions they started showing a tendency to practice how to connect between their critical skills and social, political, economic aspects of the reading materials to actively engage with it. This process is shown in the following paragraphs which is a short critical review, on an article by Tuttle McGrath (2007) American Phytopathological Society publications, extracted from the archived data, with a suggestion for further studies by one of the participants in the 14<sup>th</sup> session.

Fungicide Resistance in Cucurbit Powdery Mildew: Experiences and Challenges

Author: Margaret Tuttle McGrath

Abstract

"Fungicides are an important tool for managing cucurbit powdery mildew, which is a major production problem in many areas of the world. [.....intentionally has been deleted]. Fungicides that are systemic or have translaminar activity are needed to obtain adequate protection of abaxial leaf surfaces, where conditions are more favorable for development of the pathogen than on adaxial surfaces . Unfortunately, these fungicides generally have a high risk of developing resistance because they have specific modes of action, and powdery mildew fungi

have a high potential for resistance development. This has been especially true for the predominate cucurbit powdery mildew fungus, *Podosphaera* (sect. *Sphaerotheca*) *xanthii* (Castagne) U. Braun & N. Shishkoff (also known as *Sphaerotheca fusca* (Fr.) S. Blumer and *S. fuliginea* (Schlechtend.:Fr.) Pollacci). Fungicide resistance is the stable, inheritable adjustment by a fungus to a fungicide, resulting in reduced sensitivity of the fungus to the fungicide. This ability is obtained through evolutionary processes. Systemic and translaminar fungicides are generally more at-risk for resistance development than contact fungicides because they typically have specific, single-site mode of action, which means they are active against only one point in one metabolic pathway in a pathogen."

"In this paper the author has not considered the possibility of using genetically-changed seeds (GCS) which produce genetically protected cucurbits. Products of normal seeds are very sensitive to cucurbit powdery mildew so to get better crops we need to use a variety of systematic and contact fungicides. This process would be neither economically nor environmentally justifiable. Besides, common systematic fungicides have a great potential to develop resistance in pathogenic fungi. It could be considered in a further study as an alternative to using fungicides with considering a comparison between the side-effects and negative results of using GCS on the environment and consumers' bodies with the negative effect of fungicides in time."

By the end of the 17<sup>th</sup> week they started talking about limitations and constrains of a study and make research questions relevant to those limitations. At this stage they felt completely confident to critically go over an abstract of a research and argue about the discussion, theoretical framework, and the limitations of it. I can say, they started reaching a pre-advanced level of proficiency in critical reading at this stage; however the recorded data and archived writings still displayed weakness in their ability to communicate actively with the reading materials from the critical pedagogy point of view.

Analysis from the Weeks 18 to week 21

The following is an example of the type of critical reports that participants submitted during the last four weeks of the research. To clarify my descriptive analysis I am inserting a piece of the abstract of Costa-Font, Gil, and Traill's (2007) article, published in the Journal of Food Policy, on which students have written a critical review in the following paragraphs.

"Consumer acceptance, valuation of and attitudes towards genetically modified food: Review and implications for food policy

Authors: Montserrat Costa-Font, José M.Gil ,W. BruceTraill

Abstract

"An increasing set of evidence has been reported on how consumers could potentially react to the introduction of genetically modified food.....[ intentionally has been deleted] This paper contributes to the literature by bringing together the published evidence on the behavioral frameworks and evidence on the process leading to the public acceptance of genetically modified (GM) food and organisms (GMOs)... [Intentionally has been deleted]. The study attempts to gather an understanding of the published findings on the determinants of the valuation of GM food – both in terms of willingness to accept and the willing-to-pay a premium for non-GM food, trust with information sources on the safety and public health and ultimate attitudes underpinning such evidence.

Furthermore, in the light of such evidence, we formulate some policy strategies to deal with public uncertainty regarding to GMOs and, especially GM food"

Critical Review of the article submitted in the twentieth week of the study

"The published evidence are not representative of the attitude of the whole world's communities in that most of them have been conducted in the first-world countries. The attitude towards the GM food in third-world communities could be completely different, if not 100% in contrast, with the perspective that people in the first-world countries take towards them. Accepting and promoting these types of food are not a smooth flow even among people from the same country and culture since a lot of incurable disease have recently been attributed to the GM food. The amount of people who are willing to pay higher prices to avoid GM food is surprisingly increasing in time and there is also some evidence in the literature to show that using GM food has proved to be not negatively influential on human's health; therefore, there is no clear reference in this research to show to what extent this attitudinal frameworks could be attributed to a wider range of different international societies. In addition, in this research, no notice has been given to the crucial role of commercials and advertising systems in clarifying the facts about GM food since clarification could make a big difference in consumers' overall attitude towards these kind of food. It could be studied to find out to what extent we can change the attitude of people from different cultures and countries by using the powerful tool of advertising. What age groups or genders could be the most responsive to the advertisements? What should we put in the commercials to achieve the optimum results from them? What types of clarifying information could give us the best results in terms of forming attitudes and making decisions towards GM food in different people from different countries and cultures?"

As it is evident in this report, submitted in the twentieth session, the participants have achieved a good perception of the crucial role of theoretical framework in designing and accomplishing an academic research. They showed a noticeable progress in making logical judgments and critical comments at this stage; besides, they develop the ability to theorize about possible research questions and challenge the existing knowledge in various settings. Furthermore, growing a well-developed critical character from the criticality perspective was evident in the data of this time; but, unpredictably, they still displayed problems with engaging actively with the reading materials from the critical pedagogy point of view.

### **III. DISCUSSION**

The descriptive analysis of the data revealed that the first skills that developed in the participants during the EAP critical reading training course was the cognitive skills of interpreting, making inferences, and predicting the main ideas of the text with regard to noticing the authors' perspective and theoretical framework. At the next step they developed the skills of analyzing causal relationship in a research and synthesizing claims on the grounds of their own theoretical framework. This remarkable progress accompanied by gradually developing a critical character in them, from the 8<sup>th</sup> week of the study onwards, which this combination led to a milestone in their developmental process of critical thinking proficiency in time. They subsequently achieved the competence of making well-designed professional academic arguments and giving critical reports on academic texts. This part of the results attracted my attention to the fact that criticality did not develop at the same pace as the critical skills did; therefore, developing a critical character proved to need more practice and time allocation in EAP training courses. Furthermore, despite all the attempts performed by the students to engage responsibly and actively with the texts, this capability did not seem to develop as well as the critical skills and criticality did in the participants throughout this study. Since I did not have any clear data to justify this, it could be considered as a suggestion for further studies in the future research.

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