College Instructors' and Students' Perceptions, Practices, and Assessment of College Students' Critical Thinking Skills in Writing Courses in the UAE

تصورات أساتذة وطلاب الجامعات وممارساتهم لتدريس و تقييم مهارات التفكير النقدي لدى طلاب الجامعة في مساقات الكتابة الأكاديمية في الإمارات العربية المتحدة.

by

BANAN AL KAFRI

A thesis submitted in fulfilment

of the requirements for the degree of

DOCTOR OF PHILOSOPHY IN EDUCATION

at

The British University in Dubai

March 2021

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Approved for award:

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Abstract

Investigating college English writing instructors and students' perceptions of effective teaching and assessment methods is of great importance, as it is found that perceptions could highly influence practices of critical thinking. In academic writing courses, the teaching of critical thinking has been even more emphasized as writing activities effectively enhance students' critical thinking skills. Therefore, the main purpose of this research paper is to investigate how critical thinking is being perceived, practiced, and assessed in college English writing courses. An explanatory mixed methodology has been used. 20 English instructors and 250 students were surveyed using a link for online versions of the teacher and student questionnaires. As for the qualitative part, five classroom observations and six semi-structured interviews were conducted. The findings revealed that college English writing instructors and students have clear and almost similar definitions of critical thinking, yet their perceptions of effective instructional and assessment methods as well as their practices were found to be varied and different. One major mismatch that has been identified between key stakeholders' perceptions was about the importance of explicit instruction on critical thinking. Based on findings, several recommendations were suggested to policymakers and university administration for more collaborative efforts with instructors to support them in their attempts to teach and assess students' critical thinking.

ملخص

تعد من الاهمية بمكان دراسة تصورات أساتذة وطلاب مساقات الكتابة الأكاديمية باللغة الانجليزية في الجامعات حول سبل تدريس و تعزيز مهارات التفكير النقدي لدى الطلبه. كما أن هناك ضرورة ملحة لدراسة تصورات الاساتذه حول كيفية تقييم مهارات التفكير النقدي لدى الطلبه باستخدام طرق فعالة وناجحة. وقد اثبتت الابحاث في هذا المجال ان هناك علاقة وطيدة بين تصورات الأساتذة الذهنية و ممارساتهم العمليه . بناء على ذلك ، فإن الهدف الرئيسي من هذه الورقة البحثية هو دراسة تصورات و ممارسات، وطرق تقييم مهارات التفكير النقدي في مساقات الكتابة الأكاديمية باللغة الإنجليزية على مستوى الجامعات في دولة الامارات العربيه المتحدة . و لتحقيق هذا الغرض ، قام الباحث باستخدام أساليب بحثية متنوعة متتابعة. تتضمن هذه الأساليب البحثية الأسلوب الكمي في المرحلة الأولى حيث تم جمع البيانات الكمية باستخدام استبانة لتصورات ألاساتذة و الطلبة ومن ثم الانتقال لاستخدام الأساليب النوعية في المرحلة الثانية، حيث أجرى الباحث مشاهدات نوعية ومقابلات مع أساتذة الجامعات. وقدكشفت النتائج أن معلمي الكتابة الإنجليزية في الكلية وطلابهم لديهم تصورات واضحة ومتوافقه بخصوص تعريف مفهوم التفكير النقدي ، أما فيما يتعلق بالطرق الفعالة لتدريس وتقييم مهارات التفكير النقدي فقد سجلت اختلافات كبيرة في وجهات النظربين الاساتذه وطلابهم. بناءً على هذه النتائج ، تم تقديم العديد من التوصيات لواضعي السياسات وإدارة الجامعات لبذل المزيد من الجهود و التعاون مع المعلمين ودعم جهودهم الحثيثه لتعزيز مهارات التفكير النقدي لدى الطلاب.

DEDICATION

I dedicate this thesis to my family for their tremendous love and continued support.

To my DAD for he was my inspiration to pursue my doctoral studies

To my MOM for her trust in me

To my two beloved SISTERS for their continuous encouragement

To my beloved HUSBAND and DAUGHTERS: Albatool, Jana, Joud, and Reema for being proud of me, patient, and supportive throughout this journey

Acknowledgment

I should be thankful to Allah for giving me the persistence, ambition, and patience to pursue my doctoral study.

First of all, my deep gratitude is extended to my director of studies, Dr. Christopher Hill for his support, patience, and specifically for his immediate feedback. Through my research process and writing, his feedback was insightful and gainful. I am honoured to complete my thesis under your supervision.

A special thank you goes to my BUiD's professors who did not spare effort to support doctoral students since the beginning of their doctoral journal till the end, especially Professor Sufian Forawi for his guidance and patience during the stage of writing the thesis proposal. I would also like to express my thanks to my sister: Ms. Hiba AL Kafri, for guiding and supporting me during the statistical analysis stage.

For all of those who supported and encouraging me: my family, friends, and colleagues, I would like to thank you from the bottom of my heart for your trust and faith in me.

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List of Abbreviations

UAE: United Arab Emirates

CT: Critical Thinking

CTS: Critical Thinking Skills

MOHESR: Higher Education and Scientific Research

CEOs: Chief executive officers

ZPD: Zone of Proximal Development

MCQs: Multiple-Choice Questions

SPSS: Statistical Packages for Social Science

SA: Strongly Agree

A: Agree

D: Disagree

SD: Strongly Disagree

IT: Information Technology

Chapter 1

Introduction

The rapidly changing world requires 21st-century students to develop a set of complex skills to deal with a set of 21st-century challenges: the economic crisis, the competitiveness in the job market, and the spread of conflicts and wars (Yusri 2018). Critical thinking (CT) as one of these major skills has become a key player in guiding individuals' direction of thoughts and equip citizens with the education needed to "value life" (Forawi, 2016, p2). College students who practice critical thinking are lifetime learners (Deveci and Ayish 2017) and open-minded workers (Werff 2016).

Recently, endeavours have been made to cultivate students' critical thinking skills in classroom teaching in general and at the college level in particular (Liu and Stapleton 2018). Universities are viewed as "the cradle" which can promote students' critical thinking and innovations in science and technology (Sue et al., 2017, p.2). Moreover, critical thinking is found to be a highly cognitive skill that requires the utilization of more than one part of the brain (Taghinezhad et al. 2018); therefore, explicit teaching of critical thinking skills is of great use for students to be able to develop their skills. Both in the USA and Europe, one of the expected learning outcomes of undergraduate programmes is promoting college students' critical thinking (Soufia and Seeb 2019). It is as Elder (2012) beautifully put it, why should we be interested in teaching critical thinking unless it is the fact that our minds do not always think in accurate ways?

In practice, teaching critical thinking is easier said than done (Nejmaoui 2019). Major concerns have been raised by educators and practitioners regarding the process of critical

thinking integration into curriculum design, lesson planning, and assessment methods. First, college instructors are found to lack the basic knowledge of the concept and of the effective methods of teaching it (Nejmaoui 2019 and Wagely 2013). Mostly, they are teaching critical thinking as they are "pushed" to do this not necessarily because they sense the need for it (Chen, 2017, p.99). Lack of consensus on how college instructors define critical thinking within one community can be seen as an additional challenge since it negatively affects the standards for teaching and assessment followed within the same community (Wegrzeckalewski, 2018).

The teaching of higher thinking skills, including critical thinking skills requires an intensive effort from both teachers and students, as well. Perceptions of effective teaching and instructional methods for teaching critical thinking are varied among educators and scholars, yet mostly arguing that traditional teacher-centred classes and passive learning are no more of great use and should be replaced with more student-centred classes and with the utilization of more interactive methods (Boso 2019). Fully- loaded with the duties and responsibilities of their positions, college instructors have been found as not devoting enough time to reflect on their current teaching methods and seeking renovation in teaching methodology (Hicks et al. 2019). In higher-education classes, heavy dependence on lecturing is still evident (Anderson 2016). While lecturing is found to be useful to present theoretical information, yet for developing higher-order thinking skills, such as critical thinking skills, more practical activities requiring students to solve a problem, reflect on a learning situation, or weigh evidence are found to be more effective (Anderson 2016).

Assessing how effective the teaching of critical thinking skills is a key element for evaluating how effective the process of critical thinking integration is. While assessment is a major

component in the process of college students' enhancement of critical thinking (Liu and Stapleton 2018), it is still underrated by curriculum designers and instructors (Dong and Yue 2015). Curriculum designers emphasize the necessity of developing students' critical thinking skills, yet with no specification on how to assess the development, and therefore, college instructors are again left unsupported and their perceptions of effective assessment methods are blur (Chen 2017). Having specific coursework on assessing students' critical thinking according to Liu and Stapleton (2018) can improve students' critical thinking, as college students are usually driven by grades. However, due to lack of training, college instructors sometimes fail to design the right assessment tools for measuring college students' critical thinking (Wegrzeckalewski, 2018), or sometimes they opt to use implicit methods to assess it (Nicholas 2011).

In the field of English language teaching, development of students' critical thinking skills is highly emphasized by scholars in the field as a language (whether written or oral) is viewed as a reflection tool of individuals' critical thoughts (Hicks et al. 2019). Moreover, growth in critical thinking is argued to be generally accompanied with better achievements in foreign English language learning (Taghinezhad et al. 2018). In academic writing courses, in particular, students are more in need to develop and display their critical thinking skills, as writing assignments mostly require students to analyse texts and identify "hidden ideologies" (Ahmadpour and Khaaste 2017). However, students' flawed reasoning and poor argumentation skills suggest that writing courses have limited influence on the development of students' critical thinking skills, so a shift in the pedagogy of teaching methodology to integrate more explicit instruction on critical thinking into writing courses becomes a priority (Taghinezhad et al. 2018).

The higher education in the United Arab Emirates (UAE) is not exempted from the new emerging direction towards teaching critical thinking to college students. The UAE's visions (2021- 2030) aspire to enhance "educational attainment and a knowledge-based economy driven by innovation, research, science and technology" (United Arab Emirates School Inspection Framework, p.7). Moreover, critical thinking and problem solving have been listed as one of the main criteria for good practice at the university level in the UAE (Commission for Academic Accreditation 2011). Since 2011, it has been recommended by the Higher Education and Scientific Research (MOHESR) that universities might need to review their general education curriculum and to identify effective methods to integrate critical thinking skills into the curriculum (Commission for Academic Accreditation 2011).

1.1The Study Context

Located in the Arabian Gulf, the United Arab Emirates (UAE) is a small country consisting of the union of seven Emirates: Abu Dhabi (the capital), Dubai, Sharjah, Ajman, Umm Al Qaiwain, Ras Al Khaimah and Al Fujairah. The union was officially declared in 1971, and the main founder was Sheikh Zayed Bin Sultan Al Nahyan. Islam is considered the UAE official religion, and Arabic is the first official language followed by English. Since the discovery of oil, the country has witnessed rapid changes in the economic and financial sectors (Hijazi et al. 2008).

To meet the rapid changes in the economic and financial sectors, the higher education system in the UAE has witnessed many reforms. From having only one public university in 1977, the higher education sector has drastically expanded, and according to a list issued by the

MOHESR (2018), the number has reached to 76 accredited institutions, including public and private ones, and offering a wide range of undergraduate and graduate programs.

Not only in quantity has the higher education sector changed, but also has its mission and vision changed to focus more on qualifying today's learners with the required skills to become professional workers in the future (Deveci and Ayish 2017). As the national government specified in 2016, one of the main challenges facing the higher education sector is meeting the needs of the economic sector (The portal of UAE government 2016). Cultivating the skills of research, autonomy, critical and creative thinking, and problem solving into future workers is considered as one of the pressing needs of the economic sector in the UAE (Taleb and Chadwick 2016). Therefore, the development of today's students' critical thinking skills along with the other 21st century soft skills has become a priority for the UAE government in general and the higher education sector.

Within all this attention given to teach critical thinking in higher education in the UAE, studies conducted within the Emirati context on promoting students' critical thinking in higher education revealed undesirable findings (Deveci and Ayish 2017, Taleb and Chadwick 2016, and Freimuth 2014). Taleb and Chadwick (2016) investigated students' critical thinking skills at the postgraduate level and suggested that higher education in the Middle East in general and in the UAE in particular fails to foster undergraduates' critical thinking. Freimuth's research (2014) and Deveci and Ayish (2017) concluded that critical thinking skills are emphasized in the curriculum, yet in practice, students' scores on critical thinking are still low. Hence, further investigation of students' perceptions of their critical thinking experience in comparison to their instructors' perceptions is valuable, as a lack of clear and explicit perceptions results in many cases to negatively influence instructors and students'

practices of critical thinking (Russo and Hopkins 2017). So, this study came to investigate college instructors and students' perceptions of the importance and assessment of critical thinking in higher education in the UAE.

1.2 Problem Statement

A great deal of research has done globally on fostering college students' critical thinking (Murray 2016, Cargas et al. 2017, Chen 2017, Węgrzecka-Kowalewski 2018, and Petek and Bedir 2018). Yet, within all this emphasis on teaching critical thinking, promoting college students' critical thinking is still challenging (Nejmaoui 2019). More important, although it is important to focus on students' critical thinking, still what about perceptions and practices of those who are teaching it: college instructors and those who are learning it: students? Wagley (2013) indicated that one important step towards improving students' critical thinking at the college level is to examine "the critical thinking the educators possess" (p. 6). In a study that included college instructors in intensive language programs, Węgrzecka-Kowalewski (2018) concluded that the participating instructors "did not have a strong conceptualization of critical thinking and had difficulty in articulating critical thinking as a cultural construct" (p. iv). Teachers' understanding of critical thinking is found to influence teachers' practices inside classrooms (Yang 2017). The question is: if teachers themselves are not capable of conceptualizing critical thinking; hence, how will they be able to teach it (Elder and Paul 2010), and assess it as well?

In the UAE, a careful examination of current practices in relation to critical thinking has highlighted several concerns about how critical thinking is being perceived, practiced, and assessed. A major concern raised by Thabet (2008) is that systematic integration of critical

thinking at high school level is either missing or done arbitrarily and consequently as Deveci and Ayish (2017) found that freshmen lack training on critical thinking skills. Moreover, Taleb and Chadwick (2016) found out that some students at the postgraduate level have not practiced evaluation, reflection, and research skills during their undergraduate study.

As a college English writing instructor, my experience with teaching critical thinking in English writing courses has been challenged with the following pressing issues. First, the root of the problem lies in the fact that college instructors are required to teach critical thinking without being supported and guided on how to successfully implement the integration of critical thinking into their curriculum (Deveci and Ayish 2017). Teaching critical thinking is challenging for many English writing instructors since the concept itself is "multifaceted", and so college instructors' perceptions of its definition and use vary accordingly (Barnaby, 2016, p. 40). One observation from my experience, for example, is that sometimes instructors and students tend to mess up the concept of critical thinking with the concept of creative thinking, and 'thinking out of the box' becomes a cliché that many instructors and students keep repeating it in connection to critical thinking, with no further demonstration or explanation of how to think out of the box. Others, on the other hand, assume that critical thinking means criticism; the focus is on finding out the negative aspects of any argument for the mere sake of disagreement. Honestly, it is this lack of consensus on how college instructors perceive and practice critical thinking that sparks the motivation in me to carry out this research study.

Besides, questions regarding how to teach and assess critical thinking have been also posed by many English writing instructors. Instructors’ perceptions of the most effective methods are also found to be vague, as well (Yang 2017). Critical thinking as a higher-thinking skill

is unfortunately still being taught using traditional teaching, which raises major questions on how effective the teaching of critical thinking is (Stupple et al. 2017). A radical change is needed in the pedagogy of teaching higher cognitive skills such as critical thinking including "professional development, and preparedness for educators" (Murray, 2016, p.1).

How to assess college students' critical thinking skills is also a major concern for instructors at the college level. If college instructors lack a clear definition of the concept, then assessing students' development of the concept might become shaky and invalid (Dong and Yue 2014). An urgent posing question is whether college instructors' instruction on critical thinking matches the assessment methods (Nicholas 2011). A further challenge is the fact that critical thinking in its essence is a set of skills (Paul and Elder 2005), and in the field of education, it is well-known that measuring a skill is more difficult than measuring content (Seelig 2016). Designing a suitable assessment tool for measuring students' critical thinking is taxing (Murray 2016). Moreover, measuring critical thinking of students in an Arab culture using ready-made tests complicates the problem. McLellan (2009) conducted a study on critical thinking assessment methods used at the college level in the UAE and concluded that ready-made tests such as the American Cornell Critical Thinking can only be appropriately used in the UAE, if certain modifications are made, especially to the vocabulary used in these tests. Therefore, college instructors are required to be cautious when using western measurement tools. The idea of having only one study focusing on critical thinking assessment methods in higher education in the UAE warrants attention, keeping in mind that MOHESR requires college instructors of general education courses to teach and assess students' critical thinking

skills. Within all the above-mentioned challenges, looking into how college instructors then perceive the process of critical thinking assessment is worth exploring.

The second key stakeholder in this process is college students who are in need to be encouraged to thinking critically. In a case study on freshmen's critical thinking skills at one university in the UAE, Deveci and Ayish (2017) noticed that sometimes college students might "opt for an ‘unthinking’ way even if they are considered to be familiar with critical literacy skills" (p.295). Thus, investigating college students' perceptions of whether they have the basic knowledge of critical thinking and why sometimes they decide not to think critically or fail to think critically is another area of interest for this study. It has been noted by Loes et al. (2015) that the way students perceive a certain concept could impact their attitudes and practices of it.

Existing mismatches between key stakeholders’ perceptions and practicing critical thinking are found to influence the practices of both (Barnaby 2016). In theory, the disparity in perceptions of the effectiveness of explicit instruction on critical thinking has been noticed among scholars and it seems that it is also found among educators and instructors in practice, which ultimately might disagree with students’ perceptions, expectations, and needs (Chen 2017). In practice, many times students have complained that their ability to think critically is assessed without being explicitly instructed and provided with enough “models” and “framings” on how to do so (Hicks et al., 2019, p.2). Such mismatches in perceptions between instructors and students are important to be highlighted and identified as a major step in bridging gaps and avoid possible future disappointments and failures.

When it comes to writing courses, as an English writing instructor at the college level, I have noticed that due to the lack of explicit communication between instructors and students on

what constitutes critical writing, students fail to practice critical thinking in writing. Unfortunately, most of what students write falls into the category of descriptive rather than critical writing (Mehta and Al-Mahrooqi 2014). Instructors and students' lack of clear perception of critical thinking and lack of reconstruction of the critical thinking skills in language textbooks are among the main factors hindering the development of students' critical thinking skills in writing courses (Wegrzeckalewski 2018). Thus, since the construct is not clearly defined and perceived by writing college instructors, the process of assessing it then becomes more complicated and challenging, especially that critical thinking in writing could be influenced by students' "critical literacy" skills (Lanham, 2018, p.91). Integrating critical thinking into a writing course should be built on activities that measure students' ability to critically read, analyze, reflect, and support their thinking with logical evidence, so whatever a teacher designs, it should be practical and urges students to use these skills (Kumar and Refaei 2017).

Hence, measuring these thinking skills in addition to writing skills is not an easy task and requires teachers to be trained on this (Paul and Elder 2005). Unfortunately, in a study by Dong and Yue (2014), the researchers found that while writing college instructors claim that they assess critical thinking and they know how to do so, a document analysis of students' argumentative essays and teachers' feedback on them revealed that the focus of teachers' feedback and grading was on grammar and mechanics. Attention to students' abilities to think logically and analyze textual factors was rare. Not all students can think critically, and if they can, transferring their thoughts into words is a further challenge. This makes the process of critical thinking assessment in writing assignments more difficult for the teachers, and simultaneously, requires them to be more patient and supportive (McKinley 2015 and 2013).

Finally, investigating college students' perceptions of critical thinking in a collectivist society, such as the Emirati context is another area of interest in this study. Liu and Stapleton (2018) indicated that college students of collectivist societies normally think in harmony with the majority's opinion or stream, including teachers, parents, or even their colleagues and friends, with no tendency sometimes to display analytical reasoning. Harmonizing is one reason why students find difficulties to think critically because as Stapleton (2001) once pointed out, this "runs counter to the spirit of critical thinking" (p.509). On the other hand, western instructors who are expected to know how to teach critical thinking “often use prescriptive methods or rely on their interpretations of critical thinking often not suited to students from the region” (Sperrazza and Raddawi, 2016, p. 160). So, unless college instructors, especially western instructors, are aware of this and attempt to encourage students to display their critical thinking skills through designing activities that are relevant to students' cultural norms and interests, students might be discouraged from developing their critical thinking skills (McKinley 2015). Students in this part of the world are noticed to be changing in their perspectives and beliefs towards being open to new options and questioning the established beliefs, due to developments in technology, the widespread of digital devices, and globalization (Allamnakhrah 2013). However, in their attempts to change, students are sometimes facing pressure from their local peers and instructors or the culture of the institution in a few other cases (Mehta and Al-Mahrooqi, 2014). Therefore, further investigation and digging deep into how students of collective cultures perceive these challenges and simultaneously meeting the need to cope with the new demands of the educational process are of great value.

1.3 Purpose of the Study

The main purpose of this research study was to investigate how critical thinking is being perceived, best practiced, and assessed in college English writing courses. Therefore, the objectives of this research paper were to:

(1) investigate how college instructors of English writing courses perceive the definition of critical thinking, its importance and the best teaching and assessment methods (2) examine differences that may exist among college instructors and students' demographics, (3) investigate how college instructors and students of English writing courses practice critical thinking during English writing courses, (4) identify similarities and differences between the perceptions of the definition, importance, and effective instruction and assessment methods of critical thinking of the college English writing instructors and their students, and eventually (5) inform the teaching, practice, and assessment of critical thinking in writing courses

1.4 Research Questions

The major research question of this research study was:

How is critical thinking being perceived, best practiced, and assessed in English writing courses at the college level?

To answer the major question, the study attempted to answer the following research questions:

Q1: How do college instructors perceive the definition, importance, and best teaching and assessment methods of critical thinking in English writing courses?

Q2: What are college students' perceptions of the definition, importance, and best teaching and assessment methods of critical thinking in English writing courses?

Q3: What demographic differences, if any, might exist among college instructors and students regarding critical thinking in English writing courses?

Q4: How do college instructors and students practice critical thinking in English writing courses?

Q5: What are the similarities and differences between the perceptions of the definition, importance, and effective instruction and assessment methods of critical thinking of college English writing instructors and their students?

Q6: What implications can be drawn and suggested by the end of the study to inform the teaching, practice, and assessment of critical thinking in writing courses?

1.5 Significance of the Study

This study aimed to investigate how college instructors and students perceive critical thinking in English writing courses. It also probed further to investigate how college instructors along with the students practice and assess students' critical thinking in writing courses. Major issues were still unaddressed as previous studies in the context of UAE had suggested (Deveci and Ayish 2017 and Thabet 2008). Therefore, the study has been found to fill in the following gaps:

First, despite its importance, published studies on critical thinking in the UAE at the college level are few (Freimuth 2014, Taleb and Chadwick 2016, Deveci and Ayish 2017), and in the field of assessment, the situation is worse. Only one study, McLellan's study (2009), focused on current assessment methods used in the UAE. Moreover, all of these studies are case studies conducted within one campus. So, what distinguished this study is that it is more comprehensive of the UAE context. Furthermore, selecting universities presenting different education sectors; the private and the public enriched the findings and added to the understanding of how college instructors and students perceive and assess critical thinking.

Second, previous research in the area of critical thinking concluded that it is imperative to investigate college instructors' perceptions, as it is important to assess the current knowledge of those who are teaching it. Students' perceptions are to a large extent found to be influenced by their instructors' perceptions of critical thinking (Wagely 2013). In the context of the UAE, none of the aforementioned studies have focused on college instructors' and students' perceptions of critical thinking and examined their practices in light of their perceptions.

Third, research on critical thinking in the area of English writing at the college level is limited in the UAE. Freimuth's research (2014) focused on the relationship between critical thinking and literacy skills. Deveci and Ayish (2017) examined lifelong learning skills and critical thinking. Focusing on improving critical thinking in students' writing; however, is significant, as college students are supposed at college to display critical thinking mostly in writing. Writing becomes a reflection tool of college students' critical thinking abilities (Yusri 2018). Moreover, this study did not restrict itself to one particular step in the process of critical thinking integration. It examined the whole process of critical thinking integration into

curriculum design including planning, implementing, assessing, and finally revising based on college instructors and students' perceptions (Richards 2001).

Identifying how similar or different the perceptions of the instructors and students are in relation to the area of critical thinking teaching and assessment was an additional strength to this study. Highlighting mismatches allowed the key stakeholders to understand the viewpoints of each other especially in the area of explicit instruction on critical thinking, mainly suggesting the need for establishing appropriate channels for communicating needs and expectations of each party.

Finally, keeping in mind that most English writing instructors in the UAE context are not trained on systematic integration of critical thinking into the curriculum; therefore, investigating how they have been doing this in practice hopefully has increased awareness of current practices and suggested useful implications for future implementation.

1.6 The Researcher's Background

The teaching experience for the researcher started back in 2004. 11 out of the 16 years of teaching experience are in the UAE. She has been working for 7 years as a part-time college English language instructor first in Sharjah at two different universities before fulfilling a full-time position as an English language instructor at one private university in Dubai. Working at three different universities in two different emirates allowed the researcher to expand her academic network and interact with writing instructors of different ethnic and educational backgrounds. Moreover, working at universities belonging to different educational sectors (public and private) added to her understanding of the importance of considering the social and cultural norms of each educational environment.

Being born and educated in Dubai in the UAE and having worked later as an instructor at one college in Dubai, the researcher had the privilege to trace changes in the vision of education and in the pedagogy of teaching in the UAE. Emphasizing the following needs to move from passive into active learning and from memorization to the cultivation of higher-order thinking skills are major reforms in the education process of the UAE. Within the late shift to focus on teaching critical thinking and the challenge for the researcher to teach a concept that she has never previously educated, the spark for this research to be conducted was ignited. Daily interaction with instructors of other educational backgrounds and the daily talk about different perceptions, practices, and even challenges accompanying the whole process of critical thinking integration into the curriculum are what made the researcher pursue her investigation further.

In light of this, it should be admitted that the researcher' teaching experience somehow has its influence on the research as well as the study outcomes. Yet, since the focus of the researcher is on finding out how other writing instructors teach and assess critical thinking with holding no hypothetical assumptions, she was able to a large extent to strike the balance between the subjective and objective attitude of the researcher (Fleet et al. 2016).

Considering the three roles of a researcher as a complete insider, neutral, and a complete outsider (Creswell 2014), the role of the researcher in this study could be seen as a mix of partial insider and a complete outsider.

Working as a college instructor in the UAE for 11 years is why the researcher could be considered as a partial insider. However, her knowledge about the educational system and the cultural norms of the Emirati society in addition to her knowledge of the urgent priority for the education sector to meet the needs of the economic sector made her aware of the

importance of developing students' critical thinking skills. Knowledge of current contextual factors combined with her expanded social and academic network allowed the researcher to gain the trust and approval from administration, instructors, and students, which positively affected her ability to obtain richer and varied data.

The researcher's role is also found to be an outsider for the following reasons. First of all, the researcher is currently not working for any higher educational institution as she took a sabbatical break to conduct her study. This was viewed as advantageous as she felt that she is a complete outsider of any research site, and so equal distance between her and the five participating universities was maintained. Being an outsider minimized any bias that could be caused by work pressure or university administration, as outlined by Bonner and Gerda (2002). They further explained that being an outsider allows the researcher to maintain emotional distance as well. When driven by emotional influences, researchers could be highly subjective; therefore, being a complete outsider is a major precaution preventing the researcher to fall into such a trap. In the end, being aware of possible merits and drawbacks of each role empowers researchers rather than limits their potential, guides them through the process of scientific research, and ensures unbiasedness in the stages of interpretation and analysis.

1.7 Overview of the Study Chapters

This doctoral thesis is divided into five chapters. The first chapter begins with an introduction reviewing the background of the research topic, followed by an overview of the context where this study was conducted. Chapter one is also concerned with discussing the research

problem, the purpose of the study, the research questions, and the significance of the study. It finally provides a brief background of the researcher and her role in this study.

Moving into the second chapter, it is divided into two main sections: the theoretical framework of the study and an extensive review of literature relevant to critical thinking definition, teaching, and assessment. So, main theories related to perceptions, practices, and assessment of critical thinking in general and the field of writing, in particular, are presented mainly including Paul and Elder (2006) Framework of Critical Thinking, the Theory of Communicative Action (1981), and finally the Cognitive Process Theory of Writing (CPTW) (Flower & Hayes, 1981). In the literature review section, seminal and different studies exploring the main areas of this study are reviewed. The chapter concludes by situating some studies that reviewed the main areas of critical thinking in writing courses.

In chapter three, a detailed discussion of the adopted methodology is presented. The research approach and paradigm are then fully explained. The chapter also describes in detail the research sites, population and sampling, the data collection instruments in addition to the data analysis procedures. The chapter ends with a presentation of the ethical considerations.

The fourth chapter presents findings from the analysis of the collected survey, observation, and teacher interview data. The analysis of the numeric data is divided into demographic statistics of participants and descriptive statistics. Narrative data, on the other hand, presents findings from the thematic analysis of narrative data obtained from open-ended questions, class observation, and semi-structured interviews.

The last chapter includes a discussion of the findings of the study, and the answers to each research question are presented and elaborated on. The findings are compared to earlier studies to support or refute them. Implications and recommendations to policymakers, chief

executive officers (CEOs), and instructors are secondly suggested. As any research study, the chapter finally addresses the limitations of the study and suggests areas for further research.

Chapter Two

Theoretical Framework and Literature Review

2.1 Overview

The development of students' critical thinking has recently become one of the major learning outcomes of general and liberal education programmes (Taghinezhad et al. 2018). The growth in the interest of developing students' critical thinking has been rationalized by the growth in the number of studies positively correlating critical thinking with students' academic achievement, creative thinking, self-efficacy, motivation, and logical thinking (Irwanto et al. 2018).

In college English academic writing courses, writing is the "coin of the realm" as argued by Condon and Kelly-Riley (2004); writing is a reflection of thinking. Activities to promote students' critical thinking in undergraduate academic writing courses were found to be wide-ranging: argumentative writing (Nejmaoui 2019), writing portfolios (Mulnix and Wilson-Mulnix 2010), reflective writing journals (Fulford 2019), and problem-based intervention (Kumar and Refaei 2017). Variance was also to be found in the methods for assessing gains in students' critical thinking skills (Dong and Yue 2015).

Within the widespread interest in critical thinking teaching and assessment and the wide range of activities and methods used to achieve this, instructors and students' perceptions are seen as key players in the success of the whole experience (Loes et al. 2015). Instructors' perceptions, attitudes, beliefs generally impact their teaching and assessment practices, whereas students' perceptions were found to have a significant impact on their learning motivation and engagement (Tudor et al. 2010). In the field of critical thinking teaching and

assessment, investigating instructors and students' perceptions is even more vital, as the importance of developing students' critical thinking skills has been highly emphasized by scholars, yet instructors and students sometimes do not necessarily have the same level of interest as scholars do (Chen 2017).

The aim of this research paper is to investigate college instructors and students' perceptions, practices, and assessment of critical thinking in writing courses, to identify possible mismatches in the perceptions of instructors and students, and finally to highlight on demographics differences that might exist among college instructors and students in relation to their critical thinking experience. Thus, this chapter is divided into three sections: the theoretical framework on which the study is based, an in-depth review of relevant literature, and a situation of relevant studies. Main theories related to perceptions, practices, and assessment methods of critical thinking are first presented. The reviewed literature is mostly relevant to the scope and purpose of the study, and finally, the chapter is concluded with situating some of the reviewed studies.

2.2 Theoretical Framework

As this study focused on college instructors and students' perceptions and practices of critical thinking in writing courses in higher education, Paul and Elder's Framework (2006) has been chosen to conceptualize the definition and the skills of CT. It is a widely recognized model for outlining the main competencies of critical thinking and how to assess these competencies using certain intellectual standards. For instructors' teaching practices of critical thinking, Habermas' communicative reasoning: The Theory of Communicative Action (1981) has been selected, as this theory emphasizes the significant role of teacher-student argumentation and

interaction between instructors and students for the success of any critical thinking practice. Finally, as the scope of this study focuses on perceptions of best teaching and practices in writing courses, the Cognitive Process Theory of Writing (CPTW) (Flower and Hayes1981) has been found appropriate. In addition to its being relevant to writing, it views writing as a cognitive activity requiring a continuous process of drafting and re-drafting that could reflect students' ability to think critically and based on the type of writing activities practiced and teachers' scaffolding and feedback, students can enhance critical thinking through these activities.

The interplay of theories and their connection to the purpose of this study is illustrated in Figure 2.1below.

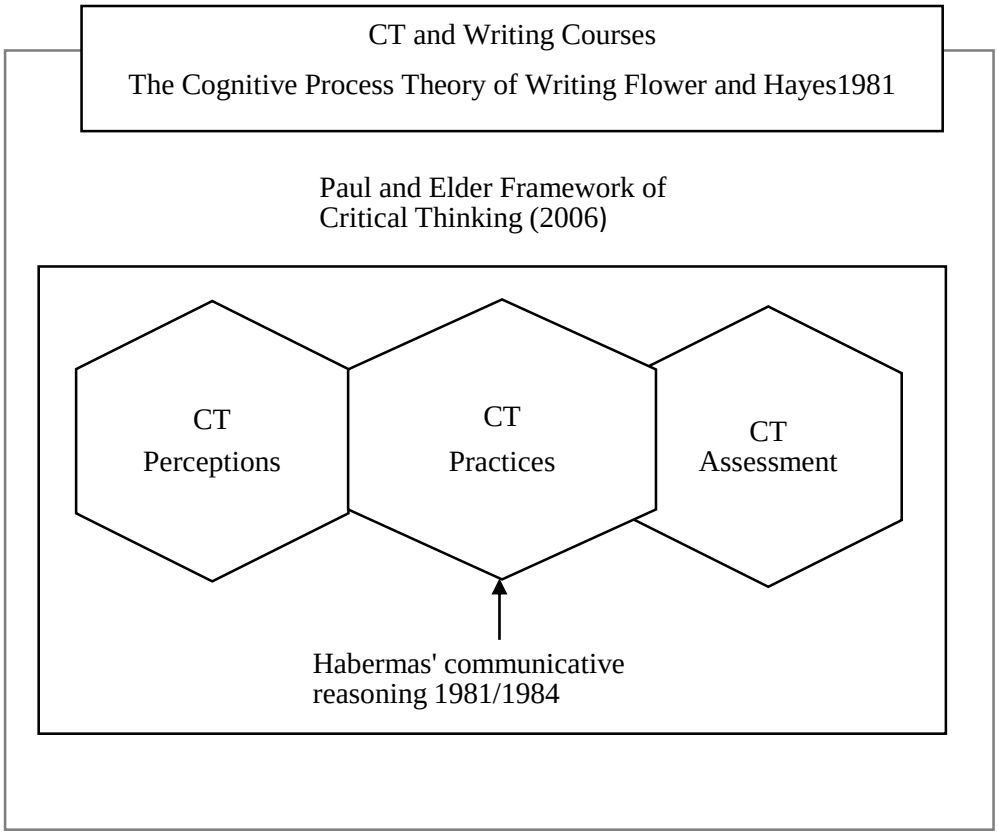

Figure 2.1: The Theoretical Framework of the study (Source: Author)

2.2.1 Paul and Elder (2006) Framework of Critical Thinking (CT)

Paul and Elder (2006) framework focuses on the philosophical and perceptual aspects of critical thinking (Forawi 2016), which makes it appropriate to be used in this study. It mainly focuses on teachers' and students' perceptions of critical thinking. Paul and Elder's Critical Thinking Competency Standards (2006, p.7) define critical thinking as:

> the process of analyzing and assessing thinking with a view to improving it. Critical thinking presupposes knowledge of the most basic structures in thinking (the elements of thought) and the most basic intellectual standards for thinking (universal intellectual standards). The key to the creative side of critical thinking (the actual improving of thought) is in restructuring thinking as a result of analyzing and effectively assessing it.

According to this, the model outlines eight critical thinking competencies: setting purposes and objectives, questioning, collecting data and providing evidence, making inferences, making assumptions, analyzing theories, suggesting implications, and finally identifying points of view. The use of these competencies is sensitive to the application of ten intellectual standards: clarity, accuracy, relevance, logicalness, breadth, depth, precision, significance, completeness, and fairness. The uniqueness of this view of critical thinking transcends the ability to think critically as an ultimate goal in itself; rather it is viewed as a means to develop intellectual traits including intellectual humility, autonomy, integrity, courage, perseverance, reason, empathy, and fair-mindedness. Below is Paul and Elder's (2006) framework as found in the Miniature Guide to Critical Thinking Concepts and Tools (Figure 2.2).

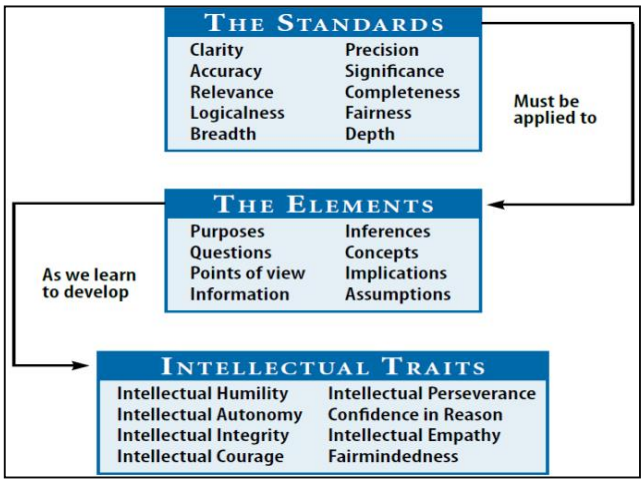

Figure 2.2: Paul and Elder's Critical Thinking Framework (2006, p.21)

For each competency, the model provided performance indicators and dispositions, outcomes, and master rubrics for assessment. This serves as a reference for teachers who are planning for systematic integration of critical thinking into their curriculum and to "transform their traditional classrooms into communities of thinkers" through hard work and persistence (p.1). Moreover, as suggested by the two authors identifying the competencies will help teachers to know more about the basics of critical thinking. Students will also find it useful, as they will understand how their critical thinking skills can be improved, and on which standards their skills can be assessed. Finally, the competencies are of different levels and classified into generic and specific skills.

In light of the previous description, the selection of this model as a theoretical framework for this study is appropriate for the following reasons. First, the model provides elements and standards for how critical thinking could be perceived and used, which is directly related to the purpose of the study. So, the researcher used these elements and standards to investigate how critical thinking is being perceived, practiced, and assessed by college instructors.

Second, Paul and Elder (2005, 2006) based their model on the assumption that critical thinking can be taught and assessed if its competencies are well- defined and practiced. This assumption is in line with the scope of this research. Third, the competencies as explained by the authors are levelled and based on reasoning, analyzing, arguing, and evaluation which are the core-skills of any writing course, especially the advanced level. Fourth, for assessment, the model provided performance indicators and dispositions, outcomes and master rubrics derived from the ten intellectual standards for evaluation: clarity, accuracy, relevance, logicalness, breadth, depth, precision, significance, completeness, and fairness. Providing learning outcomes assisted the researcher in the process of investigating college instructor's practices and assessment of critical thinking, for example the activities the teachers designed to practice CT and also the methods they used to assess students' CT. The learning outcomes of the activities designed by teachers were compared to the outcomes provided by the framework. Also, the master rubrics provided has been used as a guideline to examine instructors' practices and perceptions of critical thinking assessment.

2.2.2 Habermas' Communicative Reasoning: The Theory of Communicative Action (1981)

Habermas' theory assumes that reason is built into verbal communication; the type of communication that involves the use of language. According to Habermas (1984), communicative reasoning results in a "structured life world that is constituted in the interpretive accomplishments of its members and only reproduced through communication" (p. 398). Thus, participants of any communicative action are expected to aim towards reaching an agreement based on rationality and validation of claims through the use of evidence and reason. For Habermas, communicative action is a distinctive quality of a liberal

and democratic society since members of that society communicate through the medium of language and use reason to reconstruct knowledge and reach consensus.

The interest of the application of Habermas' communicative reasoning into the education sector has increased and found to be effective to increase students' critical reasoning skills. According to Murphy (2010), in light of Habermas' work, universities can be seen as the perfect environment to practice critical reasoning skills through the utilization of debates as an example of a spoken communicative action and the use of reflective journals and argumentative essays as two examples of written communication actions. Han (2002) also indicated that teacher-student interactions are other forms of communicative action, especially class discussions and debates that involve a practice of 'argumentation' between a teacher and his/her students. Han elaborated that in light of Habermas' work, the success of interactions is attributed to the use of reason to achieve "mutual understanding of the bodies of knowledge being taught and learned only from the viewpoint of how well and relevantly the arguments are made, not with a view to certain external goals that can only be contingently accomplished by instrumentalizing the communicative understanding of the knowledge"(p. iii).

In connection to critical thinking and higher education, the utilization of Habermas' communicative reasoning is relevant and effective due to the following reasons. First, reasoning is considered as an inherent part of any critical thinking process (Murphy 2010). For a person to be characterized as a critical thinker, s/he needs to display reasoning skills, including the skills of raising claims and validating them using evidence. More important, Habermas' work highlights the significant role of communication and interaction to reconstruct knowledge and improve skills. In practical terms and during any critical thinking

practice, teacher-student interactions or teacher feedback on students' work then became a tool to foster students' critical thinking skills, especially when the communication is viewed as a means to use reason and evidence to reach mutual understanding in relation to a certain body of knowledge. So, instructors' practices of critical thinking activities and students' interaction and engagement with these activities will be examined in light of Habermas communicative theory.

2.2.3 The Cognitive Process Theory of Writing (Flower and Hayes 1981)

As this study investigates how is critical thinking being perceived and practiced in writing courses, The Cognitive Process Theory of Writing (Flower and Hayes 1981) has been chosen because it views writing as a set of distinctive thinking processes rather than as a linear paradigm consisting of "clean-cut stages" (Flower and Hayes, 1981, p.367). This relationship between writing and cognitive processes is useful to be linked to college writing instructors and their perceptions and practices of how they can provide opportunities for students to practice critical thinking, whether through writing activities or different ones.

The emphasis in the traditional method is on the written product rather than the processes of thinking and writing. In this model, the writing process is considered as flexible and dynamic rather than rigid and linear. The model is based on four key assumptions: first, the process of writing is viewed as a combination of three main distinctive thinking processes: "planning, translating, and reviewing" (p.366). Second, these processes are organized in a hierarchal order. Third, the whole process of writing is "goal-directed", and fourth writers' goals are divided into "high-level goals and supporting sub-goals" (Flower and Hayes, 1981, p.366). So, the major assumption of this theoretical framework is to highlight the cognitive processes

involved in the writing process. Figure 3 below summarizes the Cognitive Process Theory of Writing (CPTW) by Flower and Hayes (1981).

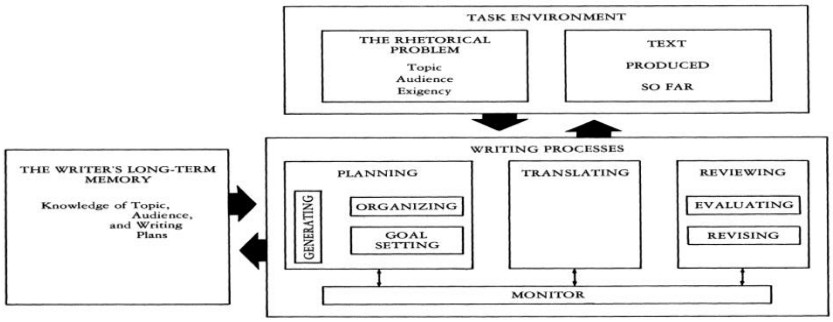

Figure 2.3: The Cognitive Process Theory of Writing, Flower and Hayes (1981, p. 370)

According to Figure 3, the actual composition process has three major units: the task environment, the writer's long-term memory, and the writing processes. Within the first unit, task environment, two elements are included ' the rhetorical problem' and the 'written text'. The assignment given to students is considered a problem a student needs to address and solve taking into consideration the elements of the topic itself, audience, and exigency; therefore, it is a rhetoric activity. Writer's long-term memory in this model refers to what a writer previously knows or even stores about the topic.

The writing process includes three cognitive processes: planning, translating, and reviewing. Most of the planning process takes place inside the writer's mind and not all that a writer plans and generates is usually translated into written words. The planning process usually starts with generating ideas, organizing these ideas, and evaluating which of these ideas are compatible with the aim of writing. It is the stage that requires a thorough process of thinking and decision-making. Translation, on the other hand, is the written representation of the mental ideas and thoughts using correct words and sentence structures. The focus of this

process is on the fluent and accurate use of language, paying attention to appropriate word choice and cohesion and coherence. The third process of reviewing involves evaluating what has been written in terms of content and making the necessary revisions accordingly.

In connection to critical thinking and the purpose of this study, through the stages of planning and translating, writing becomes a translation to the mental thoughts of a person. Most of the planning is taking place inside the brain yet writing becomes a medium to reveal the level of thinking that is happening inside the brain. Second in connection to critical thinking skills, this model emphasizes on the importance of two major skills of critical thinking which are evaluation and reflection in writing, and so it has been found an appropriate model to be included in the theoretical framework of this study, especially in the part for investigating students' critical thinking experience in writing courses. Thus, throughout this goal-directed thinking process, student-writers are required to keep evaluating their ability to achieve the goals they have set. More important is the stage of revising where students need to act on their evaluation and review of what they have written and then make the required changes. Viewing writing as a continuous process of drafting and re-drafting implies that students' writing skills could be enhanced through teachers' scaffolding and feedback. This is in line with the common perspective of critical thinking as a transferable skill. In summary, writing in this model is a tool to reflect students' critical thinking skills. The more students are able to make inferences, create, evaluate, and regenerate ideas to achieve their goals, the greater is the improvement of students' critical thinking skills (Chen 2017).

2.3 Literature Review

As this study aimed to investigate college instructors and students' perceptions, practices, and assessment of critical thinking in English writing classes, major studies in the areas of defining, teaching, and assessing critical thinking in general and in writing courses have been reviewed to identify major gaps in this area. Moreover, the literature includes a review of studies related to college instructors and students' perceptions and practices of critical thinking, especially in the area of college English writing courses. Finally, the section concluded with an extensive review of studies in the area of critical thinking and demographic differences.

2.3.1 History and Reform of Critical Thinking Definition

Critical thinking as a multifaceted concept (Barnaby 2016) has been defined and perceived differently by scholars in the field. The roots of critical thinking could be originally related to the Socratic methods of questioning established assumptions and Plato's view of delusive appearance (Vieira, Tenreiro-Vieira, and Martins 2011). A few scholars also refer to the possibility that the word "critical" has Greek origins; the word "Kriticos" in Greek means sound judgment (Allamnakhrah 2013 and Pang 2008).

Although Socrates' way of thinking and questioning could be viewed as the roots of critical thinking, it is the work of John Dewey (1933, 1938) that had planted and nurtured the early seeds of critical thinking in modern education (Fisher 2011). Dewey is the first to define critical thinking as reflective thinking and called on the necessity of urging learners to review their thinking and verify traditional beliefs using strong evidence. Within the revolutionary work of Dewey in the field of education and his fundamental change to methods of teaching,

a great emphasis is laid on the importance of critical thinking as a practice of reflection. For Dewey, both teachers and learners should be actively and persistently involved in a process where they reflect on their academic experiences and learn useful lessons from them. Reflection through Dewey's lenses is 'active' and 'persistent' (Dewey, 1909, p.9) allowing for a deeper understanding of the information processed (Fulford 2018).

Being influenced by Dewey's work, in 1941, Glaser expanded on the concept of critical thinking to include the practice of evaluation. Glaser (1941) linked critical thinking to the process of assessing facts through the use of logic and valid data. In the same year, 1941, Edward as well proposed three crucial elements for the development of critical thinking: experience, reasoning, and the application of reasoning skills into future experiences. Glaser (1941) is also one of those early scholars who referred to the dispositions of critical thinking when he included the word "attitude" in his famous definition (Glaser, 1941, p.5).

In the mid-1950s, Bloom devised his famous taxonomy of thinking and learning which is later known as Bloom's Taxonomy (1956). The taxonomy included six levels of thinking. The first three are referred to as lower-order levels of thinking including knowledge, comprehension, and application, while the remaining three skills are referred to as the higher-order thinking skills: analysis, synthesis, and evaluation. Many scholars indicate that critical thinking could be perceived within the application of the three higher-order levels of thinking: analysis, synthesis, and evaluation (Dwyer et al 2014). A major criticism of this theory is that levels of thinking in this model are arranged in a hierarchal order. This assumption has been rejected by many scholars. While an individual is involved in evaluating something, s/he needs analyzing and synthesizing skills (Ennis 1993).

In 1962, Ennis the famous American philosopher defined critical thinking as a process that involves analysis and reflection. Ennis whose work on critical thinking led him to bring in several modifications to critical thinking definition, finally described critical thinking as the "reasonable and reflective thinking focused on deciding what to believe or do" (Ennis, 2011, p. 1). This definition added a new element to critical thinking, which is the reference to the idea of the decision- making skill, as indicated by Fisher (2011). Being influenced by Ennis's work, Reeder (1984) also attempted to analyze the nature of critical thinking and referred to the elements of reflection and evaluation. However, Reeder (1984) stressed the role of reasoning in any critical thinking practice. According to Reeder (1984) the nature of critical thinking has three phenomenal aspects: logical, rhetorical, and philosophical. As a logical practice, critical thinking requires the use of analysis and reasoning skills. Within the philosophical view, critical thinking becomes more reflective. Most importantly, the philosophical aspect also lays a high emphasis on how ethical the logic should be and how it is not influenced by self-egocentrism. Finally, within the rhetoric perspective, critical thinking involves an act of communicative reasoning and questioning or "argumentation" (Reeder, 1984, p. 18). Fox (2006) defines argumentation as one's attempt to validate the truthfulness of his/her beliefs. Reeder's reference to the rhetorical aspect of critical thinking stems from the assumption that critical thinking is a communicative action (Habermas 1981), and so critical thinkers need to utilize effective rhetorical strategies to convey their logic and communicate it appropriately to other parts. Thus, the role of context then becomes important within Reeder's perspective, and the type of audience within which critical thinkers are communicating impacts which rhetorical strategies critical thinkers should utilize. Eventually, Reeder's work concluded with an emphasis on reflection in any critical thinking

practice, as it invites arguers to review their arguments before “criticizing” or “critiquing” others' claims and beliefs (p. 20).

One of the major influential contributions to the field of defining critical thinking and outlining its elements is the extensive research of Paul and Elder (1983, 1984, 2002, 2005, and 2006). The earlier work of Paul (1984) differentiates between 'weak' and 'strong sense' of approaching critical thinking. The weak sense encompasses traditional views of critical thinking that are mainly concerned about questioning certain assumptions in society for mere questioning, a practice that is referred by Paul as "atomic arguments" (p. 3). A strong approach for Paul (1984) would be to focus on "argument networks (world views); in place of conceiving of arguments as susceptible of atomic evaluation; one takes a more dialectical/dialogical approach arguments need to be appraised in relation to counterarguments" (p.3). In this sense, critical thinking becomes a tool to bridge gaps between different world views and create opportunities for mutual understanding.

Additional extensive work and research on critical thinking led Paul and Elder to define and redefine critical thinking several times until the year (2002) where they eventually describe critical thinking as "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 and Elders, 2002, p.316). Critical thinking through the Paul and Elder's lenses is a cognitive process that can be improved (Forawi 2016). At later stages, Paul and Elder have moved from focusing on the philosophical approach of critical thinking to devise a comprehensive framework for critical thinking to be effectively used in pedagogy (2005, 2006).

Within the existing variety of definitions for critical thinking, Facione (1990) with a group of experts utilized the Delphi Method to reach an agreement on a definition for critical

thinking. The Delphi panel agreed that critical thinking seems to be a "purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which judgment is based"(Facione, 1990, p. 3). Unfortunately, despite the agreement, the process of defining critical thinking continues to undergo several reviews even from the members of the Delphi panel.

Fisher and Scriven's (1997) definition of critical thinking is in line with the views of critical thinking as an active process of evaluation and analysis, yet the authors chose to use the words "observations", "communications" in addition to the common use of the two words of information and arguments (p.21). Fisher (2011) justified the use of such words to differentiate between evaluating factual assumptions or theories and evaluating real-world events and daily communications. Fisher (2011) strikes the Gulf War, an event, as an example of observation which requires analysis and evaluation (p.12).

In her extensive reflection on the above- mentioned definitions, Wilson-Mulnix (2012) converged with Paul, Elder, and Facione's views of critical thinking as a set of processes that involve self-regulation and reflection to be more accurate and intellectual, yet she disagrees with Reeder (1984) and Paul and Elder (2005) on the ethical aspect of critical thinking, especially when using such terms as ‘being fair-minded’ or ‘being empathetic’ (p. 466). According to Wilson-Mulnix (2012), moral values limit one's ability to think critically. Constraints of any type, whether moral or emotional, on any critical thinking practice contradict the nature of critical thinking. Wilson-Mulnix's argument of reasoning should be detached from being moral contradicts with Fox's (2006) view of the connection between critical thinking and moral reasoning. Fox (2006) views critical thinking as an attempt to

reflect on the validity of existing truths through the use of moral reasoning. Reasoning is described as moral because it mainly seeks to find out the truth, "not to win or defeat others" (Fox, 2006, p.25). It also takes into consideration the elements of daily communication among individuals, the formalities of the context, and the policies of social entities.

Wilson-Mulnix also refuted any claims that critical thinking is equal to creative thinking and differentiated between the two practices. The former is based on analysis and reasoning, while the latter is a practice that involves imagination and intuition. Another important argument to which Wilson-Mulnix referred in her reflection is whether the nature of critical thinking is generic or specific. In her response to that argument, Wilson-Mulnix differentiates between " a learned skill" and a "mastery" of that skill (p. 471). So, generic critical thinking skills can be learned and applied across different domains, yet within a certain domain, they are seen as step one for mastering critical thinking within that domain. Mastering critical thinking within a specific domain is to be heavily dependent on the degree of knowledge and experience an individual has in relation to that domain.

Wilson-Mulnix's view of critical thinking has common points with what psychologists as Piaget (1967) and Perry (1970) have said in defining critical thinking and linking it to the cognitive development of learners. Within the psychological perspective, critical thinking is viewed as a set of cognitive processes that can be developed and improved. Piaget's cognitive development theory (1967, 1970) is basically built on the idea that one' thinking is ever-changing and improving based on the experiences an individual encounters throughout the different stages of life. This is in line with the philosophical perspective of critical thinking as a reflective practice and a re-thinking process. Perry's scheme (1970) explained more in detail the relationship between cognitive development and critical thinking. Perry proposed

that to promote critical thinking skills, individuals should be involved in a four-staged process of cognitive development: (1) dualism, (2) multiplicity, (3) relativism, and (4) commitment (Perry 1970). In the same vein, Stupple et al. (2017) also linked critical thinking to 'Type 2' of the dual-process in cognitive psychology. Dual-process identified two types of thinking: intuitive thinking ' Type 1' and analytical thinking which is "purposeful, self-regulatory, conscious, and effortful" (p.92). Analytical thinking is a metacognitive process that requires monitoring and allows the learner's mind to develop critical thinking skills and dispositions (Murray 2016).

The psychologist, Daniel Willingham; however, has a different view. Willingham's claims (2007) fly in the face of all the previous research on critical thinking as a skill. Willingham claimed that learning to think critically as a skill is a faulty assumption, as it "does not have certain characteristics normally associated with skills—in particular, being able to use that skill at any time" (p. 15). Instead, Willingham argues that critical thinking is a cognitive process that is "intertwined" with knowledge about the question/topic (p.15). To support his claim, Willingham compared learning to think critically as a skill with the skills of learning how to ride a bike or play music. Such skills according to Willingham are transferrable regardless of context, while practicing critical thinking as a skill is highly influenced by prior knowledge and previous experience. Willingham's claims go in line with philosophers who view critical thinking as a highly-specific domain practice, but this time it is from a psychological perspective. McPeck (1981) is one of those philosophers who strongly disagreed with the assumption that critical thinking is a universal skill. McPeck argued that when individuals think, they think of a certain subject and to be able to make informed judgments about that subject, they need to have background knowledge about that subject.

Whether critical thinking is heavily dependent on specific knowledge about the domain or not has been a topic of controversy for many years, yet when it comes to Willingham's claims that critical thinking is not a skill, definitely extensive research in this field has turned down such claims and further identified a set of skills to be characterizing critical thinkers. Eventually, both psychologists and philosophers, no matter how varied their perspectives are, agree that critical thinking is a cognitive process that requires the utilization of cognitive sub-skills that will be discussed in the following section.

2.3.2 Critical Thinking Skills and Dispositions

While investigating perceptions of critical thinking, it is imperative to discuss the abilities, skills, and dispositions that are considered major in conceptualizing it. Scholars and practitioners have different views regarding this (Dwyer et al 2014). Glaser (1941) identified a list of twelve critical thinking abilities, mainly including the abilities for a person to identify problems or flaws within an argument, recognize hidden assumptions, and reach conclusions that are based on strong evidence. Finally, what is important in Glaser's terms is one's ability to review his or her ways of thinking and judging in light of the critical thinking experience that s/he had (p.6). Similarly, the American Philosophical Association refers to a person's abilities to judge, interpret, analyse, evaluate, and support the analysis with logical evidence as basic skills a critical thinker should be able to display. This is in line with the different definitions of critical thinking (Facione 1990, Paul and Elder 2002, 2005, and 2006). Schön (1983) also linked critical thinking to one's ability to reflect and further identified four levels for reflection. These levels are knowing in action, reflection-in-action, reflecting- in-practice, and reflective practicum. According to Schön, mastering of these levels of reflection

skills mirrors the cognitive development of an individual's critical thinking skills. Cargas et al. (2016) explained that reflective practice allows the learner to reject bias and not be driven by the 'halo effect' (Kahneman 2011). In addition to the above-mentioned skills, Ennis (2011) provided a detailed outline of critical thinking abilities, including 15 abilities of a critical thinker. Besides to the abilities of analysing, reflecting, making inferences, and judging, Ennis referred to the following abilities as important for a critical thinker: "being sensitive to the feelings, level of knowledge, and degree of sophistication of others and employ appropriate rhetorical strategies in discussion and presentation (oral and written)" (p.4). For Wilson-Mulnix (2012) a critical thinker should also be able to make inferences by identifying "inferential connections holding between statements" (p. 472). Wilson-Mulnix (2012) elaborated that a critical thinker should be able to evaluate arguments and differentiate between those which follow a sound reasoning pattern and those which are fallacies. Critical sound reasoning, according to Wilson-Mulnix (2012) and Cederblom and Paulsen (2007), consists of two processes: looking for rational evidence for one's argument and giving the evidence or communicating the argument with a disposition to be open to others' arguments. Critical reasoning becomes then a tool to reach an agreement among different parties.

For critical thinking dispositions, many scholars differentiate between the two terms of ability and dispositions. A disposition is an inherent tendency to develop something, yet this natural tendency within an individual does not necessarily imply that the individual should practice or use this skill (Facione 1990, Norris 1992, and Ennis 1989). Thus, for the dispositions of critical thinking, Norris (1992) further explained that critical thinking dispositions are not desires to use critical thinking, instead, individuals develop them as "habits to use certain abilities, or overtly think and chose to use the abilities they possess" (p. 158). Siegel (1988)

also used the terms "inclination" and "habits" to explain the word disposition and illustrated that for a person to be a critical thinker, s/he should have a type of character that tends to question, judge, and evaluate, describing it as a "critical spirit"(p.32). Dewey (1991) pointed out that the individuals who have the disposition of scepticism are likely to display critical thinking. Butler (2015) echoed Dewey's thoughts and noted that critical thinkers are not "cynics"; they are "sceptics" (p. 308). Dispositions of critical thinking have gained the attention of scholars because it has been argued that these dispositions are essential for understanding the mechanism of critical thinking instruction (Dewey 1993).

According to Ennis (1988, 2011), a critical thinker has the main following dispositions. First, s/he is inclined to care how valid the information gathered is, how honestly the information is presented, and how every person involved in the process is secured from confusion. Cederblom and Paulsen (2007) emphasized the development of the two dispositions of being active and open for a person to become a critical thinker. Being active implies that an individual examines the discourse of reasoning and assesses its logic. Being open, as indicated above, refers to someone's ability to change own thoughts to reach a more valid alternative (Wilson-Mulnix 2012).

Dispositions of critical thinking are found valuable for the purpose of avoiding surface thinking (Kahneman 2011, Huber and Kuncel 2016), valuing the " importance of good thinking", and achieving "scholastic rigor" (Forawi, 2016, p.52, 53). Though it seems, according to many studies, that the acquisition and teaching of critical thinking dispositions takes time and effort on behalf of the teacher and the learner (Huber and Kuncel 2016). Deliberate practice and active engagement in processes that urge the use of critical thinking

skills contribute a lot to the development of critical thinking dispositions (Wilson-Mulnix 2012).

In light of the importance of enhancing an individual's critical thinking skills and dispositions to be able to perform better at academic and professional levels, looking for best practices and teaching methods is then of great importance and a priority for educators as will be discussed in the following section.

2.3.3 Teaching Critical Thinking in Higher Education

Teaching critical thinking at the college level has become essential as it is "the driving force behind the construction of deep knowledge by making connections beyond knowledge acquired from textbooks and lectures" (Wegrzeckalewski, 2018, p.3). Critical thinking is an empowering tool to build up responsible citizens (Karabulut 2012, Deveci and Ayish 2017)," protects us from sloppy and conformist thinking [,] and insulates us against empty dogmatism and rhetoric" (Wilson-Mulnix, 2012, p. 473).

Whether critical thinking could be taught or not was a topic of controversy for years. While part of scholars believe that critical thinking is an innate ability (Judith et al. 1985), others, especially psychologists (Piaget 1986), believe that critical thinking, similar to any type of thinking, develops later as a response to the input an individual receives from the surrounding environment. In light of Piaget's assumption, Vygotsky's theory of cognitive development, and the role of input and interaction on the development of thinking, a large body of literature has been devoted on the benefits that a specific intervention on critical thinking might have on improving learners' critical thinking, especially college students' critical thinking skills (Cargas et al.2017, Cheng and Wan 2017, and Boa et al. 2018).

In an extensive review of approaches in teaching critical thinking, Cheng and Wan (2017) discussed three main approaches for teaching critical thinking: the general approach, the infusion approach, and the immersion approach. The general approach supports a specific instruction on elements of critical thinking regardless of subject domain. Supporters of this approach (Paul and Elder 2005) believe that there are a set of critical thinking skills that should be explicitly taught and could be applied across different subject domains (Kettler 2013). Marin and Halpern (2010) are also in support of explicit instruction on critical thinking and proposed a model for teaching critical thinking that consists of the following four major parts: explicit instruction on critical thinking skills, promoting students' critical thinking dispositions, designing activities that urge students to display critical thinking, and fourth is attempting for overt and explicit metacognitive monitoring (Halpern 2003).

Second is the infusion approach in which elements of critical thinking are infused into subject matters. A few studies (Puma et al. 2012, Huber and Kuncel 2016) argued that specific instruction on generic critical thinking skills is not of great use if not connected to the subject domain. This method, according to Abrami et al. meta-analysis (2008), found to be secondly effective in fostering students' critical thinking, following the general approach.

At the other extreme, the immersion approach does not involve any explicit presentation of critical thinking skills; however, it requires students to be immersed in tasks where they need to display their critical thinking skills especially problem-based tasks (Kamin, O'sullivan, and Deterding 2002, Sendag and Odabasi 2009, Wheeler and Collins 2003, and Yang, Newby, and Bill, 2008 cited in Cheng and Wan 2017). Proponents of this approach based their perspective upon the following two assumptions. The first one, as outlined by Glaser (1984), is that displaying critical thinking is heavily determined by how much a person knows

about the subject matter. So, general critical thinking skills will not help that much unless the person has a background of the subject matter, and each domain requires a certain kind of knowledge (Huber and Kuncel 2016). Second, general critical thinking skills according to this approach are not transferable, and therefore the focus is on rigorous tasks that naturally require students to think critically (Kettler 2013). McPeck (1981) argues an expert critical thinker in one area is not necessarily an expert in another area. The immersion or specific approach; however, is found to be the least effective approach in fostering critical thinking, according to Abrami et al. meta-analysis (2008). Moreover, Ennis (1989) explained that the immersion approach targets to promote students' critical thinking within a specific domain, so it deprives learners to develop critical thinking skills that are essential for daily-life experiences.

Within this dispute on which method is most effective, the remaining fact is that teaching high-order thinking skills such as critical thinking requires an intensive effort from both teachers and students (Wagely 2013). Teaching a skill cannot be only done by using theoretical methods, though a few scholars found explanation/ illustration- based instruction useful for students at the beginning stages (Kalyuga 2012). Increasing students' awareness of the concept by providing a background-theoretical knowledge of critical thinking and presenting examples during class time will provide students with models of analysis. These models will serve as a guide for students in practice. For a full mastery of critical thinking skills, learners need to practice the targeted skills and get feedback on their performance (Wilson-Mulnix 2012).

Second to defining critical thinking skills comes the focus on investigating effective practices and teaching methods to enhance students’ critical thinking skills. A great deal of literature

was devoted to this purpose, yet there is no agreement on a certain method (Werff 2016). Socratic questioning, cooperative learning, argumentative written assignments, and project/problem-based tasks are among the most commonly tested methods (Allamnakhrah 2013). The last technique, problem solving/project- based tasks, has been steadily gaining ground, especially in the area of science education. Recent research on critical thinking skills revealed that the more students are engaged in real-world problems, the better their critical thinking skills are going to be (Murray 2016). Similarly, calls have been suggested by Kaddoura (2011) and Firips et al. (2018) for replacing classes that are based on lectures with ones that are based on problem/ task solving.

Negotiations or debates, class discussions, and cooperative learning were perceived effective as they provide students with opportunities to exchange viewpoints and receive feedback from peers (Cargas et al. 2017, Davidson and Major 2014, and Cheng and Wan 2017). Johnson et al. (2013) argued that chances for students' development of critical thinking skills are higher in classes where students share control in organizing classes, interact, and participate in class discussions, While group-work activities might enhance students' confidence to share their critical thoughts and stances, LeBouf et al. (2016) argued that the individual contribution of each group member to the whole work of the group was found unequal, and this is especially problematic when evaluating gains in critical thinking of individuals not of a group. Malatji (2016) similarly added that while the main target of group work is to enhance students' critical thinking through cooperative learning and class discussions, these discussions are sometimes replaced by attacks and conflicts between group members. Eventually, the effective impact of such activities especially cooperative learning

and group work is conditioned by a teacher's ability to manage groups and know how to keep members focused and on topic (Paul 1992).

In line with class discussion and group work activities, a specific type of discussion, Socratic questioning, is traditionally perceived as effective in enhancing students' critical thinking skills (Werff 2016). This type of questioning has been named after the Greek philosopher Socrates (Delić and Bećirović 2016). In teaching pedagogy, classic Socratic questioning is applied in classrooms through a question that is initiated by the teacher, and students are then involved in dialogues in an attempt to reach a mutual understanding of that question (Maxwell 2013). Studies examining instructors' practices of critical thinking have been showing that many instructors use Socratic questioning in its classical model (Fulford 2018), yet Delić and Bećirović (2016) argued that the traditional model is only useful for understanding the basics of an issue, which accordingly does not require students to practice higher-order thinking skills. Therefore, the authors suggested the use of modified versions of Socratic questioning, named as Socratic dialogue (Knezic, et.al. 2010) and Socratic Seminars (Pirić 2014). In the modified versions, instead of starting with a generic question, the focus is more on "intellectual conversations cantered on a text and designed in such a way to resemble Socrates instruction-through-questioning method" (Delić and Bećirović, 2016, p.514). To make it even more appealing for students of the digital age, Boa et al. (2018) did a further step and used Socratic questioning in its modern form along with the use of technology (online Facebook posting) to promote undergraduate students' critical thinking skills. The researchers focused on their instruction on three competencies of the RED critical thinking model, which are: recognizing assumptions, evaluating arguments, and drawing conclusions. The instruction model included group-work assignments, analyzing, writing,

and then presenting case studies. Then students needed to post the case study on the class Facebook account for whole-class discussion. According to researchers, the use of the Blended Socratic Method of Teaching (BSMT) was effective in fostering students' critical thinking skills.

The aforementioned activities are mostly of oral nature and design, in writing, the use of argument maps has been suggested by Van Gelder (2005) and Wilson-Mulnix (2012) to enhance students' analytical and rational thinking skills. This method requires students to structure different arguments and types of evidence given in a hierarchal order and then try to draw connections between similar arguments or statements. Van Gelder (2005) indicated that after a specific critical thinking intervention in which argument mapping had been used, students' critical thinking performance found to be dramatically improved. Argumentative writing in general has been mostly perceived by scholars and practitioners as an effective tool to enhance students' critical thinking (Nejmaoui 2019). Argumentative writing demands students to display two or more critical thinking skills, and so students are pushed to practice critical thinking skills.

No matter what method is being used, enhancing critical thinking skills, as pointed out by Wilson-Mulnix (2012) needs "deliberative practice" from students and commitment from instructors (p.476). Van Gelder (2005) further explained that any deliberative practice on critical thinking should be intensive, inclusive of specific exercises on critical thinking, levelled to students' abilities, and continuously followed by teacher-feedback on students' performance. Deliberative practice, as indicated by Van Gelder, is more than knowing about critical thinking; it is meant to engage students in the concept itself and coach them on mastering it.

The teachability of critical thinking does not mean that it is an easy-going process. Several challenges facing instructors in their attempts to teach critical thinking have been reported by previous studies (Dennett 2014 and Cargas et.al 2017). Part of these challenges related to the fact that many college instructors are required to teach CT without being trained on effective teaching practices (Węgrzecka-Kowalewski 2018). Chen (2017) indicated that many college instructors found in his study to be unaware of the educational theories of critical thinking, yet they teach it because they are required to do so. Apart from this and even with more experienced instructors, studies have reported different challenges, mainly engaging students in controversial topics during class discussions, and motivating students to practice problem-solving skills (Chen 2017). From a psychological perspective, Kalyuga (2012) explained that critical thinking is a cognitive-demanding activity, and some students might find it challenging to manage what is referred by psychologists as the "extraneous cognitive load" (Kalyuga, 2012, p. 253). Kalyuga further explained that reasons for 'extraneous cognitive load' could also be attributed to instruction models used by instructors. Three common practices are found to be positively correlated with 'extraneous cognitive load': split attention (additional pictures, sources…etc.), redundancy, and transiency (the disappearance of information before being fully-processed by learners) (Kalyuga, 2012, pp. 253-254).

Student engagement is more challenging in writing activities where students have double responsibilities to think and write critically along with paying attention to language errors and structure (Mehta and Al-Mahrooqi, 2014). Studies in the area of critical thinking and student engagement perceive that the use of peer review activities (Kolbel and Jentges 2017), group work and collaborative activities (Davidson and Major 2014), incentive system

(Anderson 2016), and the integration of technology (Swart 2017) into critical thinking activities could highly engage students. While the proliferation of digital devices entails that the use of such devices, including mobile devices, could be effective in the process of teaching critical thinking, yet as Heflin et al. (2017) alert, these devices “present opportunities for student distraction, and therefore, disengagement”. Thus, cautious and careful planning is required while integrating the use of digital devices into the process of teaching critical thinking.

A few other studies listed culture as an influential factor in hindering instructors' attempts to improve students' critical thinking skills, especially after Atkinson's (1997) claims that eastern students are not capable of thinking critically, as critical thinking according to Atkinson is acquired "through the pores" (p. 73). Atkinson's claim argues that eastern societies believe in conformity, and critical thinking cannot be naturally developed in such cultures. However, in an extensive review of studies on the role of culture in the development of students' critical thinking, Dennett (2014) concluded that there is no certainty on whether students' culture is a strong predictor of students' capability to display or develop critical thinking. Dennett's study further indicated that students' learning styles and behaviour seem to be more influential. Dennett finally pointed out that studies on culture and critical thinking should take language barriers into considerations before jumping into conclusions, as the English level of students might impact the findings. In their attempts to refute Atkinson's claims, Stapleton (2001), Turner (2011), and McKinley (2013) found that after a specific intervention on critical thinking, eastern students' critical writing skills have been noticeably improved. McKinley (2013) explained that all cultures are capable of displaying critical thinking, yet the ability of displaying these skills is most influenced by the characteristics of

the language used within each culture. Therefore, it is important for faculty members, especially western ones, to be aware of this and not assess students' critical thinking based on cultural behavioural norms.

In the conclusion of this section, the wide range of critical thinking teaching methods has raised concerns about how the effectiveness of these methods could be effectively measured. Furthermore, what appropriate assessment methods are perceived effective when measuring students' critical thinking skills? Should students' critical thinking skills be summatively or formatively assessed? The following section then discusses answers for these questions and other issues in relation to critical thinking assessment.

2.3.4 Assessment of Critical Thinking

The shift in teaching higher thinking skills, including critical thinking skills, to prepare students to meet the demands of the future workforce requires educators to evaluate how effective and successful that kind of teaching is (Butler 2015). While part of educators find assessing students' critical thinking as an overburden for those who are teaching it (Flahetty and Jaschick 2014), others believe it is worth to examine how effective teaching of critical thinking is and highlight areas to improve (Butler 2015). Research on critical thinking assessment is limited when it is compared with the number of studies that focused on defining and teaching critical thinking (Liu and Stapleton 2018). More important research on critical thinking assessment is usually embedded with research on assessing higher order thinking skills. For example, Schraw and Guitierrez (2012) discussed how to assess four types of higher order thinking skills: reasoning, evaluating evidence and arguments, problem solving and critical thinking, and metacognitive processes. Upon examining these types, one can see

how these skills overlap if they are not inherent components of critical thinking. This multifaceted- nature of critical thinking complicates the process of assessing it (Fullord 2018). Ensuring the validity and the reliability of any critical thinking measuring tool requires identifying the learning outcomes to be measured and making sure that those "measured outcomes represent the construct of CT" (Abrami et al., 2008, p.1104). Research on the assessment of critical thinking, in particular, has actually been enriched by the work of Ennis (1993, 2001). In his paper: Critical Thinking Assessment (1993), Ennis fully explained the elements of a successful assessment process of critical thinking along with highlighting challenges and traps that might face practitioners (for a full description of these traps, refer to p. 181). So, a successful and valid critical thinking assessment process requires clear and explicit articulation of the purpose and the procedure of CT assessment (Ennis 2001). According to Ennis, teachers have different purposes for CT assessment, so assessment methods should be designed in a way that is aligned with the purpose. Ennis (1993) identified seven purposes for any assessment process; it is diagnostic, corrective, motivational, informative, experimental of an instructional method, or of a high-stake nature. Not only do teachers need to know the purpose of the assessment, but also the students need to understand what is expected them to do, so they can meet the requirements of the task (Bensley and Murtagh 2012). Cargas et al. (2017) explained that college students are usually meticulous about their grades, so they need to know what and how they are going to be assessed.

In accordance with Ennis, Schraw and Guitierrez (2012) perceive the effectiveness of any assessment method as strongly linked with the inclusion of the following four outcomes: the current abilities, knowledge, use, and attitudes or dispositions of the targeted skills. Similarly, Brookhart (2010) highlighted that any assessment process should generally consider the

following: clearly specifying the purpose of the assessment, designing practical tasks that are relevant to the purpose, and deciding on a plan for interpretation of the results. However, for higher-order thinking skills, Brookhart had additional three principles: (1) presenting 'novice' and (2) provocative material for oral discussion or written argumentation, and (3) levelling the degree of difficulty. Many scholars in the area of assessing thinking skills recommend the use of blueprints for instruction and assessment phases and emphasize that the blueprints of both phases are aligned to each other (Schraw and Guitierrez 2012). A blueprint contains the content and skills that students need to demonstrate within each task (Brookhart 2010). Putting these elements in a plan helps the instructor to get a holistic view of the purpose of the assessment and whether there is a balance between content knowledge and skills. Singuni (2016) stressed that a blueprint of a thinking skill- test should also include the total marks allocated for each question to strike balance between easy questions and those that are challenging for students. Singuni finally outlined that blueprints could be used for formative and summative assessment of thinking skills.

As perceptions of effective critical thinking teaching methods were varied, so were they for critical thinking assessment methods. The disparity in perceptions is even wider in the area of assessment due to the high number of standardized tests for measuring critical thinking skills. Scholars disagree about whether or not such ready-made tests are valid to be used for any context, and it seems difficult to reach a common-ground vision (Carter et al. 2017).

A detailed overview by Ennis (1993) discussed the effectiveness of three main standardized tests: standardized/published tests using (MCQs), published tests using essay-writing examination, and performance-based tests. For Ennis, while MCQs standardized tests save time and effort, yet it is invalid to restrict students' critical thinking into one correct choice.

According to Ennis, it limited students' creativity while thinking critically, as the answer for a test item is restricted to one of four options. Therefore Ennis (2001) concluded with a recommendation for teachers to use standardized essay-writing examination or design their own tests yet keeping in mind the elements of successful assessment. Abrami's et al. (2008) meta-analysis on critical thinking assessment tools discussed the effectiveness of using tests that are developed by a researcher who is simultaneously an instructor. Abrami et al. (2008) argued that these types of tests are more effective and valid to be used since the instructor has a theoretical background on critical thinking and simultaneously s/he is a practitioner. One famous example of these tests, according to the meta-analysis, is Ennis-Weir critical thinking Essay Test. In the Ennis-Weir Critical Thinking Skills Test, students need to evaluate the thoughts presented in an argumentative essay and then defend their evaluations with strong evidence (Ennis 2001). Similar in structure to the Ennis-Weir Critical Thinking Skills Test is the Cornell Critical Thinking Essay. It evaluates one's ability to analyze arguments and validate them. Although requiring students to write essays seems to be more valid, as students are not guessing the answers for sure, yet it is time and effort consuming for teachers, especially if they have to mark a huge number of papers.

The use of standardized critical thinking tests is especially common in experimental studies on critical thinking teaching and assessment. Examples of these tests include the Cornell Critical Thinking Test designed by the Illinois Critical Thinking Project, Watson and Glaser Critical Thinking Appraisal, and the Critical Thinking Assessment Test (CAT). Those instruments usually measure generic skills of critical thinking and their design is of different difficulty levels. The California Critical Thinking Test is, for example, suitable for advanced

college students (Facione 1991). The Cornell Critical Thinking Test has levels to suit students from grade 4- 14 (Ennis 1993).

Cargas et al. (2017) used CAT for measuring 62 college students' abilities in problem-solving. CAT is used to assess analytical thinking across three main areas: reading, language, art, and science (Brown et al 2014). Cargas et al. (2017) also indicated that CAT has a performance-based design, and therefore, it is valid to use it when students' problem-solving skills are being assessed.

Watson- Glaser Critical Thinking Appraisal has been designed by Watson and Glaser (1980) after extensive research in the area of critical thinking assessment. The first draft of the test was based on measuring students' abilities in five areas; make inferences, recognize assumptions, deduct and induct, and evaluate arguments. A recent modification was then introduced, the RED Model for assessing critical thinking skills. The five skills were condensed and embedded under the umbrella of three main categories: recognizing assumptions, evaluating arguments, and drawing conclusions. Zulmaulida et al. (2018) found the RED Model useful to assess Indonesian students' critical thinking skills; especially that it can be used with participants of grade 8 and above.

To assess 452 first-year students' critical thinking skills at one university in Chile, Preiss et al. (2013) used the Argument Analysis Test (AAT) and the Inference Analysis Test (IAT). The former is usually utilized to assess argumentative skills, while the latter is used to assess students' ability to hypothesize and analyze information.

While these published instruments seem to be widely-used, some scholars such as Bensley and Murtagh (2012) and Huber and Kuncel (2016) criticise using them. They further argued that in order to use such tests, teachers need to structure critical thinking tasks in a specific

way, compatible with the structure and the rubrics of the instrument. An additional concern with the heavy dependence on standardized tests is, as reported by Leach (2011), that college instructors' attention is directed towards preparing students to pass these tests using memorization and drilling, instead of focusing on fostering students' critical thinking skills (p. 30). Moreover, in many cases, the culture of the standardized tests, as it is mainly designed by western scholars, is not valid to be applicable in contexts of different cultures. For example, Chen (2017) reported that the use of standardized tests is found to be disadvantageous for African Americans. Upon using the American Cornell Critical Thinking to assess Arabic students' skills in the UAE, McLellan (2009) recommended that ready-made tests such as the American Cornell Critical Thinking can only be appropriately used in the UAE if certain modifications have been done to it. For example, the vocabulary of the test should be modified.

Additionally, most of the tests above are tests that are heavily dependent on multiple-choice questions (MCQs). Though the use of MCQs saves time in the phase of grading; however, the method of "bubbling in the right answer" should be revised when it comes to critical thinking assessment (Murray 2016). It should be also validated by a group of experts. Therefore, one solution could be suggested to validate the use of MCQs when measuring critical thinking is to require students to add a short justification next to each question.

A different method for critical thinking assessment is the use of performance-based tasks (Cargas et al. 2017 and Murray 2016). This method has started to gain popularity especially in the science and medical education field. Despite the fact that this type of assessment has 'face validity', as they engage students in real-life tasks, yet, as Murray (2016) indicated, designing the appropriate performance-based task for measuring college students' critical

thinking skills could be a daunting task for a college instructor. Yusri (2018) tried the use of problem-solving tasks to measure students' critical thinking skills in report writing. Measurement of skills in such tasks is evaluated against students' ability to identify the problem, investigate possible solutions, weigh the strengths and weaknesses of each solution, make a decision based on evidence, and finally suggest possible limitations or challenges that might arise during the implementation stage.

As a scoring system, the use of rubrics has become common among college instructors of different subjects for marking essay-examination tests and performance-based tasks. The word 'rubrics', according to Webster's Unabridged Dictionary (1913), is an old word that is related to "redness" (Stevens and Levi, 2005, p.3). Rubrics show the components that are expected to be displayed by students. Within each component or category, a description of the level of performance is provided (Bean 2011). Rubrics fall into two main types: analytical and holistic rubrics (Becker, 2011). Holistic rubrics focus on the product as a whole, while analytical rubrics give weight for each component or skill involved in the assessment process. Holistic rubrics could be used for scoring students' essay-examination on a critical thinking test; however, for a performance-based test, analytical rubrics are required. Whether holistic or analytical, rubrics should be explained for the students at the beginning of any assessment process (Brown et al 2014). To ensure the validity and reliability of the rubrics, instructors need to check two main things. First, rubrics are descriptive and relevant to the targeted skills (Brookhart 2010). Second, components are qualitatively described and are not counted in numbers.

Most of the aforementioned methods fall into the category of summative assessment methods. They evaluate students' performance against certain standards before and after an intervention or an explicit instruction on critical thinking (Broadbent et al. 2017). Although summative assessment methods are useful for comparison purposes, instructors should not solely depend on summative assessment methods, as recommended by Ennis (1993). Ennis cautions against falling into the trap of expecting gains in critical thinking to take place within a short period; one-full semester period sometimes is not enough. Therefore, many scholars suggest the use of formative assessment methods to trace gains in students' critical thinking skills (Siles and Solano 2016). Manitos (2010) also indicated that since critical thinking is a cognitive activity, the process of assessing it should be continuous throughout the semester. Being influenced by the constructivist paradigm, Manitos further talked about a "zone of intervention in critical thinking", as an elaboration of Vygotsky's zone of proximal development (p.1). It is an intervention that is necessary to help students achieve progress in critical thinking. Therefore, the use of formative assessment tools would help teachers to determine the zone of intervention in critical thinking as outlined by Manitos.

Formative assessment according to Brookhart and Mose (2009) is "an active and intentional learning process that partners the teacher and the students to continuously and systematically gather evidence of learning with the express goal of improving student achievement" (p. 6). Assessing students' critical thinking using formative methods could have different forms and tools. Siles and Solano (2016) listed the following as tools for formative assessment of critical thinking skills: classroom observations, interviews, journals, students' demonstrations, and student's self-assessment. Classroom observation is usually viewed as one of the most effective yet oldest formative assessment methods (Angelo 1995). While observing,

instructors could gather information on how well or poor students' performance is using a checklist. Observation checklists could be of different forms, yet Manitos (2010) and Brookhart and Mose (2009) insisted on keeping a space for writing down notes about the quality and quantity of intervention. They can also use this space to provide feedback that should be given after each observation. Below is a suggested observation checklist by Manitos (2010) to be used for assessing students' critical thinking skills (Figure 2.4)

Observations—A note taking form

Name:_____ Date:_____

✔	Elements of Critical Thinking	Notes: observations, quotes, evidence
	Questioning	
	Evaluating & Choosing	
	Making Connections	
	Listening & Responding	
	Reasoning & Reflecting	
	Organizing	
	Drawing Conclusions	

Figure 2.4: Manitos's (2010) Observation Checklist (p.2)

When using formative assessment methods, providing informative feedback plays an influential role in assisting students to recognize the strengths and weaknesses of their performance. Brookhart (2010) pointed out that for teacher feedback to be effective, teachers should restrict their discussion or their written notes on aspects that are relevant to the targeted skills. The focus is on the quality of the given feedback more than on its quantity. More important, the content of effective feedback should not only highlight areas for improvement but also suggest tips for better performance.

In a recent study by Milanesio (2017), it has been found that a positive correlation does exist between formative assessment of students' critical thinking skills and the Next Generation Science Standards (NGSS) Practices Teacher Frequency Survey (p. 4). To study the impact of NGSS instruction on students' critical thinking skills, Milanesio pointed out that the NGSS does not have a summative test to use to assess students' critical thinking skills. However, by using several formative assessment methods including teacher observations, reflective journals, and self-assessment, teachers were able to record growth in students' critical thinking.

The use of self-assessment has been recently perceived as a formative assessment method to assess improvements in students' critical thinking skills. Advantages of self-assessment, according to Siles and Solano (2016), include increasing teacher and students' awareness of what is being taught and learned through reflection. Self-assessment also urges students to deduct meaning from their learning experience. Self-assessment in studies of critical thinking is applied by asking students to reflect on their critical thinking experience. Shim and Walczack (2012), for example, used student-self reports to allow students to reflect on their personal experience and engagement with critical thinking tasks. The authors argued that these reports suggested practical implications for instructors. Similarly, using open-ended journals and self-reflection journals was found to be positive in Fulford (2018) and Cacchiotti (2011) especially in measuring reflection skills. In the latter study, when open-ended journals were used, students participating in the study displayed in-depth reflection skills and fully-explained with evidence how the intervention was useful regardless of the scores they got.

Although the use of self-reports seems to be insightful for practitioners, a major criticism for such a tool is that it is subjective and could be influenced by personal experiences (Preiss et

al. 2013). More importantly, not all students can deeply and fairly reflect on their performance, especially in writing (Siles and Solano 2016). Siles and Solano also indicated that since self-assessment is a new concept, and students are not used to it, any implementation of it should be gradual and take into consideration students' culture and motivation, especially in cases where students are not used to openly expose their beliefs and opinions.

Finally, the area of assessing critical thinking is not only a new concept for students, but also for instructors who are required to assess students' critical thinking. However, most of the instructors are sometimes left untrained on how to effectively assess their students' critical thinking skills (Allamnakhrah 2013). In general, the number of studies on college instructors' perceptions of effective methods for assessing students' critical thinking skills is limited, and in the first place, there is a need for further research on examining if instructors are aware of the importance of assessing their students' critical thinking. The need for such research is more pressing in the context of the Middle East area. Eastern instructors are required to teach and assess critical thinking, which is viewed as a western product, yet how much these instructors know about this concept is still underresearched. Furthermore, how eastern instructors perceive the importance of assessing critical thinking is another area of interest. A study by Allamnakhrah (2013) that is conducted at two well-known universities in Saudi Arabia, King Abdul Aziz University, and the Arab Open University, raised this concern in relation to critical thinking assessment. The study reiterated on the need for an assessment policy because assessing students' development of critical thinking shows how successful a critical thinking intervention is. Despite the increased interest in teaching critical thinking in the Middle East, Allamnakhrah's (2013) study is one of the fewest studies that focused on the

area of assessment in Asia and the Middle East. Another one was done by McLellan (2009) at one university in the UAE and focused on the use of the Cornell Conditional-Reasoning Test to measure Arab students' critical thinking skills. The study also suggested the urgent need for exploring other assessment methods, as this test needs to be modified before being used to assess Arab students' critical thinking basis skills.

To conclude, findings of the previous studies highlighted the importance of designing new policies for assessment and called for much more research on examining college instructors' perceptions of the importance of assessing students' critical thinking across different disciplines. The emphasis on investigating college instructors' perceptions of teaching and assessing critical thinking is attributed to the argument that perceptions influence practices in the educational context. Therefore, the following section reviews studies on college instructors' perceptions and practices of critical thinking in higher education and highlights the significant relationship between perceptions and practices.

2.3.5 Critical Thinking and College Instructors' Perceptions in Higher Education

Reviewing the literature on critical thinking and college' perceptions in higher education reveals that attention towards focusing on this area began late in comparison to the areas of defining, teaching, and measuring critical thinking. Moreover, college instructors' perceptions are mostly examined in light of trying a certain intervention or instructional method on critical thinking not necessarily as the main focus of the study (Werff 2016). In theory, the process of perception involves "organizing, identifying, and interpreting sensory information in order to understand or represent the environment" (Yang, 2017, p. 7). Factors influencing an individual's perceptions are a variety of physical, cognitive, and contextual

ones (Loes et al 2015). In educational contexts, Chen (2017) pointed out to the important roles of discipline, context, and educational background in shaping teachers' perceptions. Interest in studying teachers' perceptions has gained attention recently because teachers' perceptions found to influence their practices in class, and to a great extent, they have a significant influence on learners' perceptions (Loes et al. 2015, Yang 2017, Lewis 2001, and Choy and Cheah 2009). Dennett (2014) found that instructors' perceptions play a role in increasing students' engagement and learning and reducing student-teacher frustration upon examining results.

Starting with research on college instructors' perceptions of how they define critical thinking, findings were varied. College instructors viewed critical thinking as an alive concept in Chen (2017), valuable in Hachlaf (2018), and an important concept to be taught for students in Aoki (2018). 17 academics from different disciplines in Moore's (2013) study offered different seven definitions for critical thinking mainly as judgment, scepticism, rationality, evaluation, engagement with knowledge, critical reading, and reflection. Moore also indicated how definitions were influenced by discipline and how much training the instructors received on critical thinking. At the other extreme, some studies found the opposite. Shaito (2019) reported that college instructors had blur and vague perceptions of critical thinking. College instructors in Choy and Cheah's study (2009) defined critical thinking as "intellectual stimuli", yet they failed to support their definitions with examples (p.200). Similarly, in a more recent study by Węgrzecka-Kowalewski (2018), it was found that most of the language instructors at the intensive language programs at an entry college level were unable to provide a clear definition of how they perceive the concept of critical thinking, and so this reflected on their critical thinking practices in class.

Discipline and prior education were found to highly influence college instructors' perceptions. Nicholas (2011) pointed out that in higher education, college instructors mostly adopt a "faceted approach" in which only aspects of critical thinking that are relevant to their courses are being taught (p. ii). Similarly, and in a study by Chen (2017), it has been found that college perceptions and practices were influenced by the context and discipline. Werff (2016) found that college instructors who had a theoretical background and had received professional training on teaching critical thinking were more confident in providing a clear definition of critical thinking and more effective in teaching it than those who had not read extensively about it or hadn't received any professional training on teaching it. Therefore, several calls have been made for further research on examining empirical methods for strengthening teachers' perceptions of critical thinking and outlining what basic knowledge a college instructor should have in order to be able to teach critical thinking (Kadir 2017).

Studies on college instructors' perceptions of best teaching techniques and instructional methods for fostering students' critical thinking revealed that the use of old and passive techniques is still prevalent, including the use of teacher-student questioning and debating (Fulford 2018 and Shaito 2019). Upon investigating the perceptions of ten college instructors teaching at an entry level, Holding-Jordan (2017) reported that most of them view Socratic questioning as an effective method for fostering critical thinking. In another study by Werff (2016) including 83 college instructors, the findings showed that the top five instructional methods are: facilitated-small group discussion, group problem solving, brainstorming, and questioning. The least preferred methods are outdoor activities and interactive videos. The

emphasis on the effectiveness of cooperative learning methods is also shared by LeBouf et al. (2016). Group work activities were perceived by instructors of LeBouf et al. as a tool for enhancing student's confidence and self-efficacy and ultimately enhance students' engagement in critical thinking tasks. Challenges along with the merits of group work activities were highlighted by LeBouf et al. (2016). Part of the college instructors perceived group work activities as a source of distraction and required extra monitoring, especially in cases of group projects where individual contribution to the group work differed. Contradictory views on the effectiveness of group activities and critical thinking just suggest the need for more balance and mentoring when utilizing any method for teaching critical thinking.

In light of the investigated perceptions, an innovation in learning objectives and teaching methods is needed to include more practical and interactive critical thinking teaching methods into the curriculum. Węgrzecka-Kowalewski (2018) found that students of instructors who used traditional methods for teaching critical thinking in language programs scored less than those whose instructors used more interactive techniques. Fulford's (2018) findings upon investigating five instructors' perceptions and practices of critical thinking revealed that Socratic questioning was the most method used in problem-solving activities. The small sample size in Fulford's study; however, limited the findings of the study, as indicated by the researcher. Even though, Fulford (2018) recommended from a constructivist point of view the use of more constructive methods such as fieldtrip and role-play. According to the researcher, such activities illustrate for the students the value of learning and enhancing their critical thinking skills.

In the area of college instructors' perceptions of effective assessment methods for measuring students' critical thinking skills, research is scarce in this area in comparison to the area of instructors' perceptions of defining and teaching critical thinking skills. Studies in the area of critical thinking assessment are mostly of experimental nature, focusing either on testing the validity of a certain measuring tool or assessing students' critical thinking before and after an intervention (Cargas et al. 2017, Murray 2016, Fulford 2018, and Yusri 2018). Studies on instructors' perceptions usually focus on how much knowledge instructors have about critical thinking and how they teach it (Steffen 2011, Wagely 2013, and Barnhill 2010). Werff (2016) is probably one of the fewest studies that examined instructors' perceptions of effective critical thinking assessment methods. Werff investigated the perceptions of 83 college instructors of the effectiveness of ten evaluation methods of critical thinking including: monitoring classroom discussions, feedback on argumentative essays, direct observation, and documentation assessment of team activity, graded oral presentation, commercially available critical thinking tests, student-developed learning contract, concept-mapping assessment, pre-test/post-test, and graded review of book, article, video, etc. The findings revealed that the top three evaluation methods were monitoring classroom discussions, feedback on argumentative essays, direct observation, and documentation assessment of team activity. The least preferred ones are concept-mapping assessment, pre-test/post-test, and graded review of book, article, video, etc. Werff's findings showed a tendency among college instructors towards using formative assessment methods of critical thinking.

Upon looking for studies on college instructors' perceptions of critical thinking assessment in the Middle East, unfortunately it is difficult to find studies conducted in relation to this topic, though investigating college instructors' perceptions could reflect how much

instructors in this geographic area value the importance of assessing their students' critical thinking skills and could highlight what challenges might face college instructors when attempting to assess eastern students' critical thinking skills (Allamnakhrah 2013).

It is not only important to conduct more studies on examining college instructors' perceptions, but also there is a need to investigate students' perceptions of their critical thinking experience in different disciplines. Investigating how similar or different college instructors and students' perceptions of critical thinking are could also yield deeper insight into how each part perceives the importance and use of critical thinking.

2.3.6 Students' Perceptions of Critical Thinking in Higher Education

The recent shift in the pedagogy towards teaching critical thinking using different methods and tools for teaching and assessment is usually accompanied with research investigating students' perceptions of how effective the adopted methods are in developing their critical thinking skills (Tosuncuoglu 2018). Therefore, a careful observation of the studies in the area of students' perception revealed that the focus of these studies is directed towards how positive or negative students' perceptions were regarding their critical thinking experience upon trying a certain intervention (Stephen 2011, Smalls 2016, Taleb and Chawick 2016, and Cargas et al 2017). Findings of these studies in general revealed students' awareness of the importance of developing their critical thinking skills, especially when instructors shared and modelled the concept of critical thinking while teaching it (Llyod and Bahr 2010 and Barnaby 2016). For example, upon investigating college students' perceptions of CT in advanced placement courses, Smalls (2016) got positive responses from students, as they perceived that their critical thinking skills have been improved upon receiving specific instruction

during AP courses. Similarly, while examining students' self-reports of how effective the use of performance-based tasks was in promoting students' critical thinking, Cargas et al. (2017) concluded that college students found the intervention to be especially useful in enhancing their analysis, evaluation, and synthesis skills. Community students taking English classes of Alwine's study (2014) valued their instructors' feedback on their reflective journals and found it useful for improving their critical thinking skills.

As can be noticed, the focus of the aforementioned studies is driven by the need to investigate students' satisfaction with a specific intervention on critical thinking, which is justified by the need to identify effective methods for teaching critical thinking. Contrasting the numbers reveals that the number of studies focusing on how generally students perceive the definition, practices, and assessment methods of critical thinking is fewer (Tosuncuoglu 2018). Studies investigating students' perceptions of critical thinking definition mostly reported that students tend to link critical thinking with analysis and interpretation skills Taleb and Chadwick (2016) also reported positive perceptions of 100 graduate students. The most common perceptions of critical thinking are analysing information and problem-solving. Steffen (2011), for example, investigated the perceptions of 333 students at an entry level of how they define critical thinking and found out that the most common definition of critical thinking is understanding and analysing rather than memorizing the knowledge a student gain. Upon asking them about which critical thinking skills they had mostly developed, students' responses ranked making- decision skills first and problem-solving skills in the second place.

As for students' perceptions of effective critical teaching methods, a preference for more student-centred classes and active learning methods has been mostly reported. In a study

focusing on effective critical thinking instruction methods, students in Cacchiotti's (2011) study perceived Socratic questioning method and open-ended questions as useful methods for promoting their critical thinking. Furthermore, students explained that these class discussions promoted their assertiveness and confidence, as they felt that their opinions were respected and heard. While class discussions were appreciated by learners, researchers find little evidence if solely using these methods could be effective in developing students' critical thinking in the long run and during real practice at future workplaces, for example (Fulford 2018).

Along with positive findings on students' perceptions of their critical thinking experience, several challenges and failures have been identified. To a great extent, possible mismatches between instructors and students' perceptions of best critical thinking practices are found to be the reason behind negative or challenging experiences (Barnaby 2016). When instructors and students do not share the same concepts of critical thinking, then this presents concerns of how different is students and teachers' assessment "of what constitutes good critical thinking against weak critical thinking"(Barnaby, 2016, p. 44). Barnaby alerted against the idea that when instructors themselves have a blurred view of what critical thinking is and how to teach and assess it, this mostly negatively reflected on students' perceptions and practices. Thus, investigating disparity in perceptions between faculty and students has become another interesting area of investigation by many scholars to examine how these possible mismatches might influence students' critical teaching experience. In Steffen (2011), teachers and students' perceptions were similar concerning the importance of critical thinking, yet when it came to whether explicit or implicit the teaching of critical thinking was, students and college instructors' responses were contradictory. In practice, the

researcher reported students' inability to demonstrate critical thinking skills, though, in theory, students were able to articulate a clear definition of critical thinking. This accordingly implies the need for bridging the gap between instructors and students' perceptions about the need for more explicit critical thinking instruction, as recommended by the researcher in the conclusion of the study.

In international studies where students of different cultures are participants, it has found that differences in the culture and the educational background of the instructors and students added to the existing contradictions in responses and perceptions of critical thinking. In one study investigating college instructors and students' perceptions of what challenges faced Chinese students during their critical thinking experience at one college at USA, Chen (2017) reported students' feelings of insecurity and their doubt whether their opinions are valued by their instructors or not as major challenges rose by students. On the other hand, instructors reported challenges that were related to improving writing, creativity, and problem-solving skills. Even when it comes to students' perceptions of critical thinking, Chinese students tended to contextualize critical thinking, while their USA instructors view critical thinking as a universal skill. These mismatches problematized the teaching and learning experience of critical thinking, as described by the researcher. Vierra (2014) also indicated that students of different cultures seem to have different and "specific conceptualization of critical thinking" (p.3). Therefore, both studies concluded with recommendations for serious consideration of the existing variations in critical thinking perceptions and practices between instructors and students as a major contribution to the success of the process of teaching critical thinking.

Looking into studies on students' perceptions in the Middle East areas revealed that students of this area valued explicit instruction on critical thinking and appreciated it more than their local instructors (Allamnakhrah 2013). Allamnakhrah's study (2013) also concluded that before the intervention both students and lecturers had a limited knowledge of critical thinking. However, after the intervention, the instructors reported that although the intervention was beneficial in deepening their understandings of how to effectively teach critical thinking, it was demanding in terms of lesson planning, material designing, and class management. Students, on the other hand, found in the intervention a tremendous shift in teaching practices and a valuable change in their ways of thinking critically. Allamnakhrah (2013) justified students' appreciation for change and their increased awareness of the importance of explicit instruction on critical thinking to the idea that developments in technology have made the younger generation in Saudi Arabia open for questioning old assumptions and considering new ones. Similar findings and conclusions were echoed by Chouari's (2016) study with the only difference that this study had been conducted in Morocco. Before explicit instruction on critical thinking, college students in Chouari's study considered critical thinking as a new concept, yet after the instruction, students were satisfied with learning more theories about critical thinking. Yet, as Chouari (2016) outlined, differences in perceptions of effective teaching practices between instructors and students affected the overall effectiveness of the intervention. While instructors perceived lecturing on critical thinking as an effective method for teaching critical thinking, students saw in this a main drawback of the whole experience because it heavily depended on theories and lacked practicality. Students felt the need to see examples of how critical thinking could be useful in real life. Students' reference to the lack of ‘real-life situation’ can be seen as evidence for

how Arab students started to perceive the value of critical thinking and seek to enhance their skills. It raises at the same time concerns about how effective such interventions are if instructors do not agree with their students' interests for more practical teaching practices. In another investigation of Saudi postgraduate students' perceptions after they had been instructed on critical thinking at one college in the USA, similarly Alsalem (2015) reported students' wondering why such practical instruction on critical thinking did not exist in Saudi undergraduate programs. Different expectations, perceptions, and viewpoints in light of these findings should be then in the scope of those who are looking for successful experiences in teaching critical thinking.

In the UAE context, studies focusing on college students' perceptions of their critical thinking experience are limited in number. A study by Taleb and Chadwick (2016) attempted to focus on graduate students' perceptions after a certain intervention on critical thinking, and the findings revealed that students found such an intervention is mostly useful to improve their problem-solving skills. As the study was conducted at one research site, the authors suggested in their final recommendations the need for further investigation on students' perceptions in general and in the area of critical thinking assessment in particular to include a larger and more diverse sample of college students across the UAE. Therefore, this study has come to fill in the void in literature in relation to students' perspectives in the area of critical thinking assessment. Without focusing on students' perceptions in the areas of critical thinking teaching and assessment, educators will not be able to confirm if the theoretical interest in critical thinking integration into the higher education curriculum has translated into practical steps. In case the answer is positive, then as Chouari's (2016) study suggests, the second question to be raised is: how effective is a CT integration in enhancing students' critical

thinking skills from instructors and students' perceptions? Besides, are college students prepared to practice and display their critical thinking in oral communication or writing?

2.3.7 Critical Thinking and English Writing Courses in Higher Education

If attention has been paid to enhance students' critical thinking skills in undergraduate programs, then more of that is needed towards developing these skills in English composition writing and rhetoric courses (Dong and Yue 2015). The main reason is that most of the students' assignments at college levels are of written nature (Tosuncuoglu 2018). Students mostly need to be skilful in demonstrating their critical thinking skills in writing, and so writing courses become "a productive space" for improving students' critical thinking (Chen 2017). College students who are reluctant to express their thoughts and arguments orally can still find in writing a space for displaying their abilities (Kadir 2016). Wilson-Mulnix and Mulnix (2010) explained that even in a course on critical thinking and logic, writing activities that can reflect the developmental stages of students' critical thinking skills are required, emphasizing on the strong relationship between critical thinking and writing skills. Displaying critical thinking skills in writing; however, is not an easy task for students (Mehta and Al-Mahrooqi, 2014). Writing in itself is a complex cognitive process, so for a student to write critically, several cognitive skills should be employed in the process, including metacognitive monitoring and control (Murray 2016). Critical writing involves the use of two cognitive processes: critical thinking and critical reading. Critical thinking and critical reading are inherent parts of critical writing. Students who read critically should be able to display critical thinking skills i.e., analyse, evaluate, identify bias any piece of reading (Freimuth 2014).

Ataç (2015) distinguishes descriptive writing from critical writing. he former is a mere presentation of a topic or an idea, while the latter is "person's own academic voice within his or her subject" (p.622). Reflection, research, note-taking are basic components of critical writing as explained by Ataç (2015). The number of valid and well-supported arguments that exist in students' writing can serve as a distinction of critical over descriptive writing as well (McLaughlin and Moore 2013). Acknowledgment of any opposing views and avoiding fallacies are additional indicators of critical writing (Stapleton 2001). Similarly, Chen (2017) referred to the existence of logical thinking supported by evidence as a basic quality of critical writing. Cottrell (2005) identified eleven characteristics of critical writing. In addition to the common characteristics such as reasoned content, clarity, and analysis, Cottrell (2005) focused on elements related to formatting, organization, and conventions as important, including for example the elements of sense of audience, best order, grouping similar ideas, signposting, and background and history.

For college students to be able to demonstrate the skills outlined above, they need support and specific instruction on critical thinking in writing courses, which is not always the case (Nejmaoui 2019). In an examination of current practices of writing college instructors, Nejmaoui (2019) and Dong and Yue (2015) noticed that in many cases, writing college instructors focus on improving college students' deficiencies in grammar and mechanics at the expense of promoting students' analytical skills. Moreover, not all college English writing instructors are found to share the perception that critical thinking should be explicitly taught in their writing courses. A recent study by Petek and Bedir (2018) on investigating the perceptions of the importance of critical thinking in English writing courses, only a few pre-service English teachers expressed at the beginning of the study that critical thinking should

be merged into the teaching of writing. Yet, after a 14-week intervention including activities on critical thinking and reflective writing, a moderate improvement had been recorded in teachers' perceptions. In light of these findings, the researchers recommended the need for further research on finding ways to raise instructors' awareness of the importance of merging critical thinking elements into the teaching of English writing.

While focus on language proficiency is needed, the devotion of certain classes on explicit teaching critical thinking skills is argued to be equally important (Yusri 2018). It has been debated by some scholars that specific instruction on critical thinking does not only improve students' critical thinking skills, but it also improves students' writing proficiency as a whole. Dong and Yue (2015) found in an empirical study that involved an analysis of 30 written documents of English college students at one university in China that the two variables of critical thinking and student writing proficiency are positively correlated, and so the researchers called on "the validity of introducing the evaluation of students' critical thinking skills (CTS) into the assessment system of college English writing" (p. 176). Nejmaoui (2019) also reached a similar conclusion after conducting an experimental critical thinking intervention on 36 EFL college students, as the findings of the study revealed that EFL college students' critical writing of the experimental group outperformed the control group in the post-test. In another case study conducted on Community College Students in English Courses, Chen (2017) concluded that explicit instruction on critical thinking was found effective and essential to prepare students for college-level writing. Not only for preparation purposes, Bensley et al. (2010) further argued that the quality of arguments in students' writing had improved after an overt instruction on critical thinking. What commonly was found effective by the aforementioned studies in maximizing the benefits from the critical

intervention is college instructors' constructive feedback on students' written assignments. Critical writing as any type of writing requires guidance and correction, and college instructors' feedback becomes the means to provide the needed guidance (McKinley 2013 and Cargas et al 2017). The influencing role of instructors' feedback was even more evident in the case of struggling writers as emphasized by Alwine (2014). Alwine further argued that establishing an encouraging atmosphere where constructive teacher feedback is regularly provided can push struggling writers beyond their "comfort zones" and let them more confident to display their skills (p. 132).

Writing activities requiring students to think critically at the college level are of different designs and forms. The most common activities are opinion essays, argumentative essays, article reviews, and reflective journals (Mehta and Al-Mahrooqi, 2014). Argumentative writing at the college level and critical thinking mostly seem to be positively correlated with the development of students' critical thinking skills (Nejmaoui 2019). As students are involved in argumentative essay writing, several critical thinking skills are being practiced such as reasoning, analysing, looking for strong evidence, and evaluating arguments. Murray (2016) highlighted the importance of using reflection journals to foster college students' critical thinking skills in writing. The influential role of reflective practices in promoting students' critical thinking skills has been also tested in Deveci and Ayish (2017) and Petek and Bedir (2018). Both studies recommended the use of reflective journals as they can reflect students' ability to evaluate and reflect on certain incidents, a piece of information, or even on current events within the local setting.

Mulnix and Wilson-Mulnix (2010) recommended the use of writing portfolios to trace gains in students' critical thinking. The study was based on requiring college students to produce

nine written assignments. The nine assignments are levelled from simple to advanced, reflecting the levels of thinking: starting from explanation essays, summary essays, opinion essays, counter argument essays, justification and evaluation essay, synthesis essays, peer-review, and final argumentative essay. Points were allocated for each assignment, yet there were ones that were more critical in the process of assessment than others, and so more points were allocated on them. Writing portfolios were found useful for reinforcing critical thinking skills, as students after each submission, they received feedback from their instructors, and then they were required to rewrite their assignments in light of their teacher feedback.

In a different study by Kumar and Refaei (2017), the researchers tried a problem-based intervention on second year-composition students. A modification to the rubrics of the Miniature Guide to Critical Thinking Concepts and Tools by Paul and Elder (2006) has been used to score students' papers. Upon analysing 60written products at a pre- and post-critical thinking test, it was found that students' performance has significantly improved after the problem-based learning intervention. The researchers attributed students' improvement to the fact that problem-based tasks required students to pay attention to the purpose, the audience's needs, and suggest suitable solutions, accordingly.

Successful implementation of these activities was found to be conditioned with several factors. Clarity of instructions and the supplementary of supportive guidelines and linguistic formulas are among the crucial factors to support students in their efforts to display critical thinking skills (Shim and Walczack 2012). Clear articulation of expectations, modelling, and framing were found key elements for the growth of students’ critical thinking skills, as lately revealed by Hicks et al (2019). Students' cognitive and metacognitive skills including their abilities to focus and pay attention to details, to question experts' claims, and to display

affective reasoning make a difference in students' abilities to develop their critical thinking skills (Cottrell 2005). A third factor is familiarity of the topic. Unfamiliar topics might hinder students from displaying their critical thinking skills in writing (Liu and Stapleton 2018). The influence of this factor has been found more evident in international studies where differences in cultural norms, interests, and knowledge do exist between instructors and students. In such international studies, additional concerns have been raised in the process of teaching critical thinking in a second language writing course. In ESL contexts, Liu and Stapleton (2018) noticed that ESL students' inability to express their thoughts freely in writing is seen to be problematic and challenging for their western teachers. Many studies including (Liu and Stapleton 2018, McKinley 2013) have observed that some western teachers hold a common hasty generalization that students of eastern cultures (mainly Asians) are incapable of thinking critically. Whether culture is solely behind this or not has been discussed earlier in this literature review, yet the fact that many ESL western teachers are probably not aware of is that, in ESL contexts, thinking in a second language is a double challenge for learners and requires additional cognitive attention and effort from them (Floyd 2011). Upon using the Watson Glaser Critical Thinking Appraisal in both English and Chinese to assess Chinese students' critical thinking skills, Floyd (2011) found that students' performance in the Chinese version is much better than in the English one. Floyd explained that students thinking in a second language took more time to read and understand the ideas of a text. ESL students' knowledge of the second language vocabulary also plays an important role in analysing the text and underlining hidden assumptions; therefore, Floyd (2011) suggested that teachers should consider levelling any critical thinking practice in a second language to suit students' English language level. Besides, to assist ESL students express their critical thoughts in

writing, attention to linguistic formulas is especially important. McKinley (2013) suggested that due to linguistic barriers, students need to be provided with certain linguistic formulas and expressions to support their attempts to write critically.

As one of the ESL contexts, an informative study in the UAE by Sperrazze and Raddawi (2016) tried to improve students' critical thinking in writing by designing writing activities grounded on ‘conscientization’; a practice involves self-reflecting and reasoning of current social and cultural events, traditions, and issues. The study that involved the participation of 49 students taking an academic writing course at one private college revealed that asking students to practice their critical thinking while reflecting on local issues and experiences had increased students' engagement in the process of critical writing. In doing so, Sperrazze and Raddawi also recommended the use of Loewen's (1995) five questions technique to guide students while trying to think critically. The five questions technique encouraged students to question the purpose of the account, viewpoints presented in the account, the validity of the account, how well-supported the account is, and one's feelings towards the account content. Finally, in their conclusion, Sperrazze and Raddawi referred to the fact that avoiding fixed views of nations' abilities or inabilities to think critically will help ESL students to build up confidence in their ability to improve their critical thinking (Sperrazze and Raddawi 2016).

When it comes to assessment, studies on effective methods for assessing critical thinking in writing courses are usually experimental, as it is the case with critical thinking teaching. Students' critical thinking skills in writing are usually measured before and after a certain intervention. However, the measuring methods and tools differ from one study to another. For example, Nejmaoui (2019) assessed the critical thinking skills of undergraduate writing students by examining their argumentative essays before and after a critical thinking

intervention. Students' argumentative essays were analysed using the Illinois Critical thinking Essay Scoring Rubrics and concluded that although students' critical thinking skills have been moderately improved, the level of improvement is still below expectations. Alwine (2015) and Ataç (2015) also experimented the use of certain intervention on improving students' critical thinking skills in writing, yet Alwine (2015) used reflective journals for assessment purposes, while Ataç (2015) used the Critical Writing Assessment Rubrics to assess 49 students' opinion essays. The study of Dong and Yue (2015) used Wen Qiufang Theory Model to assess Chinese students' essays. What is common among the four studies is that findings, in general, were positive and students' scores on post-critical thinking tests were higher than those of the pre-test.

Apart from this, there is scarcity in studies examining college writing instructors' perceptions of best assessment methods. In addition, studies examining assessment practices used by instructors to assess students' critical thinking skills in normal cases and without using a specific kind of intervention are also limited. Thus, within this emphasis on teaching critical thinking, the need for research examining college instructors' perceptions of effective assessment methods in writing courses becomes essential. Moreover, examining the impact of demographic factors, if any, on students' ability to write critically is also limited, though demographic factors especially gender might influence students' abilities to explicitly express and analyze their arguments in critical writing. Most of the studies, as will be discussed in the following section, have examined the possible relation between critical writing and demographic factors in general; a few have been conducted in relation to English writing courses.

2.3.8 Critical Thinking and Demographic Factors

Students' ability to develop critical thinking as a cognitive ability and a higher-order thinking skill is usually assumed to be influenced by their demographic factors (Aoki 2018). In light of this, many studies have been conducted to investigate the impact of demographic factors on the development of students' critical thinking skills (Chen 2017, Yoder 2018, Hachlaf 2018, Dennett 2014, Kettler 2013, and Leach 2011). The commonly studied demographic factors in relation to students' critical thinking skills are age, gender, ethnicity, quality and length of educational background and academic achievement. Upon investigating the relationship between the above- mentioned factors and critical thinking, conflicting findings have been found. Vierra (2014) explained that conflicting findings in regard to critical thinking and demographic factors could be attributed to the contextual and cultural factors within which the study is conducted. Therefore, it is difficult to make generalizations when it comes to studying the relationship between demographics and critical thinking. Conflicting findings could also be attributed to the sample size of the study. Studies of a small sample size might not reveal significant relationships between demographic variables and critical thinking (Roberts 2018). Despite this, still many scholars emphasize the fact that when it comes to investigating perceptions of either instructors or college students, it is interesting to see whether demographics influence perceptions or not and how (Smalls 2016). Also, studying demographic factors gives educators useful information on how these variables might improve or hinder students' critical thinking performance (Roberts 2018).

Critical thinking is assumed to be more apparent at an older age due to the multiple experiences an individual encounters throughout his/ her personal and professional life (Morlino 2012). Yet when Morlino (2012) studied the relationship between critical thinking

and three demographic factors: age, students' GPA, and students' record in undergraduate mathematics courses, findings revealed that a significant correlation did only exist between critical thinking and student's GPA. More recent studies also found that age and country usually have no significant role in predicting high scores on critical thinking (Hachlaf 2018 and Yoder 2018). Similar to Morlino (2012), academic achievement, the length and quality of prior education, and cognitive abilities seem to be positive predictors of improving critical thinking skills (Hachlaf 2018, Yoder 2018, Kettler 2013, Dennette 2014, and Leach 2011). Ghazivakili et al. (2014) investigated if any significant correlation does exist between the development of critical thinking skills of medical sciences students and their academic performance. The study concluded with the record of a positive relationship did exist between students' learning styles, critical thinking skills, and academic performance. In accordance, Roberts et al. (2017) critical thinking of first-year students was found to be lower than that of senior students. The large sample size of the study (n=2551) allowed the researchers to conclude that length and quality of education can play an influential role in the development of critical thinking.

Research on the role of gender has similarly revealed conflicting findings. Some studies recorded that gender has an insignificant relationship with critical thinking (Aoki 2018 and Dennette 2014). Other studies, such as Deveci and Ayish's (2017) study, found that females' critical thinking scores and perceptions were higher in comparison to males' scores. The authors attributed female students' outperformance to their strong determination to prove themselves in a male-oriented major, which is engineering. Females' perceptions of critical thinking were also deeper than those of males in Chen (2017) and Roberts (2018) where the latter study included around 400 students. In contradiction, other studies such as studies by

Smalls (2016) and Chen (2017), males' perceptions of critical thinking were deeper than females' ones, and they scored higher. Males in Leach (2011) also performed better in induction, evaluation, and making inferences skills. Leach further noticed that female students are capable of thinking critically, yet in a less direct way. Differences in the capability of each gender to develop critical thinking are attributed, according to Halpern (2013, 2014), to physiological differences, poverty, formal education, job positions, and the income. These factors usually influence the findings of any study examining gender differences and critical thinking.

Ethnicity and race and their role in the development of critical thinking have been also extensively studied especially in studies that include students of different cultures, ethnic groups, and races. Most of these studies were usually conducted in the USA and Europe, as western universities are usually viewed as the hub of academic attainment for students from different parts of the world (Chen 2017). Findings of studies examining ethnicity, race, and nationality and their possible influence on the development of critical thinking skills have been also varied. Shim and Walczak (2012) reported that ethnicity has an insignificant correlation with college students' self-perception of critical thinking. Small (2016) and Chen (2017) revealed different results. Asians scored the highest followed by Latinos. Lonnecker (2018) revealed that minority students, a mixture of African American, Latino/Hispanic, Caucasian, and Asian, at an entry college level in California in the USA found their experience of a specific intervention on critical thinking challenging, yet very useful to improve their critical thinking skills. While part of researchers such Vierra (2014) found culture to be an important variable when it comes to participants' perceptions of critical thinking, others such as Roberts (2018) alerted against the idea that it is not only culture that

plays role in such international studies, but also it could be the quality of students' educational background. Black Americans, according to Roberts' study scored less because the quality of their high study especially those who came from suburbs is lower than others. As a conclusion, Roberts (2018) called for increasing "racial awareness" among scholars and educators (p.69). A conclusion of reviewing these studies is that while demographic factors could be influential in the process of developing critical thinking, yet the extent of that influence is constrained by contextual factors and sample size.

In comparison to the number of studies examining the relationship between demographic factors and students' perceptions and practices of critical thinking, there is scarcity in research on the relationship between demographic factors and college instructors' perceptions of defining and assessing critical thinking. Smith (2015) studied the relationship between demographic variables and college instructors' (n=209) intent to teach critical thinking. The study revealed that none of the demographic variables including age, gender, ethnicity, educational background, and teaching experience has a significant influence on college instructors' intent to teach critical thinking. In another study by Fulford (2018), the instructors’ teaching experience was a significant factor in instructors’ ability to provide a clear definition of critical thinking. In a different context, Yoder (2018) indicated that instructors who are open to other cultures and believe in globalization displayed positive and clear perceptions of critical thinking. An identified research gap in this under-researched area is next whether demographic factors might influence instructors' perceptions of how to assess their students' critical thinking skills. It is worth exploring to see how college instructors of different demographics approach and perceive the process of assessing students' critical

thinking skills. This hopefully adds to the overall understanding of how students' critical thinking could be effectively assessed.

2.4 Situated Related Studies

Reviewing the related literature on critical thinking revealed the following line in the direction of investigation. In earlier stages, most of the studies focused on the philosophical and psychological definitions of critical thinking, starting with the work of Dewey in (1910) and following by the work of Perry (1970), Paul and Elder (1992, 2005, 2007), Ennis (1996), Fisher and Scriven (1997), and many other scholars in the field. In a later stage, a great deal of attention has been directed towards investigating the effectiveness of explicit instruction on critical thinking, and findings in this area were found to be varied between being supportive (Paul and Elder 2005, 2006, Marin and Halpern 2010, Moore 2013) and opponent to the idea (Huber and Kuncel 2016, McPeck 1981). Those who are proponents of the effectiveness of explicit instruction on enhancing students' critical thinking started to experiment with effective teaching methods. It is then where the direction of the investigation changed from being historical, philosophical, or psychological to become more pedagogical. In pedagogical terms, previous studies' focus was on designing and experimenting tools for teaching and assessing students' critical thinking. Whereas there is a plenty of studies focusing on critical thinking teaching (Dennett 2014, Chen 2017, Werff 2016, Cargas et.al 2017, Chen 2017, Lonnecker 2018), further investigation is still needed in the area of assessment (Bensley and Murtagh 2012 and Dong and Yue 2015). In line, as studies were testing the effectiveness of different critical thinking teaching and assessment methods, attention towards examining college instructors and students' perceptions of the tested

methods started to grow. Thus, the main drive behind most of the investigations on perceptions is to examine instructors and students' perceptions in relation to their opinions of the experimented method (Chouari 2016, Chen 2017, Cargas et al. 2017, and Nejmaoui 2019). Therefore, this study aimed to direct the attention of focus and inform how instructors and students normally perceive and practice critical thinking without being influenced by a certain mode of intervention.

In the same vein, most of the aforementioned studies focused on how instructors and students perceive the definition and teaching of critical thinking, not assessment. There is a dearth of studies about instructors and students' perceptions of effective critical thinking assessment methods, which also highly influenced the focus of the study to include critical thinking assessment as well; how instructors and students perceive the assessment of students' critical thinking could be effectively done.

A further step this literature review had made is to highlight possible mismatches between instructor and students' perceptions and practices of critical thinking, and how the existence of these mismatches might negatively influence the process of developing students' critical thinking. The growing interest in this area suggests the need for more research (Steffen 2011, Smith 2015, Barnaby 2016, and Chen 2017). A pattern that has been so far identified and needs to be further investigated is that the clearer the instructors' perceptions of critical thinking are, the clearer the students' perceptions are expected to be. Substantiating this assumption by further investigation is of great importance for the overall success of the process of teaching critical thinking. This study then comes to suggest that identifying these mismatches could help key stakeholders to understand the expectations of each part, and

ultimately the two parts will hopefully collaborate to do what is most useful for students to enhance their critical thinking skills.

In English writing studies, as indicated earlier in the literature, most of the research conducted is also experimental focusing on how to promote students' critical thinking skills using a specific method; argumentative writing essays (Nejmaoui 2019 and Chen 2017) and the use of alternative rhetorical functions (Liu and Stapleton 2018 and McKinley 2015 and 2013). Investigating the perceptions of those who are teaching, practicing, and learning critical thinking at the college level and in writing courses, including both instructors and students, has started lately by the work of Yang (2017) and Węgrzecka-Kowalewski (2018). Investigating perceptions regarding effective methods for critical thinking assessment in writing courses is another under-researched area. The scarcity in research relevant to instructors' perceptions of best CT assessment methods in writing courses highly influenced the focus and the survey design of this study to include items for perceptions of best CT assessment methods in writing course. Furthermore, a specific question was asked to instructors during teacher semi-structured interviews to gain further understanding about their perceptions of how they assess students' critical thinking in writing courses.

The final part of the literature review had looked at studies examining demographic factors influencing gains in students' critical thinking skills. Even though this area has been extensively studied, making an assertive generalization of which demographic factors are predictors of high scores of critical thinking has been difficult, if not impossible. Similar to all areas reviewed in the literature, when it comes to the area of critical thinking assessment and college instructors and students' perceptions, examining if demographic factors have a possible role to play in influencing perceptions is also limited. Therefore, preferred

assessment methods in relation to college instructors' and students' gender, age, nationality, and academic attainment was examined using descriptive statistics.

Zooming in to set focus on the UAE context, it can be revealed that a few studies have been conducted on critical thinking at the college level (McLellan 2009, Taleb and Chadwick 2016, Sperrazze and Raddawi 2016, and Deveci and Ayish 2017). Moreover, the previous studies are case studies conducted within one campus and focused on experimenting a certain method of instruction: Deveci and Ayish (2017) studied critical thinking and lifelong learning skills at one campus, Taleb and Chadwick (2016) studied the impact of a postgraduate studies program at one private college on enhancing students' critical thinking, while in writing, Sperrazze and Raddawi's study (2016) focused on 'conscientization' and students' critical thinking in writing courses, and it has been also conducted at one campus. Thus, this study attempted to expand on findings from previous studies by widening the research scope and sites. Research sites included more than one campus (n=5) across the largest three emirates in the UAE. Research scope has also expanded in comparison to previous literature to focus on those under-researched areas as had been earlier identified by focusing on the UAE context. Studies on critical thinking assessment methods at the college level in general and in writing courses are especially limited in the context of UAE, if not scarce. Only one study, McLellan's study (2009), focused on the use of Cornell Conditional-Reasoning Test to measure Arab students' critical thinking skills and suggested the urgent need of exploring other assessment methods, as this test needs to be modified before being used to assess Arab students' critical thinking basis skills.

In conclusion, exploring the effectiveness of teaching and assessing critical thinking through the lenses of those who are teaching and assessing it had been addressed in this study in an

attempt to add to the overall understanding of how critical thinking is being perceived, practiced, and assessed in writing courses in general and within the UAE context in particular.

Chapter Three

Methodology

In the methodology chapter, a description of the research approach, the philosophical paradigm, and the methods used is presented. Moreover, a discussion of the site, the population and sampling, the data collection instruments, data analysis procedures, and ethical considerations is fully presented.

The purpose of this study was to investigate how critical thinking is being perceived, practiced, and assessed in college English writing courses by college instructors and students. Research methodology and design were selected in light of addressing this purpose (Tashakkori and Teddlie 2010). This study used a variety of data collection tools within the context of the UAE to answer the following questions:

Q1: How do college instructors perceive the definition, importance, and best teaching and assessment methods of critical thinking in English writing courses?

Q2: What are college students' perceptions of the definition, importance, and best teaching and assessment methods of critical thinking in English writing courses?

Q3: What demographic differences, if any, might exist among college instructors and students regarding critical thinking in English writing courses?

Q4: How do college instructors and students practice critical thinking in English writing courses?

Q5: What are the similarities and differences between the perceptions of the definition, importance, and effective instruction and assessment methods of critical thinking of college English writing instructors and their students?

Q6: What implications can be drawn and suggested by the end of the study to inform the teaching, practice, and assessment of critical thinking in writing courses?

3.1 Research Design

This study used exploratory mixed method approach to investigate college instructors' perceptions, practices, and assessment of college students' critical thinking skills. According to Mertens (2010), the definition of mixed methods is an approach in which a variety of data collection tools are combined. This combination seeks not to "simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research" (Creswell, 2009, p.23). Creswell (2014) later added that mixed methods are appropriate when the researcher needs to "both understand the relationship among variables in a situation and explore the topic in further depth" (p.53). So, since the purpose of this study is to investigate within the context of the UAE how critical thinking is being perceived by both college English writing instructors and students, examine the relationship between their practices in light of their perceptions, and obtain further understanding of their critical thinking assessment practices in English writing courses, the study used a mixed-methodology approach. Moreover, a mixed method approach allows the researcher to examine the research problem from different perspectives (students and teachers' perceptions in this study), compare how varied their perceptions and practices are, and understand how to bridge gaps between different viewpoints (Johnson and Christensen 2014). Furthermore, choosing a mixed method design strengthens the drawbacks of utilizing a single-method design through triangulation of data collected. As Zacharias (2012) outlines, a mixed method design is usually to be utilized when using one type of research design is not helpful to obtain sufficient data about the topic under investigation. As outlined by Jick (1979 paraphrased by Johnson et al., 2007, p.115):

> to be more confident of their results; (b) it stimulates the development of creative ways of collecting data; (c) it can lead to thicker, richer data; (d) it can lead to the synthesis or integration of theories; (e) it can uncover contradictions, and (f) by virtue of its comprehensiveness, it may serve as the litmus test for competing theories.

In light of this, examining the perceptions and practices of participants requires the utilization of a mixed method approach to fully understand how participants perceive such a multifaceted concept as critical thinking and be more confident about the results when examining these perceptions in comparison to actual practices inside classrooms. More importantly, many theories and models have been proposed to define and practice critical thinking, so as mentioned above by Jick (1979), utilizing a mixed method approach could help the researcher to examine which theories are more influential and still valid in real practice.

A mixed method design, according to Creswell (2014), falls into one of the following patterns: the explanatory sequential mixed methods, the exploratory sequential mixed methods, the concurrent mixed methods, and the transformative mixed methods. Fraenkel and Wallen (2009), on the other hand, identify three types of mixed methods design: exploratory, explanatory, and triangulation design. In this study, the adopted research design was explanatory sequential mixed methods. Morse (2003) explained that in explanatory research design, the researcher starts with collecting and analyzing quantitative data, and then sequentially qualitative data are being gathered to explain the quantitative data. Exploratory research, on the other hand, is appropriate when the researcher aims to investigate "a little-understood event, situation, or circumstances" (Fraenkel and Wallen, 2009, p.454). In light of this, as this study seeks to obtain an in-depth understanding of how critical thinking is being perceived, practiced, and assessed in English writing courses, then it follows an exploratory design. In addition, the process of data collection took place "at a point in time, not over time"

(Tashakkori and Teddlie 2010). This makes the research design to be cross-sectional rather than longitudinal one.

So, the beliefs and perceptions of college instructors and students of critical thinking definition, teaching, and assessment had been initially investigated and collected through the use of survey design at one time. Next, class observation and semie-structured interviews served to illuminate findings from surveys. The use of semi-structured teacher interviews was highly insightful for the researcher to unfold the ambiguous issues, especially in the area of critical thinking assessment.

Starting with the first phase, variables are tested using a divergent sample across the context (The UAE) (Johnson and Christensen 2014). Therefore, teacher and student surveys were designed to investigate their CT definitions, effective instructional methods, and assessment methods of critical thinking. Surveys were also used to investigate the relationship between perceptions and different demographic variables. It is worth exploring to examine whether or not there is a significant relation between instructors and students' perceptions of critical thinking and their ethnicity, gender, age, and educational background. Even in case where demographic variables have no influence, it is still informative to substantiate existing theories regarding this issue.

Next, data collected from class observations was used to explore how English writing teachers and students actually practice critical thinking in English writing courses, shedding light on achievements and challenges. Johnson et al. (2009) pointed out that observations are utilized when the researcher is especially interested in the process of how concepts, ideas, things are understood and practiced within a certain context. The concept of critical thinking is usually perceived as a western product, and so it is useful to examine how it is being practiced and assessed in an Eastern context such as the UAE context. Class observations and semi-structured

interviews also helped the researcher to examine how the participants of the study make sense of the topic under investigation and whether their understandings have an influence on their behaviour or not and how (Maxwell 2005). Exploring how instructors and students interpret critical thinking and accordingly practice critical thinking was achieved through the use of class observations and semi-structured interviews. In social science, this is referred to as the "interpretive" approach (Maxwell, 2005, p. 18). Finally, the restrictive nature of survey design required the use of additional data collection tools to probe further information, especially in areas where neutral responses were prevalent. These areas informed what type of questions to be asked for instructors during the teacher interviews. Figure 3.1 below had been created by the researcher to summarize the exploratory cross-sectional research design.

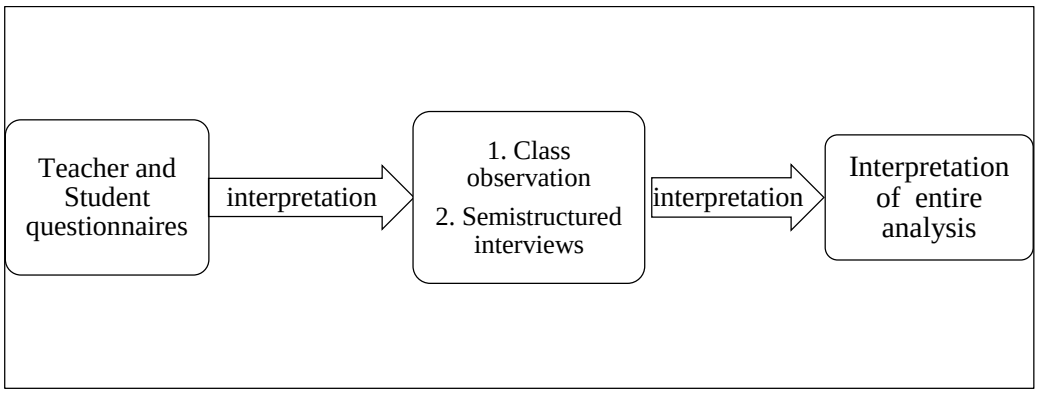

Figure 3.1: The Research Design of the Study (Source: Author)

3.2 Philosophical Paradigm

A research paper is usually built on certain philosophical or theoretical paradigm. This paradigm is normally guided by an epistemology. The original of the term is the word "epistêmê" from Greek which means the "philosophy of knowledge or how we come to know" (Krauss, 2005, p.758). Thus, how knowledge is acquired and whether there is one reality or more determine the

research paradigm of the study. Fraenkel and Wallen (2009) describe theoretical paradigms as "worldviews" or "assumptions that guide the way researchers approach their investigation" **(**p.423). Four paradigms are identified by Creswell (2014): post-positivism, constructivism, transformative, and pragmatism. Quantitative studies fall within the post-positivism paradigm or the "scientific method or doing science research" (p.24). The constructivist paradigm, on the other hand, is based on the view that human experiences and actions are of great importance, and therefore, qualitative studies are underpinned by the constructivist paradigm. Since the word transformative implies change, the essence of the transformative paradigm is based on the idea that any research inquiry has to lead to a political or social transformation and brings positive changes to society. Finally, the focus of the pragmatic paradigm is mainly on the research problem and the researcher has the right to use one or two methods or whatever tools available to understand the problem.

Since the researcher of this study has selected to utilize a mixed-method approach, thus this research design is usually placed within the pragmatist paradigm. Researchers within this paradigm do not restrict themselves to one research paradigm or one data collection technique because their main objective is to understand "what and *how"* of their research problem (Creswell, 2014, p.40). Thus, as it is "problem-centred", the pragmatist paradigm mixes elements from the post-positivist and the constructivist paradigms to reach a better understanding of the problem (p.40). More important, the pragmatist paradigm according to Johnson et al (2009) is concerned with real-world practice, and since this study seeks to investigate participants' practices of critical thinking, then the use of pragmatist paradigm becomes appropriate. Finally, an important element of the pragmatic paradigm is that it considers contextual factors, especially the demographic factors, so its selection is appropriate to answer the third question of

demographic differences in a critical thinking experience. Additional contextual factors are the cultural ones, and in this study, they are important to be considered as the study investigated the integration of a western product or concept (critical thinking) into an eastern curriculum i.e., the curriculum of English writing course in the UAE. Thus, for the abovementioned reasons, the use of a pragmatic paradigm helped the researcher to approach the research problem from different perspectives and to mix data collection methods to obtain an in-depth understanding of the research problem.

Firstly, to understand the '*what'* in this study, the post-positivist paradigm has been used. Its use seeks to determine the reality within a certain area, and therefore, it helped the researcher to investigate *what* the college instructors and students' perceptions, preferred instructional methods, and preferred assessment methods of critical thinking are. In the second phase, as the study seeks to understand *how* the instructors and students translate their perceptions into practice, the use of the constructivist paradigm becomes more appropriate. One major characteristic of the constructivist paradigm is the existence of multiple realities (Johnson et al 2009). Realities are shaped by personal and social experiences, which usually influence individuals' views about events and matters. So, in this study, the researcher tried to understand the participants' perceptions of critical thinking through observing their practices and interactions during class time. As Johnson and Christensen (2014) outlined, observing participants' practices within a certain context provides the researcher with deep insight into participants' viewpoints and how these viewpoints become meaningful in practice.

3.3 Site, Sampling and Participants

The number of licensed higher education institutions according to a recent list (2018) issued by the Ministry of Education in the UAE has reached 76 institutions, including public and private ones. Out of these 76 institutions, five universities approved for the study to be conducted on their campuses, making them the research sites for this study. Research sites are described by Creswell (2014) as "homes, classrooms, organizations, programs, or events" included in the study (p.170). The five universities are located in three different emirates: Abu Dhabi, Dubai, and Sharjah. As the study aims to study how critical thinking is being practiced by people of different demographic and educational backgrounds, the five universities belong to different types of educational sectors: public and private. Table 3.1 below lists more details about each university.

Table 3.1: The Research Sites of the Study (Source: Author)

University	Emirate	Sector
University #1	Abu Dhabi	Public
University #2	Dubai	Private
University #3	Dubai	Semi-private
University #4	Sharjah	Public
University #5	Sharjah	Private

The targeted population of this study is college instructors of advanced English writing courses and students taking these courses in the UAE, and the sample includes the college instructors of English writing courses (advanced level) and students taking the advanced writing course in the five institutions. These universities represent the three emirates with the highest population of the total population of the UAE, including 85% of the total population (Worldpopulation Review 2019). Second, they include the three types of higher education institutions in the UAE: the public, the private, and the semi-private ones. These universities are well-known in the emirates selected. Third, the five universities offer different levels of writing courses as general education

courses to be mandatorily taken by all students of different majors as a requirement for graduation.

As for sampling, a conveniently purposive sampling method had been utilized. It is purposive sampling in the sense that the participants selected are seen by the researcher as representative because they meet the targeted characteristics in the researcher's plan (Fraenkel and Wallen 2009). First, college English writing instructors who have taught/been teaching advanced academic writing courses are assumed by the researcher to have knowledge or have practiced critical thinking with their students. Second, students who have been taking an advanced academic writing course are assumed by the researcher to have the opportunity during that course to practice critical thinking. On the other hand, it is convenient as, within the targeted characteristics in the researcher's plan, these universities were available (Gall et al. 2010). So, the administration departments of these universities provided ethical approvals for the study to be conducted on their campuses.

For the survey, the estimated total number of English writing instructors working at these five universities is around 50, including those who teach basic and advanced courses. The number of instructors who are currently teaching advanced writing or previously taught advanced writing is 24, out of which 20 instructors participated in completing the teacher survey, which makes the participation rate around 83.3%. The estimated total number of students taking the advanced academic writing course by the time the study was conducted at the same five universities is around 300 out of which 253 students had completed the student survey. The participating students were mostly freshmen (n=167) as writing courses are considered general education courses where students need to complete them during the first two years of college.

For the in-depth interviews and observations, email invitations were sent as well. Only five agreed to be observed and interviewed, one instructor from each university. One additional instructor agreed to be interviewed but not observed. The teaching experience of the participating teachers ranged from 5 to 12 years. Two are English native speakers and four are non- native speakers. As for their educational background, five of them have got a master's degree and one is a Ph.D. holder.

3.4 Data Collection Methods

As the study aimed to examine how critical thinking is being perceived, practiced, and assessed by college English writing instructors and students in the UAE and how different or similar the practices and the perceptions of each part are, a mixture of data collection used. Teacher and student surveys were first conducted to examine instructors' and students' perceptions of the definition, importance, and best teaching and assessment methods of CT. Then class observations and semi-structured interviews were used to investigate practices and gain further understanding. Table 3.2 (Research Methods and Data Collection Tools) below has been created by the researcher to provide a summary of the research approaches and instruments that were utilized by the researcher to answer each research question of this study.

Table 3.2: The Researcher's Research Methods and Data Collection (Source: Author)

Question	**Participants**	**Instruments**	**Data Analysis**
R.Q.1.How do college instructors perceive the definition, importance, and assessment of critical thinking in English writing?	college English writing instructors (n=20)	teacher questionnaire	statistical analysis SPSS
		open-ended questionnaire + teacher interview	thematic analysis
R.Q.2 What are college students' perceptions of their critical thinking experience in English writing courses?	college English writing students (n=250)	student questionnaires	statistical analysis SPSS
		open-ended questionnaire	thematic analysis
R.Q.3.What demographic differences, if any, do exist among college instructors and students regarding critical thinking in English writing courses?	college English writing instructors and students	teacher questionnaire and student questionnaire	statistical analysis SPSS
R.Q.4 How do college instructors practice critical thinking in English writing?	5 college English writing instructors and their students	class observation teacher interview	thematic analysis thematic analysis
R.Q.5 What are the similarities and differences between the perceptions of the definition, importance, and effective instruction and assessment methods of critical thinking between college English writing instructors and their students?	6 college English writing instructors and their students	close-ended teacher and student questionnaire	statistical analysis SPSS
		open-ended teacher and student questionnaires	thematic analysis
R.Q.6 What implications can be drawn and suggested to inform the teaching, practice, and assessment of critical thinking in writing courses?	Insights of college English writing instructors (n= 20) and students (n=250)	Based on overall findings and insights of participants, implications will be suggested in the final discussion	Analysis of numeric data and narrative data

3.4.1 Teacher Questionnaire

The teacher questionnaire was mainly used to answer the first research question which seeks to examine the instructors' perceptions of critical thinking definitions, teaching methods, and assessment methods. The questionnaire was developed by the researcher using Paul and Elder

Framework 2005 and questionnaires from three prominent studies on perceptions of critical thinking: Werff (2016), Barnhill (2010), and Hachlaf (2018). Below is Table 3.3 which illustrates which items from the original instruments.

Table 3.3: The Origin of Items of Teacher Questionnaire (Source: Author)

	The Original Instrument	Original Instrument Items
Perceptions of critical thinking definition and skills	Paul and Elder Framework 2005	The Critical Thinking Competencies
	Hachlaf (2018)	-Critical thinking allows the students to make connections and see relationships. -Critical thinking allows for quiet reflection. -Critical thinking helps the students to develop standards to make informed judgments. -Critical thinking makes the students analyze information. -Critical thinking makes the students evaluate information. -Critical thinking makes the students look for evidence. -Critical thinking makes students take decision in different situations.
Best teaching methods	Barnhill (2010)	-Socratic Method -Peer reviews of writing -Discussion oriented, seminar style instruction -Structured controversy or debate -Cooperative learning - sharing in groups and working together to accomplish a goal. -Work in groups to solve problems. -Asking students to consider how course material relates to them personally. -Asking students to identify the strengths and weaknesses of their own arguments. -Providing writing assignment prompts for students to engage in textual analyses of Literature. -Short, reflective writing assignments that receive comments -Process writing approach for major assignments - students receive feedback on drafts and parts of their project. -Instructing students about informal fallacies of reasoning. -Asking students to evaluate the different sources from which they draw information, e.g., online peer-reviewed

		journals vs. Wikipedia vs. a website advocating for a particular point of view
Best assessment methods	Barnhill (2010)	-Student directed discussion, assessed by both the professor and peers. -Using rubrics to grade students' work and measure their critical thinking skills, e.g., oral presentation, writing skills, etc. -Embedded assessments on exams
	Werff (2016)	Essay Examination Student self-assessment Commercially Available Tests

As the Table indicates, items about instructors' perceptions of CT definition, Paul and Elder' eight competencies guided the design of items (1-8). Items relevant to CT skills, seven out of 20 items from Hachlaf's questionnaire (2018) were selected as those the ones that are relevant to the area of English writing. Barnhill's survey included items of critical thinking teaching and assessment methods in the scope of liberal arts and humanities. However, out of 82 items those which are closely related to English writing courses were selected (n=16). Thirteen were included in the part which is concerned with best teaching methods and three were used in the assessment part. All items were the same but shortened. For example, the item that reads: Using rubrics to grade students' work and measure their critical thinking skills, e.g., oral presentation, writing skills, etc. was shortened to Use of rubrics.

Third, Werff's (2016) was mostly useful for the assessment part, as the questionnaire in that study aimed to examine instructors' perceptions of best methods for measuring critical thinking, so the seven assessment methods that were included in the teacher questionnaire were all taken from Werff's questionnaire.

Thus, upon modifying elements from the above-mentioned questionnaires and adding elements identified by previous literature as more relevant to the areas of English Language writing and critical thinking, the researcher was eventually able to develop the teacher questionnaire (See Appendix A). The total number of questions is 48 questions. The main structure of the teacher questionnaire is divided into three sections: (a) a demographic information section (5 questions), (b) close-ended questions (40 questions, (c) open-ended questions (3 questions).

Demographic data included questions about instructors' age, gender, nationality, working experience, and post-graduate degree attainment. This information was useful to answer the fourth research question, which deals with demographic differences.

Closed-ended questions used a 5-point Likert scale. The number of questions in this part was 40 items modified from the aforementioned questionnaires. Closed-ended questions were used to answer the first research question as follows:

Table 3.4: The Items of Teacher Questionnaire (Source: Author)

Items#1-7	instructors' perceptions of critical thinking definitions
Items# 8-13	instructors' perceptions of critical thinking skills
Items# 14-33	instructors' perceptions of effective critical thinking instructional methods in writing courses
Items# 34-40	instructors' perceptions of effective critical thinking assessment methods in writing courses

Three open-ended questions probing for further information regarding instructors' views of how critical thinking could be defined, taught, and assessed were added to the closed-ended part.

Those questions were taken from Werff (2016). By nature, closed-ended questions are restrictive; and therefore, the addition of these questions allowed the instructors to have a space where they expressed their thoughts (Johnson, Onwuegbuzie, and Turner, 2007). The three open-ended questions were used to compare between instructors and students' perceptions, practices, and assessment of critical thinking in writing courses.

A link to an online questionnaire was sent to the head department of the writing studies in each university, who is in turn circulated the link among writing instructors working at the department. Using an online link ensured the anonymity of the participants.

Piloting of the Teacher Questionnaire

According to Porte (2002) conducting a pilot study allows researchers to test the validity and the reliability of the instrument. In light of this, three participants, who are college English writing instructors and belong to the researcher's social network, were willing to answer the questionnaire and were asked to give feedback on how clear the questions are. Upon receiving feedback from the three participants, the research made minor modifications to the original questionnaire. However, these teachers did not participate in the final survey.

Content Validity of the Teacher Questionnaire

As recommended by Johnson and Christensen (2014), the content validity of the instrument is ensured when the questionnaire items are effective in measuring the content they have to measure. The best measurements to achieve this are conducting a pilot study of the research instrument and peer examination. As mentioned above, the researcher conducted a pilot study, and the minor modification were considered. As for peer examination, two experts in critical thinking research and writing studies were asked to review the questionnaire.

Construct Validity of the Teacher Questionnaire

The teacher questionnaire was developed on grounded theories in the area of critical thinking, including the theories used for the framework of the study. As mentioned above, Paul and Elder critical thinking framework (2006) was used to identify CT competencies. Moreover, the three questionnaires that guided the researcher to develop her own are also based on grounded theories and widely recognized designs. Barnhill's (2010) questionnaire was designed using the Delphi technique. Werff's (2016) questionnaire was also a modification of two well-known questionnaires in the area of critical thinking: Baker (1992) and Dike (2001). The former questionnaire was commonly used in studies related to critical thinking and nursing, while the latter was frequently used in the scope of military education.

Reliability of the Teacher Questionnaire

The reliability of the questionnaire was checked as follows: first, as mentioned earlier in this chapter, it was developed based on using questionnaires from three prominent studies on perceptions of critical thinking: Werff (2016), Barnhill (2010), and Hachlaf (2018). The Delphi method used to design Barnhill's questionnaire is widely recognized for increasing the reliability of the results. The Delphi method is based on the administration of the questionnaire several times for an expert panel, and the panel are given time to reflect and give feedback (Barnhill 2010). More importantly, the reliability of each questionnaire was high as Cronbach's Alpha of the questionnaire in Werff's' study was 0.86 and 0.88 in Hachlaf (2018). Therefore, the researcher found them appropriate to be used for the development of the teacher questionnaire.

3.4.2 Student Questionnaire

To investigate how college students perceive their critical thinking experience in English writing and highlight demographic differences, if any, a student self- administrated questionnaire was

utilized. A link to an online version of the questionnaire was given to the head department of the writing studies, who asked the instructors to post it on the student portal and encourage students to answer the questionnaire. Students who were taking the advanced writing course at the five universities were invited to take the questionnaire. Originally, the student questionnaire was an exact copy of the teacher questionnaire. However, after piloting it, the length of the modified version was reduced to have 30 items in total, including the three main parts: (a) a demographic information section: five questions regarding gender, age, nationality, major, and year of study, (b) 22 close-ended questions that use the 5-point Likert scale (c) 3 open-ended questions to allow students express additional thoughts, feelings, or challenges regarding their critical thinking experience (See Appendix B). As explained earlier in the teacher questionnaire part, the three open-ended questions used here are similar to the ones of the teacher questionnaire to be able to compare later between students' perceptions with those of their instructors.

Piloting the Student Questionnaire

Upon piloting the questionnaire on a random sample of 20 English writing students, several modifications have been made. First, the number of items was reduced from 48 to 30, as most of the participants complained from its length. The first reduction was in the part of investigating students' perceptions of critical thinking definition and skills. So, instead of having questions on definitions and then others for identifying relevant skills, they were infused, and the number was reduced from 13 to 7 for this part. Two questions from this part were deleted, as the students found difficulties in understanding them. Also, to reduce the length of the questionnaire, the researcher found it appropriate to delete the part that dealt with students' perceptions of effective instructional methods and activities for promoting students' critical thinking skills across different disciplines and keep the part that is more relevant to most effective instructional

methods in writing courses, as this study focuses on critical thinking in writing courses. Another modification is that some questions were rephrased, as some students found the wording of these questions difficult. For example, some students did not know what the term process writing means, and so the researcher has to re-write the question paraphrasing what process writing means based on the literature review. Finally, the last question in the assessment was deleted, as all the participants found the term ready-made tests confusing and they did not hear about it as well. It is important to note that the 20 students who participated in the pilot study did not participate in the final survey.

3.4.3 Class Observations

Lesson observations are normally considered qualitative tools in which field notes are recorded by the researcher (Hopkins 2008). The aim of the observation is to watch the behaviour of participants in specific situations and contexts to gain further information about the topic of investigation (Johnson and Christensen 2014). In this research, the researcher used class observation to take notes on college instructors and students' practices and activities on critical thinking during English writing classes. Instructors who were willing to observed within the five colleges were five, one from each college, making the total of observations five. Class observations were conducted on a span of one complete class. The duration of one complete class differed between colleges, so the average duration lasted between 40- 50 minutes. The role of the researcher in this research was a complete observer, as no interactions with the students were taken. As recommended by Hopkins (2008), a researcher filled an observation form during the observation. As class observations were used to analyze instructors' practices to enhance students' critical thinking, the protocol included items related to how college instructors and

students practice critical thinking in writing classes (See Appendix C), mainly focusing on (1) what types of activities used by instructors to practice critical thinking and which critical thinking skills were practiced, (2) how instructors supported students while conducting the activity, (3) how students interacted with each other and with the instructor while practicing the activity, and finally (4) how instructors assessed students' practices. However, as recommended by Merriam (2009), the researcher also took additional notes during class observation, as this process is dynamic and unexpected variables and themes had been derived, especially when it came to challenges faced by students while practicing critical thinking.

3.4.4 Semi-structured Interviews

Semi-structured interviews are defined by Fraenkel and Wallen (2009) as "verbal questionnaires" used to get particular answers from the participants about the topic under investigation. They are called semi-structured as a set of questions are prepared by the researcher; yet more questions could be asked during the interview in order to explore further thoughts brought by the flow of the conversation (Merriam 2009). So, in this study, interviews were conducted after analyzing the findings of teacher questionnaire and class observation to ensure the trustworthiness of data collected from the teacher questionnaire and class observation (Merriam 2009).

Conducting semi-structured interviews served three purposes in this study. First, interviews allowed the participants to express their perceptions of critical thinking freely without being restricted to certain answers as it is usually the case in the survey (Steffen 2011). Instructors were again asked about their perceptions of critical thinking definition and skills and its importance to be explicitly taught to freely elaborate on these issues. Second, conducting interviews after a class observation was also useful for the researcher to gain a better understanding of college

instructors' critical thinking practices inside the class, allowing them to clarify practices from their point of view (Kvale 1996). Third, as suggested by Fraenkel and Wallen (2009), interviews are useful tools to "obtain information that can later be compared and contrasted" (p.446). Based on this, another purpose for using interviews was to compare college instructors' definitions, perceptions, and practices of critical thinking in writing courses. Probably the most important function of conducting interviews in this study is that it allowed the researcher to obtain valuable information and an in-depth understanding of critical thinking assessment. The findings from survey data regarding the assessment part were not that indicative of instructors' perceptions of how critical thinking should be assessed in writing courses, and therefore, interviews provided the researcher with an opportunity to further probe this issue.

Semi-structured face-to-face interviews were conducted with those five instructors who had been observed interviews. A sixth interview with an instructor who approved to complete the survey and whose students completed the students' survey, yet this instructor preferred not to be observed. Interviews helped the researcher to substantiate findings obtained from instructors' survey and observation and trace consistency between perceptions and actual practices. Five of the six interviewees are females. The average duration of the interviews is 30-35 minutes, and they were conducted on college campuses during the instructors' working hours. The appointment for the interview was set by the instructor at his or her convenience.

To keep a record of the interview, the conversations were audiotaped by the researcher. The researcher also took notes using an interview protocol (Appendix D) as a backup measurement. As recommended by Richards (2003), the interview protocol included instructions on the interview process in addition to the questions that were asked. The interview questions were developed based on the research questions issues and the results of the teacher survey and the

findings from the class observations. They basically covered the main constructs of the study, college instructors' perceptions, practices, and assessment of critical thinking in writing courses. An additional question about the challenges of teaching critical thinking was added, as the researcher noticed from the results of students' survey and students' practices during the observation that their critical thinking experience was not always easy.

3.4.5 Trustworthiness of the Class Observation and Semi-Structured Interview Data

To ensure the trustworthiness of data collected from class observations and semi-structured interviews, the following techniques were used.

- First, as recommended by Johnson and Christensen (2014), a fully- detailed description of the purpose of the study, the researcher's role, the participant's position was provided by the researcher.
- Second is the triangulation of data collection tools. In this study, two main data collection tools were utilized: class observation and semi-structured in addition to the data collected from participants' responses to the three open-ended questions of the teacher and student questionnaires.
- Third, a rich and detailed description of how data had been collected and analyzed had been provided. More important, different stages of the research process had been discussed with experts in the field of education research.

As for checking the internal validity of data, the researcher had adopted Richards (2003), Fraenkel and Wallen (2009), and Creswell (2009) recommendations as follows:

- Member checking: The final transcriptions of interviews were checked by the interviewees for their final approval. Themes and sub-themes derived from observation

field notes and checklist were also shared with the observed instructors for their checkup and feedback.

- Peer examination/ "External audit": Findings, themes, and especially the interpretation of data had been examined by two experts in the field of education research for final checkup and feedback (Fraenkel and Wallen, 2009, p. 453).
- Researcher's bias and role: as recommended by Creswell (2014), an articulation of the role of the researcher is provided in this section: As an instructor who has been teaching English writing in the UAE for eleven years, I have worked with instructors and students of different cultures. However, within the introduction of critical thinking and the emphasis on teaching it, I have noticed how different the perceptions, practices, and assessment of this concept by key stakeholders are, and honestly, that is the main drive for conducting this study. In light of this, I consider myself as an insider and outsider at the same time. I am an insider, as my experience as an English instructor increased my interest to explore methods for teaching and assessing critical thinking. I am an outsider as the researcher while conducting the study was not working at any university to maintain emotional distance. It is also important to note that I am in a condition of full awareness that my educational and cultural background might influence data interpretation, and therefore, to avoid bias, the researcher attempted to reduce subjective ideas by seeking additional information whenever subjectivity might have an impact. Member checking and peer-examination were constantly applied throughout the research stages to avoid any kind of bias and subjectivity interference.

3.4.6 Academic Writing Course

The five universities offer more than one writing course reflecting different levels. They are considered a general requirement for all students. The number of writing courses varies from 2-3 courses, including three levels:

- Writing 100(Paragraph writing)
- Writing 101 (Essay writing)
- Writing 102 (Advanced writing)

The first two courses usually focus on sentence structure, mechanics, and organization. Students' English levels of the first two courses are usually varied between intermediate (mostly in100 level) and upper mediate. Level Writing 102 (Advanced writing) was selected for this study, as the learning outcomes of this course focus on developing higher order thinking skills in writing by requiring students to display analysis, argumentation, and evaluation skills. At the five universities, the focus of the advanced level was found to urge students to use their critical reading and writing skills. Students are required to write a variety of essay types such as argumentative, opinion, cause and effect, and synthesis essays. Students of advanced writing courses eventually should be able to shift from descriptive to critical writing.

3.5 Data Analysis

3.5.1 Analysis of Survey Data

Numeric data collected from instructors' and students' questionnaires was processed using the Statistical Packages for Social Science (SPSS). The process of analyzing survey data consists of four main stages.

First is using SPSS software to obtain descriptive statistics for demographic variables for college instructors and students. Common demographic variables are gender, age, and nationality. Instructors' and students' nationalities were collapsed into fewer groups, as some of the original groups had either one or two individuals. Therefore, to avoid ethical concerns, such as being easy to identify the participant identity, instructors' and students' nationalities were collapsed into fewer groups mainly as, Middle Eastern Countries, South Asia, Africa, Europe, and North America. Similar was done to student subject major. They were collapsed to eight groups based on the department or the school to which the major does belong: Business and Management, Media and Mass Communication, Engineering, Medical Science and Dentistry, Art and Fashion Design, Science and Information Technology, Security and Strategic Studies, and Education and Social Science. Due to ethical consideration as well, the original five groups for the number of years of instructors' teaching experience were regrouped into four smaller groups because one of the groups had one instructor only.

The second stage is for each survey item, SPSS software was used to obtain descriptive statistics, including frequencies and percentages of instructors' and students' agreement and strong agreement with each survey item. So, frequencies for instructors' and students' strong agreement (SA) and agreement (A) with each survey item are presented in descending order.

The third stage was to analyze narrative data from the three open-ended questions of the instructor and student questionnaires. Following the eight steps of Creswell (2014) for analyzing narrative data, responses were abbreviated into codes, and similar codes were grouped into one category. Word parts synonyms and were also addressed and put together during the coding process. The first category includes codes that are expected to be found and commonly repeated. Definitions that are relevant to theories of critical thinking and commonly repeated in the

literature were put under the first group. Second are codes that are not expected to be found at the beginning of the study; arguments to which previous literature sometimes refer, such as generic versus specific view towards critical thinking, but not expected to be highlighted by instructors. The final category includes unusual codes, not mentioned in the reviewed literature. Appendices (H&I) respectively present instructors' and students' written responses for the three open-ended questions.

The final stage in analyzing survey data was done to examine the relationship between instructors' and students' demographics and their perceptions of the definition, importance, and best teaching and assessment methods of CT. The discussion of this analysis will be divided into two parts, one per sample.

Analysis of Demographic Factors and Instructors' Perceptions of CT Definition and Best Teaching and Assessment Methods

1. First, for instructors' gender and perceptions, odds ratios were calculated. Proportions of male and female instructors agreeing and not agreeing with each survey item were calculated. Results of those items where the responses of one group are larger than the other group (twice) are presented within the discussion, yet for all results, see Appendix G.
2. As for age group, comparison was achieved by finding out the mean age of tutors who agree with each of the items for definition, methods of teaching and assessment of critical thinking in English writing courses. However, due to the low number of instructors aged 51 and above (n=3), results cannot be generalized. Major findings are presented in chapter four, while results for all items could be found in Appendix G.

3. As the college instructors' sample is small, and due to ethical considerations, the variable of nationality has been regrouped, as mentioned above. The first step was to divide them into four main groups: Middle Eastern Countries, South Asia, Europe, and North America. When examining the relationship between instructor nationality and their perceptions of CT definition and best teaching and assessment methods and comparing the values for agreement for each survey item, the researcher found that two out of the four groups have only two or three individuals in each, which is viewed by the researcher insufficient for any comparison. Therefore, the researcher chose to regroup instructors' nationalities according to culture, eastern versus western cultures. So, the eastern culture included individuals from Middle East and South Asia, while western culture included individuals from Europe and North America. Then frequencies of agreement were examined for each survey item. Those which are significant are presented within the main discussion of findings, yet results for all items are presented in Appendix G.
4. Analysis of the relationship between the fourth demographic variable which is years of teaching experience and instructors' perceptions of CT definition and best teaching and assessment methods involved obtaining frequencies of agreement with each survey item. Major findings are presented in chapter four, while results for all items could be found in Appendix G.
5. The final step is to analyze the relationship between instructors' academic degree and instructors' perceptions of CT definition and best teaching and assessment methods. Odds ratios were used, and so proportions of MA holders and PhD holders agreeing and not agreeing with each survey item were calculated. Results of those items where the

responses of one group are larger than the other group (twice) are presented within the discussion, yet for all results, see Appendix G.

Analysis of Demographic Factors and Students' Perceptions of CT Definition and Best Teaching and Assessment Methods

1. Odds ratios were used to examine the relationship between students' gender and their perceptions of CT definition and best teaching and assessment methods. Proportions of male and female students agreeing and not agreeing with each survey item were calculated. Results of those items where the responses of one group are larger than the other group (twice) are presented within the discussion, yet for all results, see Appendix G.
2. For student age groups, 90% of the sample was found to be falling within one age group 17 – 24, and so no comparison has been conducted among groups. Yet all results are presented in Appendix G.
3. The relationship between the newly generated groups for student nationality and student's CT perceptions and best teaching and assessment methods was examined in terms of frequencies. Frequencies of agreement with each survey item were compared among different groups. Groups which were more likely to agree were presented in the relevant section in chapter 4, and results for all items are presented in Appendix G.
4. As student subject majors were collapsed into eight groups, the relationship between the newly generated groups and student's CT perceptions and best teaching and assessment methods students' major subjects was examined in terms of frequencies. Frequencies of agreement with each survey item were compared among different groups. Groups which

were more likely to agree were presented in the relevant section in chapter 4, and results for all items are presented in Appendix G.

5. The last variable is academic level, and since all students are freshmen except one who is a senior, results are not presented due to ethical consideration.

3.5.2 Analysis of Class Observation and Semi-Structured Data

Narrative data was analysed through the use of thematic analysis. Walliman (2018) points out that thematic analysis helps the researcher to induct the data collected into themes relevant to the topic or the concept being investigated. The use of thematic analysis to process narrative data is common as it "offers an accessible and theoretically flexible approach to analyzing narrative data" (Braun and Clarke, 2008, p.77). Walliman (2018) elaborated that thematic analysis is most useful for answering "How" questions.

In this study, the thematic analysis process followed the six steps recommended by Richards (2003). First, narrative data was prepared and organized, including the typed field notes from class observations, the transcribed interview, and the instructors and students' responses to the open-ended questions in the questionnaires. Second, the researcher tried to make sense of the data and ask reflective questions to gain a deeper understanding of the information collected. The third step is coding, which involves the organization of information into "chunks or segments" (Creswell, 2009, p. 173). Done with coding, the researcher then wrote a detailed and rich description of the participants' perceptions and reflections on their critical thinking experience in writing courses. The description was then organized in relation to the main research questions. As recommended by Braun and Clarke (2008) as well, the researcher did not only identify themes, but also decided to go beyond the surface level and searched for connections between

themes to produce a narrative. For example, in this study, upon identifying themes about instructors and students' practices, comparisons between their practices were made. The fifth step was the representation of the description. Narration was mainly used to present the finding. However, whenever comparisons were made, the researcher summarized the results first in a Table to make it easy to trace differences and similarities, and then provided narrative passages. Finally, the researcher reflected on all findings to reach conclusions, insights, and suggestions. It is the stage where the researcher tries to "capture the essence" of the whole issue, as described by Creswell (2009, p. 176). Therefore, conclusions regarding instructors and students' perceptions and practices were made taking into consideration the impact of culture and context on shaping these perceptions and practices. For deeper insight, the researcher also compared findings from this study with findings from previous studies and sake to examine similarities and differences.

3.6 Ethical Consideration

Ethical considerations in this study were taken to ensure the commitment to the two major issues in research ethics: academic and personal integrity and participants' protection. Academic integrity according to Tashakkori and Teddlie (2010) should be reflected in all research steps, including the moment when the decision made to conduct a research paper. Therefore, honesty was reflected throughout the research steps. As for respecting participants' rights and protecting them from any harm, the first step was to obtain the approval from the Ethics Advisory Committee of the British University in Dubai (See Appendix E). Upon receiving the approval, invitation emails including informed consent letters and the approved ethical form were sent via email to the Vice President of the Academic Affairs offices in the five research sites to seek

official approvals. It took two months to obtain all the approvals, as for some universities, it is not the decision of one person; it is the decision of a research committee. Once the Vice President of the Academic Affairs offices at the five research sites approved the research applications, the same office sent their approval along with the original invitation email to the Head Department of English Writing Studies Office. The later was then responsible for sending invitation emails to the English writing instructors and students. Each Provost's approval stipulated to allow the researcher to administer the teacher and student questionnaires, observe classes, and interview instructors. Those who were willing to be participants in the study were given a consent form (See Appendix F) that reassures the confidentiality of data collected, including names, questionnaires' findings, observation field notes, interview answers and transcriptions, anonymity, and benefits of the research. The purpose of the study, the data collection tools, and the research procedure were fully explained to the participants as a further step to follow ethical research protocol. Besides, research findings were discussed with the participants to ensure their final agreement on what had been stated by them during the interviews and to share the knowledge gained and the implications that might be suggested upon the completion of the study. For the purpose of ensuring anonymity, a link for an online survey was given by the researcher to the Head Department of the English Writing Studies. The online survey did not ask for a name or an email address to encourage instructors and students to freely express their thoughts without being concerned about the consequences.

For the interviews and class observations, communication channels were first set through the office of the writing studies. Those who were willing to be observed or interviewed sent their approvals to the office of writing studies, and in turn, the office asked the researcher to directly communicate with the instructor and schedule timings for the interviews and class observations.

Those who volunteered were asked to sign two additional informed consent letters before the actual observation and interview were conducted: one for the class observation and one for the interview. The timings of the interviews and observations were set by the instructors at their convenience. They were reassured of the confidentiality of the field notes and the interview transcriptions, and in case they have worries, they could talk to the researcher or have the right to withdraw at any stage of the research process.

Chapter Four

Results

The purpose of this study was to investigate English college writing instructors' and students' perceptions, practices, and assessment of critical thinking in writing courses. Examining how critical thinking is being perceived by college instructors and students and how similar or different the perceptions are could help to bridge existing gaps between students and instructors' viewpoints and improve practices. So, findings from survey questions, class observations, and teacher interviews are presented based on the five research questions of this study.

College writing instructors' and students' responses to the closed-ended questions were analyzed through the use of the Statistical Package of the Social Science (SPSS 22.0). Frequencies of agreement and strong agreement were calculated to determine college instructors and students' perceptions of CT definition and skills and the preferred instructional teaching, learning, and assessment methods of students' CT skills in English college writing courses.

Data obtained from class observation was analyzed to mainly examine instructors and students' practices of critical thinking. Finally, in light of the findings from instructors' and students' questionnaire responses and class observations, interview data was analyzed following Creswell (2012) guidelines. So, thematic analysis was used to process the interview responses of six participating English writing instructors to further explore their perceptions of the importance of critical thinking integration and assessment into English writing courses.

4.1 Results for College Instructors' Perceptions of Critical Thinking, Its Skills, and Its Teaching and Assessment Methods in English Writing Courses

In this section, relevant data obtained from instructors' questionnaire and teacher semi-structured interviews are presented. Therefore, this section is divided into two subsections; the first one is for the analysis of instructors' responses to the teacher questionnaire, and the second one is devoted to present relevant findings from teacher interviews.

4.1.1 Results from Instructor Questionnaire

This section is divided into four subsections. First is a description of the characteristics of the participating instructors. Next is a presentation of their understanding of CT definitions and skills. The third section then includes a description of the instructors' perceptions of the importance of CT and the best methods for teaching and learning. The final part will address findings of best critical thinking assessment methods as expressed by the participating instructors.

4.1.1. Characteristics of Participating Instructors

The number of English writing instructors who completed the survey is twenty (n=20). Their demographics included five variables: gender, age range, nationality, the highest degree received by the instructors, and finally the years of experience they have as instructors.

In this study, females consist 60 percent of the participants (n= 12), while the percentage of participating male instructors is 40 percent (n= 8).

Table 4.1: Instructor Gender (Source: Author)

		Frequency	Percent
Valid	Female	12	60.0
	Male	8	40.0
	Total	20	100.0

As for instructors' age range, half of the instructors that were surveyed belong to the 41-50 age group (n= 10), while only three instructors aged 51 and above (Table 4.2). The remaining 7 instructors aged between 25 to 40.

Table 4.2: Instructor Age Group (Source: Author)

		Frequency	Percent
Valid	25-40	7	35
	41-50	10	50
	51 and above	3	15
Total		20	100.0

Instructors' nationalities were collapsed into four groups organized in descending order, as presented in Table 4.3 below: Middle Eastern countries (n=7), Europe (n=6), (n=4), North America (n=3), and finally only two from South Asia. Two instructors preferred not to mention their nationality.

Table 4.3: Instructor Nationality (Source: Author)

			Frequency	Percent
Valid	Middle Eastern Countries		7	35
	Europe		6	30
	North America		3	15
	South Asia		2	10
	Total		18	90
Missing			2	10
Total			20	100.0

For years of experience, frequencies for the last three groups 11-15, 16-20, and 21 and above were close, with 6 for the 11-15 and 5 for both the 16-20 and 21 and above.

Table 4.4: Instructor Years of Experience (Source: Author)

Years of Experience		
	Frequency	Percent
1-10	4	20
11-15	6	30
16-20	5	25
21 and above	5	25
Total	20	100

For the last demographic variable, 55 percent (n=11) of the instructors surveyed are holders of an MA degree, and the remaining are Ph.D. holders (n=9) (See Table 4.5).

Table 4.5: Instructor Academic Degree (Source: Author)

		Frequency	Percent
Valid	Master	11	55.0
	PhD	9	45.0
	Total	20	100.0

4.1.1.2 Instructors' Understanding of the Definition and Skills of Critical Thinking

In this section, instructors' understanding of CT and its relevant skills are presented. Numeric findings from instructors' responses to the 13 closed-ended questions are firstly presented

followed by a narrative discussion of the findings revealed from the first open-ended question.

Starting with the 13 closed-ended questions, the first seven questions (Items 1-7) state the major definitions of critical as highlighted by Paul and Elder Framework (2006) and seminal previous literature, while items (8-13) are about major critical thinking skills. For instructors' perceptions of what they understand by critical thinking (Qs1-7), findings revealed that instructors perceived critical thinking as a multifaceted concept with high emphasis on four elements presented respectively: reflection (75 %), analysis of information (70%), evaluation (70%), and making inferences (70%). As can be seen from Table 4.6, 15 out of the 20 instructors strongly agreed and additional 4 instructors agreed that critical thinking is best perceived as a reflective practice. Equally, 14 instructors strongly agreed that critical thinking is about evaluation, analysis of information, and making inferences. It is interesting, on the other hand, that the majority do not strongly agree that critical thinking is about reasoning (40%) and problem solving (45%).

Table 4.6: Instructors' Understanding of Critical Thinking (Source: Author)

Survey Item Number	Survey Item	Strongly Agree		Agree	
		#	%	#	%
2.	Critical thinking is deep reflection	15	75	4	20
5.	Critical thinking focuses on evaluation	14	70	6	30
7.	Analysis of information is the main element of critical thinking	14	70	6	30
6.	Critical thinking is making inferences	14	70	5	25
1.	Critical thinking focuses on the interpretation of information	12	60	6	30
4.	Critical thinking is problem-solving	9	45	8	40
3.	Reasoning is the main element of critical thinking	8	40	10	50

Similarly, while identifying the skills that are mostly connected to critical thinking, instructors' responses indicated the utilization of more than one specific skill. Instructors generally showed agreement with the identified six skills (See Table 4.7).

Table 4.7: Instructors' Perceptions of Major Critical Thinking Skills (Source: Author)

Survey Item Number	Survey Item	Strongly Agree		Agree	
		#	%	#	%
8.	Critical thinking allows students to explore ideas, keep options open and imagine	16	80	4	20
11.	Critical thinking helps the students to develop intellectual standards to make informed judgments	16	80	4	20
13.	Critical thinking makes the students look for evidence	14	70	6	30
10.	Critical thinking prepares the students to identify a real-world problem and explore possible solutions	14	70	6	30
12.	Critical thinking makes students evaluate information	14	70	6	30
9.	Critical thinking makes students take decision in different situations	12	60	8	40

First, 80 percent of the instructors (n=16) strongly agreed and 4 also agreed that critical thinking involves the utilization of the two following skills: exploring new ideas and keeping options open and the skill of making informed judgments. The three skills of identifying a real-world problem, evaluating information, and looking for evidence came in second place with 70 percent for each (n=14).

Moving to findings from instructors' responses to first open-ended question (Appendix H, Q1), out of 20 participants, 17 responses were recorded for the first open-ended question. Instructors' written perceptions reflected the variety of definitions and the multiple conceptualizations of critical thinking with a higher emphasis on evaluation, analysis, making informed judgments, and problem solving. The reference of reflection skills was present through the use of words such as rethink, review, reestablish. Most of the responses referred to the academic nature of critical thinking. However, around some instructors addressed the

relationship between critical thinking and shaping one's thoughts and ideas as humans, not necessarily for academic purposes. Such views are mentioned in the literature but normally less expected to be mentioned by instructors. Finally, unusual two responses views have an emotional touch of critical thinking (See Table 4.8).

Table 4.8: Examples of Instructors' Responses to the First Open-Ended Question (Source: Author)

Expected and more frequent codes (Academic perceptions)	Generic views of critical thinking (humanistic view)	Unusual responses
"The ability to analyze, synthesize and evaluate pieces is evidence and components of knowledge" (Answer 16)	*"absolutely essential to being a good human"* (Answer 15)	*"The ability to regret on"* (Answer 16)
"The ability to solve real world problems and find effective solutions" (Answer 14)	*"Helping students think for themselves by questioning the established views of others, especially those in power (government, family, teachers), as well as their own established views"* (Answer 3)	*"It is the bravery of the thinker to challenge traditions and norms of their society"* (Answer 12)
"judging an issue" (Answer 17)		

4.1.1.3 Instructors' Perceptions of the Best Methods for Developing Students' Critical Thinking in Writing Courses (p.7)

This third section presents instructors' perceptions of what they think the best ways to develop students' critical thinking in general and in writing courses. Similar to the previous section, this section starts with a presentation of the findings from closed-ended questions (Items 14-33) and then presents findings from open-ended questions.

Instructors' perceptions were examined towards the use of 20 ways as illustrated in Table 4.9. According to Table 4.9, the most apparent fact that all instructors do not strongly agree with the statement that critical thinking comes naturally. In contrast, the findings showed that 75 percent of the instructors (n=15) disagreed, and 10 percent (n=2) strongly disagreed that

critical thinking can be naturally acquired. Accordingly, instructors' perceptions of best ways to develop students' critical thinking revealed that the top two effective teaching methods are opinion essays (80%) and argumentative essays (70%). The second favored group includes critique writing, article review, instructing about fallacies, and problem-solving essays, all at the percentage of 65%. The majority of the instructors also strongly agree on the effective use of providing writing prompts in which students are engaged in textual analyses, the use of short assignments requiring students to evaluate information, Socratic Questioning, identification and analysis of a real-world, and finally the use of debates. On the other less than half of the instructors perceive synthesis essays, reflective journals, process writing and teacher feedback, and peer review as best ways to develop critical thinking. As for cooperative learning, which is usually seen by previous studies as one of the best ways to enhance critical thinking, findings revealed that it has been strongly favored by only 8 out of 20 instructors. Finally, most instructors do not strongly agree with devoting specific classes to explicitly teach CT and intentionally applying it into course assignments.

Table 4.9: Instructors' Perceptions of Best Methods for Developing Students' Critical Thinking in Writing Courses (Source: Author)

Survey Item Number	Survey Item	Strongly agree		Agree	
		#	%	#	%
24	opinion essays	16	80	4	20
25	argumentative essays	14	70	6	30
33	Asking students to review articles, evaluate evidence, and evaluate sources used.	13	65	7	35
30	problem-solving essays	13	65	6	30
26	instructing about fallacies	13	65	6	30
32	Asking students to write a critique	13	65	6	30
19	Asking students to consider how course material relates to them helps to foster students' critical thinking.	12	60	5	25
27	providing writing prompts in which students are engaged in textual analyses	11	55	8	40
28	short assignments requiring textual analysis	11	55	8	40

29	Socratic Questioning	11	55	6	30
18	Critical thinking could be enhanced through structured controversy or debate.	10	50	9	45
20	Critical thinking is best enhanced by asking students to identify a real-world problem and consider different solutions	10	50	9	45
23	process writing and teacher feedback	9	45	10	50
21	reflective journals	9	45	8	40
31	synthesis essays	9	45	6	30
18	Critical thinking is best practiced through cooperative learning –sharing in groups and working together to achieve a goal	8	40	10	50
22	peer review	8	40	8	40
15	Critical thinking should be explicitly taught during class time	5	25	10	50
16	Critical thinking should be intentionally applied in course assignments and lessons	5	25	8	40
14	Critical thinking comes naturally to students	0	0	1	5

Instructors' answers to the second open-ended question about best critical thinking teaching methods (Appendix H, Q2) were fewer in number (12 responses out of 20). Moreover, most of the responses are more similar to those mentioned in the close-ended questions and literature review, yet with different wording.

Examples of these responses mentioned by instructors include reading texts with embedded messages, debates and English clubs, and textual analysis and reasoning problems.

Some instructors blended the use of the technology with the same instructional methods mentioned in the close-ended questions. For example, one instructor mentioned *"Analyzing commercials and YouTube videos*" (Answer 2). Another instructor mentioned, *"Responding to images and videos, discussing online quotes and relating them to real life" (Answer12).*

Finally, two other instructors suggested the use of methods that have never been mentioned in the questionnaire or still not tested in the literature relevant to critical thinking teaching. One instructor wrote, *"Wonder wall"* and another instructor wrote, "*The use of 5 Ws to all of their readings, writing, and classroom discussions"* (Answers 10,5).

4.1.1.4 Instructors' Perceptions of the Most Effective Methods for Assessing Students' Critical Thinking in Writing Courses

The final part of the teacher questionnaire is about effective assessment methods as perceived by instructors. Starting with closed-ended questions (Items 34-40), Table 4.10 shows that instructors are less strongly positive about the most effective methods for critical thinking assessment. This is apparent from the values of strong agreement for the above-mentioned items. There are no high values, such as 80, 70 or even 60. A second observation is that the frequencies of "I do not know" have increased especially for the two items that read the use of ready-made tests (n=6) and students' self-assessment (n=3). Apparently, the use of ready-made critical thinking tests is the least favored assessment followed by students' self-assessment (35%). For the use of ready-made critical thinking tests, only two instructors strongly agreed and six agreed on using them. One possible explanation for this is that instructors have not used such ready-made tests before. On the other hand, the top two methods are formative assessment and essay-examination (55 percent for each). For the remaining assessment methods, half of the instructors strongly agreed on the effectiveness of directed discussions assessed by peers and instructors, embedded assessment, and the use of rubrics.

Table 4.10 Instructors' Perceptions of the Most Effective Methods for Assessing Students' Critical Thinking in Writing Courses (Source: Author)

Survey Item Number	Survey Item	Strongly agree		Agree	
		#	%	#	%
37	formative assessment	11	55	7	35
34	essay-examination	11	55	6	30
35	directed discussions assessed by peers and instructors	10	50	7	35

38	embedded assessment	10	50	4	20
39	use of rubrics	7	50	7	35
36	self-assessment	7	35	6	30
40	use of ready-made critical thinking tests	2	10	6	30

Moving into open-ended responses for assessment of students' critical thinking (Appendix H, Q3), there were 11 responses mainly focusing more on the use of rubrics and assignments such as cause and effect essays and argumentative essays rather than on formative assessment methods. Two responses just approved the use of all methods mentioned in the survey. Two additional suggestions proposed by two different instructors are project- based learning and digital literary analysis.

4.1.2 Results from Semi-structured Interviews

In this section, relevant findings to the first research question from six semi-structured face-to-face interviews are presented. Thus, narrative data relevant to the importance, best teaching and assessment methods of teaching critical thinking are discussed. Five of the six interviewees are females. The average duration of the interviews was 30-35 minutes. Four of the interviews were audio-recorded and fully transcribed. The remaining two participants did not want to be recorded, and therefore the researcher had to write down notes (See Appendix K). The six interviews were coded, and then themes and sub-themes had emerged. Eventually, six themes were developed of which four were relevant to the first question, and therefore they are discussed in this section.

4.1.2.1 Importance of Teaching Critical Thinking

The six instructors agreed on the importance of teaching critical thinking in English writing courses, yet for different reasons: academic, professional, or lifelong purposes as can be seen from the following interviewee's responses:

Interviewee #4: *"critical thinking at university can be an eye opener for many students to change the way they see life and tackle issues"*.

Interviewee #6: *"will serve as the differentiation factor that will make individuals stand out"*.

A different perspective for the importance of teaching critical thinking in writing courses suggested by one interviewee is that writing courses fall within the category of general education courses, and *"freshman students come and take our courses and we work with students from all natures. So that's why I think it should really be pushed in these writing classes"* (Interviewee #1).

4.1.2.2 Explicit Teaching of Critical Thinking Skills

Upon asking the six interviewees whether they explicitly teach or refer to the concept of critical thinking in their writing classes, instructors' responses varied between the levels of explication. While one instructor devoted one class for defining critical thinking at the beginning of the semester, three instructors mentioned that they usually refer to the importance of practicing the skills by saying. One instructor mentioned that she never explicitly defined it, yet she urged practicing it through the assignments she designed and the topics she chose. The remaining instructor (interviewee 6) did not comment at all. Here is what the interviewees said upon asking the question:

Interviewee #1: *"Well this is how I look at critical thinking. This is how I would like us to develop your critical thinking skills. And then what I do is use the quote by Elder and Paul, and I highlight strong critical thinking skills versus weak".*

Interviewee #2: *"I do not think I would ever say critical thinking means….. I probably would actually say that we have to think critically about this, to be able to see two points of view".*

Interviewee #3: "[*Y]es through encouraging them to think of their choices, arguments, keep asking them why? Why not you choose this not that?"*

Interviewee #4: *"Now many of the topics that I teach in academic English can be very daring if you like. I have a text on religion, it talks about Buddha. And I can see that some students are not comfortable sometimes, talking about religion".*

Interviewee #5: *" Certain classes especially those that need critical thinking and in addition to analytical thinking, I do explicitly put it in form in the beginning of the semester that they're going to have to use these kinds of skills to go through the assessment and the coursework and activities that you've done."*

4.1.2.3 Integration of Critical Thinking into the English Writing Course Syllabus and Classroom Activities

The six instructors agreed on the importance of integrating critical thinking into the writing course syllabus and suggested several ways to do so. However, the six instructors who work at five different universities outlined that unfortunately, while critical thinking skills are mentioned in the course learning outcomes, yet no specific guidelines have been outlined for the mechanism of integration. Therefore, they agreed it is the instructor's effort and talent to accomplish the integration. More important one of the instructors mentioned

that *"a lot of the writing course is about structure and maintaining paragraphs"* (Interviewee #2).

An interesting note here is that the six instructors differed in their viewpoints towards how much of critical thinking integration could be done. While two instructors view critical thinking as could be integrated into everything and every activity, others believed that integration is determined by the nature of the assignment. Below (Table 4.11) are responses that reflect the differing viewpoints:

Table 4.11: Examples of Instructors' General Versus Specific views of Critical Thinking (Source: Author)

General view	Specific view
"Okay. When looking at the syllabus, what topics might be found useful to integrate critical thinking skills, Everything" (Interviewee 1)	*"Some of the courses do have some units that do need critical thinking"*. (Interviewee 5)
"Tell you what, I use it every day with students, even with artificial rain that we had last year in Dubai" (Interviewee 4)	*" There are specific activities where critical thinking could be integrated […] journal writing"* (Interviewee 3)

For the best activities to integrate critical thinking into writing courses, critical reading, textual analysis, and the use of controversial topics for writing assignments have frequently mentioned. The latter suggestion has been mentioned by all instructors, such as choosing updating, interesting, shocking, and shaking topics. An example of a writing prompt mentioned by one instructor is: "*If you had given the chance for one day to change the world, what would you change and why?"* (Interviewee 3)

As for the topics for discussions, examples were varied as can be noticed below:

"How many of you are here are in favor of arranged marriages?", "Artificial rain, Do you like it?", and *"celebrating the Valentine?"* (Interviewee 4)

4.1.2.4 Assessing Students' Critical Thinking Skills

One of the common observations has been noticed while interviewing the instructors is the perplexing look they had when asked about effective methods they use for assessing students' critical thinking skills. Three out of the six interviewees asked for a waiting-time period to think of an answer to this question. In the end, the answers to this question were varied. First, the youngest instructor in age and experience was the only one who was in favor of the use of ready-made tests. At the other extreme, one of the opponent instructors mentioned: *"Critical thinking is subjective by nature, then how MCQs-standardized tests can measure such a subjective element?"* (Interviewee 3)

Second, the analysis revealed that the only one common method used by the six instructors is formative assessment. The six instructors use class discussions, pair work, and reflective journals. The use of reflective practices whether journals or essays was viewed by instructors as the best method for measuring students' critical thinking skills. One instructor outlined that until instructors have specific criteria for measuring students' critical thinking skills, *"Formative even embedded assessment is a better option […] unfortunately in our syllabus, there are no criteria for measuring students' critical thinking skills, and therefore, I prefer using reflective journals as an indication of students' critical thinking"* (Interviewee 3).

Third, only one instructor has a plan including different types of assessment (summative and formative) to measure students' critical thinking skills. It is the same instructor who devoted one class on the explicit teaching of critical thinking. The process of assessment is planned as follows,

"So I'll take it from beginning, middle, to the end regarding the assessment. So the assessment begins with a discussion of questions, but of course it's low stakes. I'm not grading them, I'm

just listening to how they are explaining their opinions, how they are using the discussion questions that I'm giving them […] Then we go on to something a little bit higher level, which is the activities that I do in class [..] And a lot of students had questions, perhaps not during that moment when you were observing, but a lot of them had questions. And then in that way I was assessing, "Ah, okay. So, this concept in which they need critical thinking is still difficult," and then I can review it with the whole class […] and then finally in my rubric I divide the essay by intro, each paragraph, body, paragraph, conclusion, and always it's highlighted, did you critically analyze? For example, do you have a claim? Do you have supporting evidence? Are you analyzing that evidence? And that sort of the critical thinking comes in. So yes, I do assess them on that" (Interviewee 1)

Finally, other instructors suggested interactive yet informal methods they think of them useful to measure students' critical thinking skills, such as debate clubs and the use of social media posts to encourage discussions and reflections.

4.2 Results for College Students' Perceptions of Their Critical Thinking Experience in English Writing Courses

This section presents findings from the analysis of college students' responses to the student survey. Based on the major components of the student survey, this section is divided into four subsections. First is a description of the characteristics of the participating students. Next is a presentation of their understanding of CT definitions and skills. The third section then includes a description of the students' perceptions of the importance of CT and how CT can be best taught. The final part will address students' perceptions of most effective critical thinking assessment.

4.2.1 Characteristics of Participating Students

The number of college students who completed the survey is 253 English writing students. Their demographics include five variables: student's gender, age range, nationality, academic level at university, and finally major.

As Table (4.12) indicates, 68 percent of the participants are females, and 32 percent for males.

Table 4.12: Student Gender (Source: Author)

		Frequency	Percent
Valid	Female	172	68.0
	Male	81	32.0

As for students' age range, most of the students surveyed belong to the 17-25 age group (n= 228), left with 15 students for the second age-group of 25-35, 8 for the third age-group 36-40, and only one student aged 41 and above (Table 4.13).

Table 4.13: Student Age (Source: Author)

		Frequency	Percent
Valid	17-24	228	90.1
	25-35	15	5.9
	30-40	8	3.2
	41 and above	1	.4
	Total	252	99.6
Missing		1	.4
Total		253	100.0

The third variable was the students' nationality. Nationalities of students were collapsed into five categories organized in descending order, as presented in Table 4.14 below: Middle Eastern countries (n=184), South Asia countries (n=12), Europe (n=4), Africans (n=2), and finally only two from North America.

Table 4.14: Student Nationality (Source: Author)

		Frequency	Percent
Valid	Middle Eastern Countries	184	72.7
	South Asia	12	4.7
	Europe	4	1.6
	African countries	3	1.2
	North America	2	.8
	Total	205	81.0
Missing		48	19.0
Total		253	100.0

Fourth is the students' academic level. As expected, the majority of the students surveyed are freshmen (66 %), followed by sophomores (16 %). Next comes the third group where 24 of the 253 students are juniors. Though it was not expected to find seniors still taking a writing course, yet the sample has 18 seniors, as indicated in Table 4.15

Table 4.15: Student Academic Level (Source: Author)

		Frequency	Percent
Valid	Freshman	167	66.0
	Junior	24	9.5
	Senior	18	7.1
	Sophomore	42	16.6
	Total	251	99.2
Missing	5	2	.8
Total		253	100.0

For the last variable, which is students' major, the researcher had to contact colleges to ensure the accuracy of the listed major, until eventually, 68 valid majors were recorded. These 68 majors were then collapsed into 8 groups based on their major scope (See Table 4.16). The highest group includes students from the school of Business and Management (19%), while smallest group is Education and Social Science consisting 3.6% of the sample.

Table 4.16: Student Major (Source: Author)

		Frequency	Percent
Valid	Business and Management	48	19
	Media and Mass Communication	32	12.6
	Engineering	31	12.3
	Medical Science and Dentistry	28	11.1
	Art and Fashion Design	27	10.6
	Science and Information Technology	16	6.3
	Security and Strategic Studies	11	4.3
	Education and Social Science	9	3.6
	Total	202	79.8
Missing		51	19.2
Total		253	100.0

4.2.2 Students' Understanding of the Definition and Skills of Critical Thinking

The second part of the survey investigates students' perceptions of how they perceived the definition and skills of CT in writing courses. Thus, numeric data obtained from the first seven close-ended questions are presented below.

So, for how students perceive the definition of critical thinking (See Table 4.17), findings showed that more than half of the students strongly agreed that critical thinking is an act of exploring new ideas (52.2 %) and analyzing information (52%) rather than simply understanding the information (38.6). Under half of the students think that critical thinking as a tool to help students take decision (42.7%). Finally, findings revealed that students in this study are also less likely to see CT as evaluating information (35.2%) or looking for evidence (36.1%).

Table 4.17: Students' Definitions of Critical Thinking and Skills (Source: Author)

Survey Item Number	Survey Item	Strongly Agree		Agree	
		#	%	#	%
4	Critical thinking makes the students analyze the information	130	52.0%	99	39.6 %

5	Critical thinking allows students to explore ideas, keep options open and imagine	132	52.2%	103	40.7 %
6	Critical thinking makes students take decision in different situations	108	42.7%	110	43.5 %
2	Critical thinking focuses on problem-solving	101	39.9%	125	49.4 %
1	Critical thinking focuses on understanding the information	97	38.6%	124	49.4 %
7	Critical thinking makes the students look for evidence	91	36.1%	116	46.0 %
3	Critical thinking focuses on evaluating how true the information is	89	35.2%	101	39.9 %

Upon analyzing students' responses (n=182) to the first open-ended question regarding their perceptions of critical thinking (Appendix I, Q1), it has been found that the perception of critical thinking as an analysis of information/ideas/ issues/points was the most frequent. For example, one student wrote, "*Not necessarily to have objections for each topic but we have to use critical thinking to analyze, understand and evaluate the case then we judge on the case"* (Answer37). Another student wrote *"Reading a piece of information once and getting an overall idea about it then reading it again to point the major statements in it then read it a third time and try to understand the information and connect it to the original topic and see if it has consistency"* (Answer 21). Students' responses also frequently referred to problem-solving and creative thinking. The frequent reference of critical thinking as thinking out of the box and linking it to creative thinking was remarkable as one student wrote here, *"Critical thinking is a unique way to think outside the box. Also, it can be a way of thinking that can be used to solve any problem or situation"* (Answer 11). This substantially in accordance with students' perceptions of critical thinking as exploring new ideas, as revealed earlier from analyzing numeric data.

Making informed judgment, evaluation, and reasoning were also present in the students' responses. Similar to instructors, students included more than one skill in one definition. For instance, one student referred to analysis, evaluation, and openness in one written response, *"It is looking deep into a certain topic in order to analyze it or to gain new perspectives. It is also the ability to look and assess the information gained in an objective manner"* (Student's response 25)

Some students' responses avoided defining critical thinking and addressed its importance to improve one's thinking/understanding life as a broader perspective. An example of this view as one student wrote, *"To be able to keep an open-mind as you make sense of the real world around you"* (Answer 177). Others referred to its importance to gain more grades and achieve better at college courses.

The unexpected responses were those in which a few students referred to the complexity of the process of critical thinking, in other terms, referring to the metacognitive aspects of critical thinking yet through using simple words and sometimes unusual words. For example, one response written by a student discussed the complexity of how to think critically as *"paranormal way and fast"* (Answer 13). Another student referred to the effort needed to think critically by *"squeezing the mind"* (Answer88), and a third response made by a different student about the inability of some individuals to think critically as it is a *"higher-order thinking skills that not everyone has. Not everyone can obtain it"* (Answer 120).

Another unusual response connected critical thinking to morals; a debatable point is mentioned in the literature of whether critical thinking should be guided by morals or not. So, one student wrote, *"A quality, where in the person can act/judge in a situation/problem,*

based on their analysis, evaluation, and to which they believe to be what is morally correct in a snap" (Answer 105).

4.2.3 Students' Perceptions of How Critical thinking Can be Best Taught

As the sub-heading indicates, this part will discuss students' perceptions of the importance of developing critical thinking and the best methods to achieve this. Similar to the previous section, this section starts with a presentation of the findings from closed-ended questions (Items 8-17) and then presents findings from open-ended questions. As can be indicated from Table 4.18 below, students are less likely to agree that critical thinking comes naturally to students (13%), and therefore levels of strong agreement are highest for teaching students how they could think critically during class time. 113 strongly agreed and 105 students agreed that explicit teaching of how students could think critically is the best method to learn critical thinking. Only 14 students disagreed on the idea and 21 do not know how useful this idea is. Levels of agreement are also apparent for group work. In total 213 out 253 students think that working in groups could help them foster their critical thinking. It might not be surprising to find the use of class discussions listed within the top three best methods to learn critical thinking. Students mostly prefer interactive rather than demanding tasks such as argumentative and opinion essays.124 students agreed and additional 95 strongly agreed think that class discussions can be effective in fostering critical thinking.

Finally, Table 4.18 shows that students of writing courses do not think the writing activities listed in the survey as much effective in fostering their critical thinking skills. Argumentative essays is least favoured by students (15.4%). Opinion essays, short analysis essays, journals are also less likely to be viewed as best methods to learn critical thinking.

Table 4.18: Students' Perceptions of How Critical Thinking Skills Can Be Best Taught (Source: Author)

Survey Item Number	Survey Item	Strongly Agree		Agree	
		#	%	#	%
9	Teachers should teach students how to think critically during class time.	113	44.7	105	41.5
10	Students' critical thinking can be improved in groups and by working together to achieve a goal	102	40.3	111	43.9
13	questioning/Discussions	95	37.5	124	49.0
15	asking students to review their work by themselves first and then with their teachers and get feedback	78	30.8	117	46.2
12	Short assignments asking students to analyse and evaluate material is the most useful method to improve students' critical thinking skills.	55	21.7	139	54.9
14	Asking students to write opinion essays opinion essays	55	21.7	120	47.4
16	Asking students to review articles, evaluate evidence, and evaluate sources used is mostly useful to improve their critical thinking.	46	18.2	139	54.9
17	Asking students to write journals about life and university experiences and what lessons they learned from these experiences helps students to think critically. (reflective journals)	46	18.2	97	38.3
11	Asking students to write argumentative essays	39	15.4	115	45.5
8	Critical thinking comes naturally to students	33	13.0	79	31.2

Narrative responses from students' answers to the second open-ended question about how best methods lo learn critical thinking (Appendix I, Q2), on the other hand, revealed that students' responses mostly focused on writing and reading activities as best methods to enhance students' critical thinking skills. Writing journals, summaries, critique essays are examples of these activities mentioned by the students.

Second in frequency is the use of class discussions and debates as a means to share opinions and practice argumentation as stated here by one student, *"Debates to help students realize the voices of their opinions"* (Answer 3).

Existing in the literature yet less expected are responses in which references were made to the necessity for providing students with examples and samples to support their attempts to think critically. This has been recommended by previous studies, yet the researcher did not expect students to highlight this issue as can be seen from this answer by one student, *"Some people do not know how to do critical thinking, so teachers should demonstrate it to students"* (Answer135). Another unexpected response, yet has been examined by previous studies, was the use of outdoor activities. One student wrote, *"field trips to observe things in reality instead of just reading and then writing about them"* (Answer 95).

The analysis finally reported responses which suggested different methods than the ones from the survey, mostly dependent on the use of technology and visual aids such as posters, YouTube, and drawing. Furthermore, students suggest the use of challenging mental activities, such as puzzles or riddles, mystery problems, and tricky games, to enhance students' higher order thinking skills in general and critical thinking. There was an emphasis on more practical activities such as making projects and real-life situations.

4.2.4 Students' Perceptions of Effective Assessment Methods

For critical thinking assessment (Table 4.19), of the five assessment methods, students' preferences were directed towards formative assessment followed using directed discussions assessed by peers and instructors. The majority of them agreed (60.1) and around 20 percent strongly agreed that formative assessment could be the best effective method for assessing

students' critical thinking. Second to formative assessment, more than half of the students agreed that the use of directed discussions assessed by peers and instructors could be an effective method for assessment. Levels of agreement are lower for the use of rubrics and self-assessment (23.3% and 15.8 % respectively). On the other hand, students are less likely to perceive essay-examination (12.6%) as an effective assessment method.

Table 4.19: Students' Perceptions of Effective Critical Thinking Assessment Methods (Source: Author)

Survey Item Number	Survey Item	Strongly agree		Agree	
		#	%	#	%
21	use of formative assessment where students receive written and oral feedback on their critical thinking skills	55	21.7	152	60.1
19	directed discussions assessed by peers and instructors	53	20.9	146	57.7
22	use of rubrics	59	23.3	114	45.1
20	self-assessment	40	15.8	130	51.4
18	essay-examination	32	12.6	116	45.8

As for students' responses to the open-ended research about assessment methods (Appendix I, Q3), 69 responses only were recorded. Narrative data obtained from students' responses substantiated major findings from numeric data, as students frequently referred to tools of formative assessment tools and teacher feedback. A few suggestions referred to summative methods such as essay-examination, quizzes, use of rubrics, and debates which are graded, yet emphasizing the need to *"acknowledging the students' different learning styles"* (Answer 62). Finally, three responses suggested three different techniques than the ones listed in the questionnaire such as the use of exit cards, case studies, and question games.

In conclusion, students' preference to avoid the use of high-stake or formal assessment methods and adopt more formative methods is anticipated. Students invited instructors to use

creative ways to enhance and assess students' critical and creative thinking as illustrated in the following response by one student*: "bringing creativity into place instead of just the traditional normal way of doing things, I think teachers could make students think outside of the box and be creative in order for them to do problem solving and bringing the creative part of the student"* (Answer 10).

4.3 Results for Critical Thinking and Demographic Factors

In the third section of chapter 4, relevant results to the relationship between critical thinking and demographic factors of instructors and students are presented. Presentation of data will be divided into two main subsections, one for critical thinking and instructors' demographic factors and one subsection for critical thinking and students' demographic factors.

4.3.1 The Relationship between Instructors' Demographic Background and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

Using the survey data, instructors' perceptions of CT definition, skills, and best teaching and assessment methods were examined in relation to their gender, age group, nationality, and academic degree.

Starting with instructors' gender and their perceptions of CT definition, skills, and best teaching and assessment methods, odds ratios were calculated, and the following results were found. Firstly, more than half of the values for odds ratios were undefined (25 items out of 40) because all members of one or both groups agreed or disagreed with certain survey items (See Appendix G). Items where only all-female instructors found to agree with are:

Q1 Critical thinking focuses on the interpretation of information

Q2 Critical thinking is deep reflection thinking
Q 17 Critical thinking could be enhanced through structured controversy or debate
Q 18 Critical thinking is best practiced through cooperative learning –sharing in groups and working together to achieve a goal
Q 20 Critical thinking is best enhanced by asking students to identify a real-world problem and consider different solutions
Q 21 Asking students to write reflective journals
Q 28 Providing writing prompts in which students are engaged in textual analyses

On the other hand, one item was only found to be disagreed by all female instructors which is relevant to the natural acquisition of critical thinking.

Items where only all male instructors were found to agree with are:

Q 6 Critical thinking is making inferences
Q 23 Process writing where students receive feedback from instructors on their writing
Q 26 Instructing students about fallacies
Q 27 Short assignments requiring students evaluating information

One interesting observation which can be substantiated by future research is regarding male instructors' perception of the use of a ready- made critical thinking standardized test. Out of the 8 instructors only one instructor was found to agree with the effective use of such tests. Secondly, for defined odds ratios, values were all below 2 except for instructors' perceptions of using peer-review which was only 0.3 above 2 (2.3). According to this, male instructors are 2.3 times more likely to agree on the use of peer reviews of student writing than female instructors. Therefore, for those items with defined odds ratios (15 out of 40 items), it can be said that no major significant differences were found between instructors' gender and their perceptions of CT definition, skills, best teaching and assessment methods. For the second demographic variable which is age-group, frequencies of instructors' agreement were examined for each survey item, yet they were not compared between the three age-groups due to the low number of age-group 51 and above (n=3). All results are presented in Appendix G, while major findings will be discussed here.

So, starting with comparing instructors' age and their perceptions of CT definition and skills, two observations were recorded though. First, for age-group 25-40, all the seven instructors belong to this age-group strongly agreed that analysis of information is the main element of critical thinking. Second, while results for the whole sample found that reasoning is less likely to be perceived by instructors as the main element of CT, yet descriptive statistics for age-groups indicated that all the instructors who aged 50 and above (n=3) strongly agreed that reasoning is the main element of CT. Thus, the low number of members of this age group does not allow for generalizations.

For the two categories of instructors' perceptions of best teaching and assessment of CT and instructors' age group, only one observation was found, which is about instructors' perceptions of the effective use of opinion essays to enhance students' critical thinking skills in writing courses. The older the age is, the stronger the belief in the use of opinion essay is. Only four out of seven instructors aged between 25-40 strongly agreed with the use of opinion essays, while 9 out of 10 instructors aged between 41-50 and all of those who aged 51 and above strongly agreed with the use of opinion essays to enhance students' critical thinking skills in writing courses.

As mentioned in chapter three, due to the low number of individuals within nationality groups, it has been found appropriate by the researcher to divide them in terms of western versus eastern cultures. The number of instructors in each category is nine. Those significant findings are presented here, while results for all survey items are included in Appendix G.

First, there were no significant differences between the way western and eastern instructors perceived the definition and skills of critical thinking. For instructors' perceptions of best

methods for enhancing students' critical thinking, all eastern instructors agreed with the use of explicit teaching on how students can use their critical thinking during class time. Western instructors, on the other hand, have different views regarding this method (six agreed and 3 disagreed). Similarly, all eastern instructors agreed with the use of reflective journals to enhance students' critical thinking skills, whereas six western instructors agreed, and 3 ones disagreed with using them.

Differences in instructors' perceptions were a little bit more apparent in relation to assessment methods, especially for student-directed discussions, assessed by both the instructor and peers, student self-assessment, and embedded assessment on formal exams. All eastern instructors agreed with the use of student-directed discussions, assessed by both the instructor and peers, whereas six western instructors agreed, and 3 ones disagreed with using them. Eastern instructors (77%) are also more likely to agree with the use of student self-assessment than western instructors (44%). The difference was further evident in the percentage of eastern instructors who agreed with the use of embedded assessment in comparison of that of the western instructors. 89% of eastern instructors prefer to use embedded assessment, while 55% of western instructors do think the same.

Finally, for academic degree and instructors' perceptions of the definition, skills, and best teaching and assessment methods, odds ratio was calculated for each item.

Odds ratio for items (1-13) which are relevant to instructors' perceptions of CT definition and skills were mostly undefined because members of both groups agreed on most items (See Appendix G). Defined values were below two, and therefore, they are only presented in the Appendix. Following is a discussion of odds ratio for items which are relevant to best CT teaching methods (14-33). The same was found in this category. Odds ratio for items

(14-33) were mostly undefined because members of one or both groups agreed with most items. Only one observation has been recorded here is in relation to synthesis essays. Holders of PhD degree are 4.6 times more likely to use synthesis essays to enhance students' critical thinking than holders of MA degree.

Finally, studying the relationship between instructors' academic degree and their perceptions of CT assessment revealed that except for formative and embedded assessment, no statistical differences were found for most the items relevant to assessment. The values for odds ratio were all below two. For formative and embedded assessment, all holders of MA degree agreed with the use of the two methods. For the latter, however, holders of MA degree are 2.5 times more likely to agree with the use of embedded assessment than holders of PhD degree. All results are included in Appendix G.

The fifth demographic variable is the number of years for instructors' teaching experience. Starting with instructors' perceptions of CT definitions and skills, all groups are likely to agree with survey items (1-13). For all results, see (Appendix G). With regard to instructors' perceptions of best teaching methods, not too many major differences have noticed between groups in terms of levels agreement. One interesting finding is that those who have been teaching for 21 years and above (n=5) agreed that teachers should devote classes for teaching critical thinking. Use of debates was favoured by all instructors whose teaching experience is less than 11 years (n=4). All instructors who have 11-15 years of teaching experience (n=6) agreed with the use of group work. Finally, for instructors' perceptions of best assessment methods, one significant finding is that only 20% of instructors with more than 20-year teaching experience agreed with the use of ready-made tests to measure students' critical thinking, while those with less experience (below 15

years) are more likely to agree with using them, 50% for the two groups:1-10 and 11-15. Instructors with less teaching experience seem to less agree with the use of rubrics and student self-assessment.

4.3.2 The Relationship between Students' Demographic Background and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

To examine if there is a relationship between students' demographic background and their perceptions of CT definition and best teaching and assessment methods, results from numeric survey data and narrative data from semi-structured teacher interviews are presented in this section, respectively.

4.3.2.1 Results from Survey Data

Using the survey data, students' perceptions of CT definition, skills, and best teaching and assessment methods were examined in relation to gender, nationality, and subject major. Starting with students' gender and their perceptions of CT definition, skills, and best teaching and assessment methods, odds ratios were calculated, and the following results were found. All values for odds ratio are defined, yet all except for one item are below 2 (See Appendix G). The exception was for students' perceptions of formative assessment. Findings revealed that male students were twice times likely to agree on the use of formative assessment than female students.

Moving to the relationship between student nationality and perceptions of CT definition and skills revealed no differences in the way students of different nationalities (Middle East, Europe, North America, South Asia, and Africa) perceive the definition of critical thinking. However due to the low number of students belonging to the three groups of

Europe, Africa, and North America, results cannot be generalized (4, 3, and 2 respectively). All results in relation to students' nationality and their perceptions of each survey item are presented in Appendix G, while major findings will be discussed here.

So, 94 percent of Middle Eastern students perceive critical thinking as exploring new ideas, while only 75 percent of them believe that evaluation is the main element of critical thinking. All South Asian students, on the other hand, agreed that critical thinking involves interpretation of information and problem-solving. Yet, similar to Middle Eastern students, they least perceived critical thinking as a practice of evaluation. All Africans, Americans and Europeans also view critical thinking as problem-solving and analysis of information. For best methods of fostering critical thinking, Middle Eastern students mostly preferred class discussions (88%) and least preferred reflective journals (52.7%). For the second largest nationality group, South Asia, they mostly liked to be explicitly taught on how they can think critically during class time (91%), while they least preferred the use of opinion essays (41.7%). Thirdly, Middle Eastern perceptions of best assessment methods were directed towards the use of formative assessment methods (82%). The same group, on the other hand, are less likely to perceive essay examination as useful for assessment purposes. Like Middle Eastern students, South Asians mostly favoured formal assessment (91%), yet they least preferred student self-assessment (66.7%).

The final demographic variable is student subject major. For all results, see Appendix G. The largest group in number of students is business students (n=48), and 95.8% of them perceive critical thinking as problem-solving and decision-making. Nevertheless, they are less likely to agree that critical thinking is about evaluating information (68%). According

to Table 4.20, except for art and security students, critical thinking is less likely to be seen as a practice of evaluation by most students.

Table 4.20: Students' Top and Bottom Preferred CT Perceptions by Subject Major (Source: Author)

Subject Major	The Top Preferred Perception	The Bottom Preferred Perception
Business and management(n=48)	problem-solving and decision-making (95.8%)	evaluation (68%)
Media (n=32)	interpretating and exploring new ideas (97%)	evaluation (78%)
Engineering (n= 31)	analyzing information (100%)	evaluation (74.2%)
Medical Science and Dentistry (n=28)	exploring new ideas (89.3%)	evaluation (57%)
Art (n= 27)	exploring new ideas (96.3%)	looking for evidence (81.5%)
IT (n=16)	problem-solving (100%)	evaluation (81.3)
Security (n=11)	interpretating, exploring new ideas, decision-making (100%)	looking for evidence (72.7%)
Education (n=9)	interpreting, analyzing, problem-solving, looking for evidence (100%)	evaluating, exploring new ideas, and decision-making (89%)

Table 4.20 also revealed that that there are four out of the eight groups in which all group members agreed with one, two, or three survey items. First, all engineering students (n=31) agreed that critical thinking is about analyzing information. IT students all perceived critical thinking as problem-solving. All security students agreed that critical thinking is about interpretating, exploring new ideas, decision-making. Finally, the low number of education students made it difficult to find major differences in their perceptions, yet all members agreed that critical thinking is about interpreting, analyzing, problem-solving, and looking for evidence.

Moving to results for student subject major and their perceptions of how critical thinking can be best enhanced, it can be noticed from Table 4.21 that only two groups have their members all agreed with certain survey items. All students majored in Security and

Education studies agreed that class discussions are mostly useful to enhance students' critical thinking. In addition to class discussions, the former group also agreed with the use of group work, while the latter agreed with the use of explicit teaching on how students can use critical thinking during class time. The only group whose members did not show major differences in their responses is the Science and IT group.

Table 4.21: Students' Top and Bottom Preferred CT Teaching Methods by Subject Major (Source: Author)

Subject Major	The Top Preferred Teaching Method	The Bottom Preferred Method
Business and management	teaching on how they can use critical thinking during class time (95.8%)	reflective journals (68%)
Media	teaching on how they can use critical thinking during class time and group work (87.5%)	reflective journals (53%)
Engineering	class discussions (90%)	reflective journals (48.4%)
Medical Science and Dentistry	teaching on how they can use critical thinking during class time (89.3%)	argumentative essays (46.4%)
Art	Group work and process writing and teacher feedback (92.6%)	reflective journals (44.4%)
Science and IT	process writing and teacher feedback (93.8%)	argumentative essays (81.3)
Security	Group work and class discussions (100%)	reflective journals (54.5%)
Education	teaching on how they can use critical thinking during class time and class discussions (100%)	reflective journals (44.4%)

Finally, the results for student subject major and their perceptions of how critical thinking can be best assessed showed only one group has its members all agreed with one survey item. From Table 4.22, all education students preferred the use of formative assessment followed by Science and IT students (93.8%) and Security students (91%). However, most media students preferred using student directed discussions (84.4%).

Table 4.22: Students' Top and Bottom Preferred CT Teaching Methods by Subject Major (Source: Author)

Subject Major	The Top Preferred Assessment Method	The Bottom Preferred Method
Business and management	formative assessment (77.8%)	self-assessment (56.3%)
Media	student directed discussions, assessed by both the instructor and peers (84.4%)	essay examination (40.6%)
Engineering	formative assessment and student directed discussions, assessed by both the instructor and peers (83.9%)	essay examination (48.4%)
Medical Science and Dentistry	formative assessment (78.6%)	self-assessment (43%)
Art	formative assessment (81.5%)	essay examination (40.7%)
Science and IT	formative assessment, student self-assessment, and use of rubrics (93.8%)	essay examination (56.3%)
Security	formative assessment (91%)	reflective journals (63.6%)
Education	formative assessment (100%)	self-assessment (33.3%)

4.3.2.1 Results from Interview Data

Upon asking the six instructors if they have been observed any relationship between critical thinking and demographic variables such as gender, nationality, and age, two instructors preferred not to comment on this, as they might be misunderstood or misinterpreted. However, the other four openly outlined their observations.

First, regarding gender, two out of the three mentioned that females in this country are more serious about their learning, and therefore, they try harder to display skills. It is important to highlight here that the instructors did not say that females are better as critical thinkers than males, just more responsible and motivated, as interestingly explained by one instructor, *" I would always think that as a general rule, now do not get me wrong I've had some very strong male students as well, but it's almost like I'm feeling maybe it's kind of a* ***cultural thing*** *as well that females here feel more motivated as they're coming out of the shadow of a male dominant* ***society****. That would have been before, not now. Things are definitely changing now. But you can see real motivation in females"* (Interviewee 2).

Interviewee one added, *"I cannot actually say that more girls share their ideas than boys. It just really, again, depends on the class makeup, and so on. But regarding their writing, this is something I know that has been discussed* ***in this region****, that a lot of young women, once they come to university, they take their education very, very seriously. A lot more than these boys. Again I hate stereotypes, but it's a lot of boys who attended perhaps a public school, and I think they've been coddled a lot and so on. And so, they are just not taking their education seriously. And I will tell you this also, and students tell me this, and they write about this. It is the way they are* ***treated in their families and society, right****? Boys are pushed to go to university. It is expected of them, even if they do not take it seriously. Whereas for a lot of young women, it seems like it's very important to them because they are going"*.

Second, in the two quotations above, when the two instructors spoke of gender differences, they tried to explain their observations in terms of cultural and social norms. These terms are indicated above in bold. The role of culture has been raised by another two different instructors. One instructor highlighted the role of culture in shaping students' thinking as follows, *"culture places a huge impact on the way we think, the way we act, the way we even receive information, knowledge, and issues around us. The way we solve problems, the way we think about them, the way we interact"* (Interviewee 5).

Another interesting response has been made by one instructor who is Emirati yet studied at a private Catholic school, *"Yeah, when people are more relaxed, they are better thinkers. For me, I went to a private school that was run by Catholic nuns. We used to celebrate Easter, Muslims, and non-Muslims. Things were more relaxed. But here, the big disadvantage is that the dominance that we are Muslims. The minorities feel left out most of the time"* (Interviewee 4).

Finally, only one instructor (Interviewee 1) addressed the issue of nationality and explained that she has done a research study on students' critical thinking and the factors of culture and nationality. The findings of the study as stated by the instructor are as follows,

"there's this misconception that Arab students do not use their practice critical thinking, and I feel like it's really easy to just categorize students and say, "Oh, you were taught in a collectivist society, therefore you do not want to challenge people's opinions, etc, etc." And then of course individualists would be from, I am putting in quotations, "From Western countries," right?" (Interviewee 1).

The instructor elaborated that it is more dependent on the type of education an individual receives until s/he graduates from high school, and according to this instructor, the argument of public versus private education is again highlighted: *"But then I also believe it's still supporting the individualist collectivist idea, because I do see often when students are going to a private English school, then they have more of an understanding and practice of what I mean by strong critical thinking skills."*

The instructor concluded with a warning that instructors who believe in such a *"binary view"* of collectivist versus individualist view towards students' critical thinking might deprive students of collective cultures the opportunity to display their critical thinking skills, *"Educators start looking at students from these particular societies, then we do not recognize how strong their critical thinking skills might actually be. Or maybe we give too much credit to students who come from the individualist societies, because they are so used to sharing their answers in class and so on. It does not necessarily mean that the other students have lesser skills."*

4.4 Results for Instructors Practices of Critical Thinking in English writing courses

In this section findings relevant to college instructors and students' CT practices are presented. These findings were obtained from class observations and semi-structured teacher interviews, and therefore the discussion of results will be presented in two subsections.

4.4.1 Results from Class Observations

Class observations are appropriate to observe whether instructors facilitate and encourage the practice of critical thinking or not. In addition, class observations were used to compare actual practices with respondents' report. As Johnson and Christensen (2014) outlined, participants' actual practices might differ from what they might say or believe. Finally, class observations help the researcher to watch students' practices of critical thinking during class time and teachers' feedback and reaction to students' practices.

Five English writing instructors teaching Academic Writing (Advanced Level II) approved to be observed. The total number of observations is five, one lesson per instructor. The duration of observation ranges between 40 to 50 minutes during which a checklist observation form was filled to organize the process of observing. Accordingly, data collected from observation was analyzed into themes derived from the observation checklist and in relation to research questions. The discussion of this subsection will be divided into three parts: Findings from individual observations, Common patterns and trends from observations, Comparison between instructors' stated perceptions of the definition, teaching, and assessment of critical thinking and their actual practices during class time.

4.4.1.1 Findings from Individual Observations

Analysis of individual observations was mainly guided by the categories included in the critical thinking observation checklist (See Appendix C) in combination to additional notes recorded by the researcher. Therefore, the discussion of each observation is divided into four parts: the types of critical thinking activities (Appendix J), instructor's instruction and practice of critical thinking skills, students' practice of critical thinking skills, and types of assessment used to measure students' critical thinking performance.

Observation of Instructor One

- Type of critical thinking activity: Rogerian Argument Research Essay

Rogerian Argument Research Essay consists of five paragraphs: introduction, representing Side 1, representing Side 2, common ground, and the last paragraph is the proposed solutions. During the observation, students were working on the common ground and solution paragraphs. So, a set of general critical thinking skills were practiced including analyzing the two sides of each topic, exploring suggestions for possible common ground thesis statements, keeping options open and evaluating each side of the topic, making an informed judgment based on valid evidence, and finally reaching to an agreement.

- Instructor's instruction and practice of critical thinking skills

In groups, students were required to work on creating common grounds based on four topics and suggest possible solutions. The aim is to help each other to develop a common ground for the members' individual thesis statement. While students were engaged in the discussions, the role of the instructor was moving around groups listening to students' arguments and discussions and giving them feedback whenever asked. More importantly, the instructor's

feedback played a role during the voting process in ensuring that that the vote goes for those who suggested a satisfying and well- reputable solution.

- Students' practices of critical thinking skills

As students were working in groups, heated discussions were raised among group members to suggest a strong solution. Overall, it was evident from students' discussions that not all students were capable of evaluating solutions, and therefore many times they needed the guidance of their instructor.

- Methods of critical thinking assessment

During class time, formative assessment has been mainly used especially when the instructor went around and indirectly assessed students' analyses and discussions. Also, the use of peer evaluation was evident during the voting time. Whoever received the most votes for the strongest solution earned ONE EXTRA CREDIT POINT to be applied to Essay 2: Rogerian Argument Research Essay. Yet, the final Rogerian Essay is being assessed using holistic rubrics (See Appendix J).

Observation of Instructor Two

- Type of critical thinking activity: Short Story Analysis and Reflection

The Blue Hotel is a short story by Stephen Crane, and the Swede is the main character of the story. During the observation, students were engaged in reading and analyzing a certain part of the story. The critical thinking skills practiced are analyzing a text, evaluating the main character's feelings and experience, and reflecting on the whole experience.

- Instructor's instruction and practice of critical thinking skills

The instructor instructed students to individually highlight what is happening to the main character, "The Swede", and analyze his behavior and thoughts. The instructor also engaged students in a reflective practice through asking students to reflect on the main character's experience and how that experience impacted his perception towards life. Below are the questions.

Q1: What perceptions of reality does the Swede have?

Q2: How main character (The Swede) is impacted by the experience?

- Students' practices of critical thinking skills

Analyzing the text was not an easy task for all students. The majority was busy understanding the vocabulary of the text, as it has been noticed that they were looking for word meaning. In general, students were able to answer questions related to the direct interpretation of the text, yet when they were required to evaluate the main character's feelings and actions, a few were willing to share their ideas and thoughts.

- Methods of critical thinking assessment

During class time, formative assessment has been mainly used, especially when the instructor went around and indirectly assessed students' analysis and answer students' inquiries.

Observation of Instructor Three

- Type of critical thinking activity: Problem-solving Essay

The essay according to the instructor's instructions should consist of 5 paragraphs: introducing the problem, analyzing causes and effects, and finally suggesting new solutions. During the observation time, it is the stage where the instructor explained the problem-solving essay outline and illustrated the steps by using the problem of 'internet addiction' as

an example. A reading text was also used to analyze the effects, causes, and solutions of the problem. In this observation, the main critical thinking skills practiced are identify a real-world problem, analyze its causes, and explore possible solutions.

- Instructor's instruction and practice of critical thinking skills

The instructor utilized the Socratic questioning method to see how students perceive the dangers of internet addiction. The instructor had control over the direction of the discussion yet allowing students to freely express their opinions. Moreover, the instructor insisted on urging students to illustrate their viewpoints with enough examples and full explanations through the utilization of "How?" and "Why?" questions. In cases where disagreement among students prevailed, the instructor asked both parts to either bring in more evidence or reach a compromise yet working individually not as a team.

A second activity including the discussion of another problem "Exam anxiety" was conducted, yet this time the activity aimed to introduce the frequent linguistic expressions and formulas used when analyzing a problem, such as consequences, result in, fall into, and others related to transitions.

- Students' practices of critical thinking skills

The choice of "internet addiction" as a topic for the warming-up activity increased the teacher-student interaction. Students were eager to analyze the effects of this kind of addiction. The reasons they mentioned are mostly blaming parents for being busy at work and impatient to listen to their kids' needs and stories. Showing courage and attempting to be objective during the discussion was remarkable. The use of critical thinking skills was evident in the way students tried to avoid subjectivity in analyzing such a controversial topic,

keeping in mind that this generation is of great support for the internet and developments in technology in general.

However, not all students participated in the discussion, especially those at the back. One possibility is that they were shy to participate because of the observer or might be scared to be open about their thoughts. Therefore, the researcher cannot provide full explanation about their critical thinking practices. Some of those students, however, participated in the second activity where they need to read the text and answer relevant questions. The level of difficulty in answering these questions is less, as students need just to identify parts that focus on causes, effects, and so on. Questions related to outlining transition points seem to be less challenging for students.

- Methods of critical thinking assessment

During class time, formative assessment has been mainly used. Whenever students answered, the instructor used to give feedback whether during the discussion activity or while answering the worksheet. Sometimes, the instructor involved peer evaluation. For example, peers were asked to evaluate how strong the solution suggested by one student during discussion time.

Observation of Instructor Four

- Type of critical thinking activity: Peer Review of Cause-Effect Essay

In pairs, students were asked to review a selection of five students' cause/effect essays using a certain checklist. Five writing prompts were given to students and so these samples represent the five writing prompts: The effect of unemployment on a person, The effects of growing up in a different country from your own home country, Gender equality in universities, Computer effects on children, and Communication. The peer checklist included

20 items to be checked. Items are divided between content, mechanics, and essay structure and organization. The items that are mostly relevant to the utilization of critical thinking are those which require students to (1) identity unclear and repeated ideas, (2) evaluate how strong the thesis statement, examples, evidence, and relevant details.

- Instructor's instruction and practice of critical thinking skills

The instructor required each pair to review the five samples. For each sample, the students were given a separate checklist and 10 minutes to review. By the end of the ten minutes, each pair had to hand in the checklist for the instructor to be later checked. To ensure that the students know what they need to do, the instructor jointly with students reviewed the first paragraph of the first essay as a model. While students checking, the instructor went around and provided feedback whenever needed.

- Students' level of interaction and practice of critical thinking skills

In pairs, students seemed to be busy to complete the task. Reaching an agreement over categorizing the errors was difficult, and supporting the case with evidence was more challenging, especially identifying unclear ideas. Clarity is subjective by nature, so what might sound unclear for one person, it might not be for someone else. Some pairs were faster than others. Also, some pairs spent more time arguing with each other, while a few pairs were silent. Therefore, the instructor's feedback was useful to clear such confusion.

- Methods of critical thinking assessment

During class time, formative assessment, peer review and teacher feedback, has been mainly used. The use of a checklist was a tool to guide the peer-review process, yet no official grading was given for students upon completing the task.

Observation of Instructor Five

- Type of critical thinking activity: Freewriting Versus Academic writing

Analyzing the differences between free writing and academic writing required students to display the following critical thinking skills as suggested by the instructor: analyzing, evaluating, and making informed judgments. So, there were two writing tasks: the first one was freewriting about a topic of students' choice (10 min). The second one was in groups, and students were given a topic and they need to write an outline for an essay (15 min). A final discussion was over how different free writing from academic writing.

- Instructor's instruction and practice of critical thinking skills

A heated class discussion was on whether free writing has sense or follows a certain line of argumentation (10 min). The instructor asked the following questions:

1. How many topics/ points were addressed in freewriting?
2. Does it follow a certain structure?
3. Are ideas fully explained and well-supported by evidence?

The instructor seemed to push students towards judging whether free writing makes sense or not. Finally, during class time, the instructor provided feedback whenever needed.

- Students' level of interaction and practice of critical thinking skills

For the freewriting activity, there was disagreement among students whether free writing makes sense or not. While some students viewed freewriting as a productive space to freely discuss "taboo" topics, others felt that free writing had no rational direction. For the latter part, freewriting is emotional, impulsive, and it misses strong evidence. Based on the

students' responses, the instructor reworded her questions to focus more on structural differences such as essay development and organization.

Completion of the second task was a little bit challenging for students as they needed to be more structured in their thinking and develop a clear thesis statement and three ideas supported by examples/explanations/ evidence. Instructor's feedback also helped to resolve disagreements in a few cases.

• Methods of critical thinking assessment

Formative assessment has been mainly used through the use of feedback. There was also bonus upon developing a strong thesis statement and 3 well-developed ideas.

Table 4.23 below summarizes the main findings from individual class observations and provides an overview of main practices.

Table 4.23: Summary of Class Observation Findings (Source: Author)

	Critical thinking activity	**Practiced critical thinking skills**	**Work mode**	**Type of students' interaction and practice of critical thinking skills**	**Type of assessment (if applicable)**
Observation 1	Rogerian Essay (Common ground between two viewpoints)	Analysis, exploring and evaluating evidence suggestions for possible common ground solutions	Group work	Heated group discussions, analyzing possible solutions to reach an agreement	Use of one credit point for suggesting a satisfying solution for both sides Teacher feedback on suggested solutions Use of rubrics for grading the whole essay
Observation 2	Short story analysis Blue Hotel Story	Textual analysis and interpretation of story events Reflection on the main character's experience	individual	Critical reading One way teacher-student interaction more interaction levels for	No formal assessment for critical thinking skills Formative assessment and teacher feedback

				interpretation than reflection	
Observation 3	Problem-solving essay Internet Addiction	Use of Socratic questioning to analyze a real-world problem, and explore possible solutions	individual	Teacher-student interaction Students argued possible causes with the instructor	No formal assessment for critical thinking skills Teacher feedback on students' arguments
Observation 4	Peer-review of five students' written essays (10 minutes for each)	Evaluating how clear the ideas are and how strong the evidence is through the use of a peer-checklist	Pair work	Pair discussions to reach an agreement Varied levels of interaction among pair members and between pairs	Use of peer-checklist Formative assessment and teacher feedback
Observation 5	Two tasks: one free writing and one academic writing	Analysing, evaluating, and making informed judgments on how freewriting is different from academic writing.	Individual Pair Group	Heated discussions among students whether free writing has a meaningful content Heated group discussion to structure their thinking and develop an essay outline.	Use of bonus for those who complete the essay outline/ Formative assessment and teacher feedback

4.4.1.2 Common Patterns and Trends of Class Observations

As can be seen from Table 4.24, the five instructors have designed different activities to allow students to practice critical thinking. Among the five activities, the Rogerian Argument Research Essay was the most demanding task, as students in groups were required to work on creating common grounds between two opposing viewpoints based on four topics and suggest possible solutions supported by evidence from previous studies.

Differences in activities required the utilization of different critical thinking skills. In each class observation, a minimum of two critical thinking skills were practiced. Basic critical thinking skills such as interpretation and analysis skills were common among the five observations. The five instructors designed the activities in a way that urges students to practice basic and complex (demanding) critical thinking skills. Demanding critical thinking skills are, for example, reflection (observation two), evaluation (observations one and four), and making informed judgments (observation five).

Students differed in their ability to practice critical thinking skills. It was evident that in general activities that required interpretation and analysis skills were easier than those of evaluation and reflective nature. For example, students were able to interpret the main events of the story in observation two, analyze the causes and effects of addiction on the internet in observation three, and identify repeated or irrelevant ideas in the peer-review activity in observation four. On the other hand, when students, for example, were required to reflect on how the main character in the story had been impacted by the experience he had, only two students out of twenty openly expressed their reflections. Nevertheless, it is worth noting that a few factors come to play in relation to students' critical thinking performance:

- classwork mode whether it was individual, pair, or group work mode
- the choice of topic
- use of incentives

Starting with work mode, in the three out of five observations where instructors required students to share opinions, discuss different viewpoints, or review ideas through the use of pair or group work, levels of students' interaction and engagement had increased. It has been also noticed that some students were more comfortable to openly share ideas within groups,

yet they were reluctant to speak loud and represent their groups. On the other hand, levels of students' interaction were lower when classwork mode is individual and heavily dependent on teacher-student interaction.

The use of group/pair work though was not enough to engage all students. For example, in observation four where students were peer-reviewing students' essays, a few pairs were silent or sometimes one member of the pair took over the whole responsibility to complete the task, while the other was either playing on the mobile or was just silent.

The choice of an updated topic, addiction on the internet, played a role in increasing students' interaction. Students were eager to discuss the effects of such kind of addiction, especially analyzing the role of parents.

Moving to critical thinking assessment, the only common assessment practice among the five instructors is formative assessment and the frequent use of teacher feedback. However, its application was different, conditioned by the critical thinking activity and work mode. In teacher-student interactions, instructors' feedback was more directed to informally measure one student's performance. For example, in the case of observation three where instructor-student instruction was prevalent, the instructor formatively assessed students' ideas and provides feedback through asking probing questions such as: How can you validate your argument? and Would you illustrate your points with examples? (observation three). Finally, when the use of credit points was applied, the difference was in the criteria used for evaluation.

4.4.1.3 Comparison between instructors' stated perceptions of the definition, teaching, and assessment of critical thinking and their actual practices during class time.

Instructors' responses to the survey were compared with their actual practices during the observation. This assisted to examine whether there is a consistent relationship between statements and actual practices. Findings revealed that overall, there is consistency between survey responses and actual practices except for a few minor things (See Table 4.24).

Table 4.24: Summary of Instructors' Stated Perception and Actual Practices (Source: Author)

	Summary of survey responses	Summary of actual practices during the observation
Instructor #1	instructor's perception of critical thinking: evaluation and making informed judgments	In practice, students were required to evaluate the best solution/ to provide reasons for their opinions.
	for effective teaching methods: use of discussions and essay writing	group work to reach an agreement/ Rogerian Essay
	formative assessment/use of rubrics	teacher feedback rubrics was applied to grade the essay
Instructor #2	instructor's perception: reflection, evaluation, and analysis of information (multiple recourses)	requiring students to analyze and reflect on the main character's experience
	for effective teaching methods, argumentative and opinion essays	use of short story was not mentioned in the survey
	embedded assessment	formative assessment (feedback)
Instructor #3	instructor's perception: strongly agreed on all items	identifying a real problem (Internet Addiction)
	strongly agrees with all methods with emphasis on class discussions	Socratic questioning The use of class discussions
	formative assessment	formative assessment (feedback)
Instructor #4	instructor's perception: strongly agreed on all items with an emphasis on questioning traditional beliefs	choice of debatable topics to question traditional beliefs such as gender equality in university
	strongly agrees with all methods	peer-review
	strongly agreed on all items even the formal assessment, such as the use of ready-made tests	peer-review checklist teacher feedback
Instructor #5	instructor's perception: judging an issue based on strong evidence	urging students to evaluate and judge whether their free writing make sense or not
	strongly agrees on all methods	individual pair and group work writing

	embedded and formative assessment	formative assessment/ use of incentives (bonus points)

4.4.2 Results from Semi-Structured Teacher Interviews

As this study aimed to investigate instructors' practices of critical thinking, it became essential to ask the instructors during the interviews about their evaluation of how successful or challenging their experiences were. Each instructor admitted that their critical thinking teaching experience is not an easy task, yet it is rewarding when they read in the students' evaluation comments like: *"Oh, this course changed my perspective,"* (Interviewee 4) and *"this course gave me space to think"* (Interviewee 3).

Another indication as outlined by three instructors is the development an instructor can trace in the way students analyze information and support their claims. The instructors explained that at the beginning of the semester, students' essays are not fully developed and supported with strong evidence. However, halfway through the semester and with the influence of instructors' feedback and peer- review, students' analysis and evaluation skills become much better.

As for the challenges, the instructors listed five main challenges:

1. Student engagement

Just as other class activities, ensuring that students are engaged in critical thinking activities is quite challenging as expressed by the majority of instructors, especially that such activities require the utilization of higher order thinking skills. *"[E]ngagement, and getting them to practice it, and getting them to see value"* is a major challenge as expressed by this instructor (Interviewee 1).

2. Students' motivation

Another concern raised by instructors is students' motivation. It has been indicated by the instructors that the writing course is a general education course, and so these courses are usually *"looked down on"*, and some "*students do not think they're as important as their major courses"* as outlined by Interviewee 1.

3. Time

Tracing real gains in critical thinking skills need time. A period of one semester is found by most of the instructors as not enough to detect gains in their students' critical thinking skills. Meeting students twice a week is not enough. Sometimes, students' different levels of English language proficiency might hinder progress and requires instructors to focus on sentence structure.

4. Conservative community

Practicing critical thinking could be risky in such conservative cultures. This is especially expressed by instructors who work for public universities. One instructor who works at one public university described practicing critical thinking as follows, *"I have to be very cautious because it's a minefield […] But for me, I do care to change. But if I did not want to really, I want to stay on the safe side, I would not; I would stick with the content most of the time. Because yeah, it can be very risky"* (Interviewee 3).

5. High-stake Assessment

It has been noticed by instructors that students are sometimes reluctant to use critical thinking skills in tasks of high-stake nature, though in class discussions and informal assessment, the same students are more open for analysis and creativity. According to instructors, students are sometimes scared or lazy to write their thoughts in order not to lose grades, as outlined by one instructor, *"When you get into an exam or a regular assessment in class or an activity*

that does not require kinesthetic learning or kinesthetic responses, that's a challenge because sometimes the student is not willing to think, he's not willing to, or they're not willing to make an effort, basically." (Interviewee 5)

Suggestions to overcome such challenges and increase students' engagement in critical thinking activities as stated by the instructors are:

1. Use of incentives such as grades and bonuses as mentioned by one instructor here:

"So, I hate to say this, but the threat of a lower grade is something that works […] If it does not include any incentives for them, that's another challenge." (Interviewee 1)

2. Use of peer or group evaluation/ discussion engage others in the discussion, as interviewee 2 said, *"I kind of really push them in trying to take ideas over. If someone says something, I will maybe say look at another student. "Okay. Do you agree with that? Can you kind of expand on that? Or are there any disagreements with this?" And go and take it that way […] they've responded well to it."*
3. Choice of topics and materials is mentioned as highlighted by two instructors,

"To motivate students to think critically about a certain topic, so I need to revise the topics each semester and see which ones motivated students' thinking and which ones are not." (Interviewee 3)

"I truly believe that adding the element of critical thinking in writing courses is what makes the writing experience more relevant to students (especially those specializing in STEM courses) […] The main challenge is to choose the appropriate material and have enough background information to provide a proper evaluation. This, however, is our job as instructors." (Interviewee 6)

4.5 Comparing Tutors' and Students' Understanding of CT, Their Perceptions of Effective Methods of Teaching and Assessing CT.

This section presents findings from comparing six instructors' perceptions, practices, and assessment of critical thinking with those of their students. For perceptions and assessment, instructors' survey responses to the close and open-ended questions in the two areas and instructors' answers to interview questions were analyzed in comparison to their students' responses to the close and open-ended questions. For practices, instructors' survey responses about the preferred teaching methods in addition to their actual practices during the observation were compared with students' survey responses to the same part of the student questionnaire in addition to students' practices during the observation. Though findings could be illuminative, yet they are tentative due to the fact that only six instructors with their students are included

Starting with the first instructor who has read and done studies on students' critical thinking skills, it can be noticed, as summarized in the Table (4.25), when compared to her students' perceptions, practices, assessment of critical thinking, there is a kind of conformity between the viewpoints of both parts. It is especially evident with the instructor and students' perceptions regarding the controversial issue of natural acquisition of critical thinking. Both of them disagreed with the idea and believe in the need for explicit instruction on critical thinking.

Table 4.25: Comparison between Instructor and Students (Case 1) (Source: Author)

	Perceptions of CT	Natural/Explicit acquisition of CT	Practices	Assessment
Instructor 1	SA on reflection and analysis questioning traditional beliefs	SD=natural acquisition SA= explicit teaching	group discussions (SA) Essay writing (SA)	against grading CT Use of rubrics to measure analytical skills Only Use of discussions SA
Students	analyzing information	generally, disagree with nature acquisition A= explicit teaching	article review class discussions short assignments	Mostly favored use of formative assessment

The Table also showed that class discussions were favored by both parts and discussions were practiced during the observation. Students also preferred certain kinds of essay writing such as short assignments and article reviews, which is also shared by their instructor who strongly agreed with using all items related to essay writing activities. Finally, the instructor's preference to mostly use formative assessment methods to measure students' critical thinking skills was also shared by her students' responses in the survey.

The situation is a little bit different with instructor 2 and his students. As can be seen from Table 4.26, there are points of similarity and differences between instructors and students' viewpoints.

Table 4.26: Comparison between Instructor and Students (Case 2) (Source: Author)

	Perceptions of CT	Natural/Explicit acquisition of CT	Practices	Assessment
Instructor 2	SA on reflection and analysis use of multiple perspectives	D=natural acquisition D= explicit teaching	SA for opinion and argumentative essays	SD=grading CT SD= use of rubrics A=embedded assessment
Students	analyzing information	Not sure of natural acquisition (M=3.00) A= explicit teaching	Group work Class discussions	Discussions assessed by both the instructor and peers. formative assessment

Starting with the similarities, the instructor's conceptualization of critical thinking had been reflected in students' responses to the close and open-ended survey questions. Both perceived critical thinking as an analysis of information. Students' responses to the open-ended questions also stressed the idea of evaluating information from different perspectives. The instructor and his students also had shared preferences for assessment methods; they preferred formative and embedded methods for measuring students' critical thinking. Differences were firstly evident in the instructor and students' perceptions of the importance of explicit instruction on critical thinking. While the instructor disagreed with the idea, his students were mostly in favor of explicit teaching of critical thinking. Also, preferred practices are different. The instructor strongly agreed with the use of essay writing to practice analysis and reflection skills, and even during the observation, students were individually working on analyzing a short story. Students, on the other hand, preferred class discussions and group work for practicing critical thinking.

Within the third case (Table 4.27), the instructor's perception of defining critical thinking has no strong preference for a certain element, even in the open-ended question; the instructor's response was her emphasis on its importance to be a "*good human*". Similarly is the case with practices, she strongly agreed with the use of all methods, yet during the observation, she used Socratic questioning. Her students seem to be engaged with such a practice and they participated in the discussions. Even the findings of the survey showed that students were in favor of the use of class discussions (47% agreed and 30% strongly agreed). When it comes to assessment, the instructor's viewpoint is mainly against the structured examination of critical thinking, and if it has to be done, it should be implicitly done. Moreover, during the interview, the instructor clearly articulated that there are no criteria in

the syllabus for measuring students' critical thinking skills. This seems to influence students' perceptions regarding assessment. The high frequency of "I do not know" was evident.

Table 4.27: Comparison between Instructor and Students (Case 3) (Source: Author)

	Perceptions of CT	Natural/Explicit acquisition of CT	Practices	Assessment
Instructor 3	SA on all CT Elements	SD=natural acquisition SA= explicit teaching	SA for all strategies Socratic questioning	SD for examination SA for formative and embedded assessment methods
Students	Exploring new ideas	Not sure of natural acquisition A= explicit teaching	Group work Class discussions	Mostly not sure of any assessment methods Formative method

The fourth instructor whose thoughts of critical thinking focused on questioning old beliefs and be open to new ones seemed to influence her students who also viewed critical thinking as analyzing information and be open to explore new ones, as can be indicated from the Table 4.28 below.

Table 4.28: Comparison between Instructor and Students (Case 4) (Source: Author)

	Perceptions of CT	Natural/Explicit acquisition of CT	Practices	Assessment
Instructor 4	SA almost on all CT elements Questioning traditional beliefs and be open to new beliefs	D=natural acquisition SA=explicit teaching	SA for all strategies with emphasis on debates	SA on all assessment methods, the only instructor to strongly agree on ready-made tests
Students	analyzing information exploring new ideas	Not sure of natural acquisition A= explicit teaching	Group work Class discussions	Discussions assessed by both the instructor and peers/ Formative assessment

When it comes to the debatable issue of natural versus explicit acquisition of critical thinking, while the instructor disagreed with natural acquisition, her students mostly did not know about the argument. However, both agreed with the importance of explicit instruction on critical thinking. As for preferred practices, the instructor's responses to the closed-ended survey questions did not show any preference to one method; she strongly agreed on all items mentioned. Yet, in the interview, she emphasized the role of debates in enhancing students' critical thinking. Students, on the other hand, as it is the case with other students in the sample preferred the use of group work and class discussions. Findings from the survey data were demonstrated during the observation, as students were working in pairs reviewing their peers' essays. Finally, for critical thinking assessment, students showed agreement with the use of discussions assessed by both the instructor and peers and formative assessment. The instructor, who strongly agreed with all methods mentioned in the survey, admitted during the interview that she has no plan for assessing critical thinking, yet if she has to state one method, she might choose graded debates.

Case 5 case is not that different from 4 (Table 4.29). Students here also perceived critical thinking as analyzing information and exploring new options and beliefs. The instructor strongly agreed with all items of the survey, yet during the interview, she defined critical thinking as the ability to make informed judgments. Students here were also not sure of the natural acquisition of critical thinking and agreed with the need for explicit instruction.

Table 4.29: Comparison between Instructor and Students (Case 5) (Source: Author)

	Perceptions of CT	Natural/Explicit acquisition of CT	Practices	Assessment
Instructor 5	SA almost on all CT elements Making informed judgments	D=natural acquisition A= explicit teaching	SA for all strategies with emphasis on discussions	SA with embedded assessment Not sure of using rubrics for assessment
Students	analyzing information exploring new ideas	Not sure of natural acquisition A= explicit teaching	Group work Class discussions	Use of rubrics Students' self-assessment

The Table also showed agreement between the instructor's preferred methods for practicing critical thinking and students' opinion regarding this issue. During the observation, it was also evident in the practice of critical thinking through using group and whole-class discussions. One little difference was in perceptions of critical thinking assessment. While the instructor was unsure of the effectiveness of using rubrics to measure students' critical thinking skills, 42 percent of her students agreed, and 39 percent strongly agreed on using rubrics. Students also favored the use of students' self-assessment.

In the final case (See Table 4.30), the instructor and her students agreed on the "What": definition and importance of critical thinking and differed in the "How": methods of teaching and assessing critical thinking.

Table 4.30: Comparison between Instructor and Students (Case 6) (Source: Author)

Instructor 6	SA almost on all CT elements with emphasis on evaluation and thinking out of the box	D=natural acquisition SA= explicit teaching	Reflective journals Essay writing Article review	SA with essay-examination of CT Not sure of using rubrics. A with formative methods
Students	analyzing information exploring new ideas	Generally, disagree with nature acquisition/ A= explicit teaching	class discussions short assignments	Discussions assessed by both the instructor and peers/ formative assessment

According to the Table, the instructor and her students perceived critical thinking as an act of analysis to create and explore new ideas and options. Both parts also disagreed with the natural acquisition of critical thinking and agreed with the need for explicit instruction. When it comes to practices and assessment methods, little differences in perceptions did exist. While the instructor generally preferred writing activities, her students showed preference with one oral discussion and favored short assignments instead of writing long essays such as article reviews or argumentative or opinion essays. Probably the difference was clearer in the preferred assessment methods. While the instructor strongly agreed with the use of summative methods such as structured essay-examination, her students showed strong agreement with formative methods, followed using oral activities.

4.6 Conclusion

In conclusion of Chapter Four, the study was able to an extent to identify major trends in instructors and students' perceptions, practices, and assessment of critical thinking in English writing courses in UAE. Regarding instructors and students' perceptions of critical definition and skills in writing courses, overall, instructors and students have shared definitions of critical thinking. Both instructors and students view critical thinking as a multifaceted concept, mostly as analyzing information and exploring new ideas. In comparison to other competencies, reasoning is less likely to be perceived an inherent element of critical thinking by instructors though reasoning is considered by many studies as an essential element of critical thinking (Paul and Elder 2005-2006, Edward 1940, Reeder 1984, Habermas's communicative reasoning 1981, Fox 2006, and Wilson-Mulnix 2012).

Best teaching methods for instructors included writing activities, while students preferred interactive methods such class discussions and groupwork. The difference in perceptions is not surprising though. Previous studies such as Cargas et al. (2017) indicated that students prefer less demanding and threatening methods to learn and be assessed on CT. Another explanation is that the survey is built on choosing the most "effective" methods, which is inconvenient to be asked to students as they are not expert in the field. This could also the frequent use of "I don't know" in the two areas of critical thinking teaching and assessment and students' perceptions.

The use of formative assessment was mostly preferred and practiced by instructors during class time. One possible explanation, as explained by one instructor during teacher interviews, is the absence of specific policies and guidelines for assessment, though improving students' critical thinking is listed as a learning outcome in all advanced writing syllabi.

Observing classes revealed that instructors designed activities that allowed students to practice critical thinking. More than one skill has been practiced in each class observation. Still such results could be better substantiated if a second observation were conducted.

For demographic factors and instructors' and students' perceptions of CT definition, skills, and best teaching and assessment methods, findings revealed no significant differences. One of the few observations is relevant to female instructors' preference to view critical thinking as reflection and accordingly they are more likely to use reflective journal than male instructors. In addition, the study was able to reveal that there are no major differences in the way eastern and western instructors perceive the definition and the best teaching and assessment of CT. The small size of instructors' sample, however, limited any

generalizability of results. Observations relevant to students' sample were recorded in comparison to student subject major. It might be that students are influenced by their disciplines. Business students mostly viewed critical thinking as problem solving, while all engineering students perceived it as analyzing information. Studies with larger sample sizes could substantiate such findings. The researcher was able to shed light on possible mismatches between key stakeholders.

Based on the overall findings and the insights gained about perceptions and practices by the key players, major recommendations and implications to inform the teaching, practices, and assessment of critical thinking in writing courses will be fully discussed in the final chapter: Chapter Five

Chapter 5

Discussion, Conclusion, Recommendations and Limitations

Chapter five presents the discussion, the conclusion, the recommendations, the limitations, and suggestions for future research. First, it seeks to elaborate on the findings of each research question and then attempts to provide an in-depth understanding and detailed interpretation of the findings of all research questions. More importantly, the findings of this study are also compared and contrasted to those of earlier studies. Second, an overall conclusion along with implications for better practice are suggested for key stakeholders, policymakers, CEOs, instructors, and students. Finally, a report on the limitations of the study and the suggestions for future research are discussed.

5.1 Discussion of the Findings

The main purpose of this study is to examine how critical thinking is being perceived, practiced, and assessed by college English writing instructors and students in the UAE, and how different or similar the practices and the perceptions of each part are. An explanatory sequential mixed method approach was used to answer the following five research questions:

- How do college instructors perceive the definition, importance, and best teaching and assessment methods of critical thinking in English writing courses?
- What are college students' perceptions of their critical thinking experience in English writing courses?
- What demographic differences, if any, do exist among college instructors and students have regarding critical thinking in English writing courses?

- How do college instructors practice critical thinking in English writing courses?
- What are the similarities and differences between the perceptions of the definition, importance, and effective instruction and assessment methods of critical thinking between college English writing instructors and their students?

Twenty instructors completed the teacher questionnaire, and 253 students completed the student questionnaire. Five class observations and six semi-structured interviews were conducted.

5.1.1 College Instructors' Perceptions of Critical Thinking, Its Importance, and Its Teaching and Assessment Methods in English Writing Courses

A discussion of relevant findings from teacher questionnaire and semi-structured interviews about college instructors' perceptions of critical thinking, its Importance, and its teaching and assessment methods in English writing courses is fully presented in this section.

5.1.1.1 College Instructors' Perceptions of Critical Thinking Definition and Skills

The major findings from numeric revealed that college instructors perceive critical thinking as a set of skills rather than one skill, taking us back to Nicholas (2011) and Barnaby (2016) descriptions of critical thinking as a multifaceted concept. Instructors' perceptions were positive towards 7 definitions of CT with high emphasis on reflection. This resonates with Moore's study (2013) in which instructors revealed provided seven different definitions for critical thinking, mostly viewing it as making judgments, a simple originality, and reflection. It is interesting, on the other hand, that the majority of instructors are less likely to perceive that critical thinking is about reasoning, which contradicts with findings from Werff (2016). Instructors' focus in Werff (2016) was mostly directed towards problem-solving and reasoning. This is also slightly different from Paul and Elder's Critical Thinking Framework

(2005,2006) where reasoning is also listed as the first competency in the framework. Of 6 CT skills included in the questionnaire, instructors showed strong agreement towards making informed judgments, and exploring new ideas and keeping options open.

Instructors' responses to the first open-ended question about instructors' understanding of critical thinking also included more than one skill and illustrated instructors' awareness of the concept. The written responses of instructors' perceptions of critical thinking focused on evaluation, analysis, making an informed judgment, questioning traditional beliefs to re-establish to rethink, and to be good human, which are mostly aligned with Paul and Elder's view (2005,2006) of critical thinking as a self-regulation and reflection practice to develop intellectual and moral traits. Moreover, instructors' ability to provide such profound definitions of critical thinking controverts with literature that emphasizes instructors' lack of clear conceptualization of critical thinking (Choy and Cheah 2009 and Węgrzecka-Kowalewski 2018). Instructors' written responses highlighted the on-going argument whether critical thinking is a generic or a highly-specific domain practice. They were varied, which adds to the existing conflict among scholars in this area.

5.1.1.2 College Instructors' Perceptions of the Best Methods for Developing Students' Critical Thinking in Writing Courses

Upon investigating instructors' perceptions of best methods to enhance students' critical thinking in writing courses, instructors' responses were generally positive towards all the statements, except the one that states that critical comes naturally. This contradicts Atkinson's (1997) old argument that critical thinking comes naturally to students and fully aligns with Chen (2017), Moore (2013), and Wagely (2013). The three studies found that

faculty members similarly believed that critical thinking is not a natural gift and can be viewed as a transferable skill.

Thus, it has been found that instructors' perceptions of best methods to enhance students' critical thinking were directed towards opinion and argumentative essays. This is in line with Barnhill (2010) where instructors of liberal arts expressed their preference to use written assignments that require students to evaluate arguments and "justify their positions with examples and evidence" (p. 77). Problem-based instruction was also valued by instructors. The effectiveness of problem-based instruction and its common use to urge students to display critical thinking have been emphasized by many studies such as Murray (2016), Taleb and Chadwick (2016), Cargas et al. (2017), and Barnhill (2010), yet with one exception that most of these studies are done in the area of science education and engineering. In the field of writing, Kumar and Refaei (2018) found that problem-based learning activities urge students to pay attention to "audience and purpose more than traditional teacher-driven assignments" (p. 1546).

Instructors also agreed that oral activities such as Socratic questioning and debates could be useful to enhance students' critical thinking skills. This confirms findings from Werff (2016) where debates and discussions were listed within the top three ranked instructional strategies. Fulford (2018) also reported instructors' favouritism to use Socratic questioning, yet no reference has made to debates. Finally, although most of the instructors perceived critical thinking as a reflective practice, writing reflective journals, as a practice of reflection skills, was less perceived as an effective method to teach critical thinking in comparison to other methods. Peer review as being at the bottom of the ranking list resonates with a similar finding in Barnhill (2010) and Werff (2016).

A different yet interesting suggestion offered by instructors while responding to the second open-ended question involves the integration of technology into the teaching of critical thinking. Instructors' references to the use of technology lend support to recent literature calling for taking advantage of students' high interest in using such social platforms to teach critical thinking. Boa et al. (2018) reported instructors' positive feedback when blending the use of Socratic discussion in class with the use of technology (online Facebook posting) to engage students in critical thinking practice. Firips et al. (2018) also outlined that if appropriately integrated, the use of technical devices such as mobiles could have a significant influence on students' abilities to develop critical thinking.

5.1.1.3 College Instructors' Perceptions of Effective Critical Thinking Assessment Methods

In the area of critical thinking assessment, instructors' perceptions were not as positive as their perceptions of critical thinking definition and the best methods to teach it. College writing instructors in this study sound to be unsure of how to effectively assess students' critical thinking, despite the fact that improving students' critical thinking is listed as one of the learning outcomes. In accordance with Milanesio (2017), instructors' interest is less directed towards critical thinking assessment.

Aligned with studies (Barnhill 2010, Steffen 2011, Werff 2016, Wagely 2013, Krieger 2013) highlighting the effectiveness of formative assessment methods, the results from numeric data showed instructors' strong agreement towards using formative assessment methods Even during the semi-structured interviews, the only commonly used method among the six interviewed instructors is the use of formative assessment methods. Directed class discussions assessed by peers and instructors, which can be viewed as a form of formative method, was secondly perceived within the top three effective methods for assessing critical

thinking. This shows congruency with Werff's (2016) findings, when the researcher reported that instructors heavily relied on their "subjective observation" of students' facilitated discussions (p. 102).

In the third place comes the use of structured essay-examination. Instructors' preference to use summative assessment methods is not surprising, as indicated by Krieger (2013). College writing instructors in Krieger's (2013) study preferred to use summative methods, as these methods make the instructors sound more objective, especially if rubrics are well- developed and applied. Concerning rubrics, instructors in this study generally agreed with the use of rubrics for measurement purposes yet did not see it that effective for CT assessment.

Finally, instructors' responses to interview questions showed that while the syllabus required them to focus on developing students' critical thinking skills, it does not state specific ways for assessment. Thus, out of the six instructors, one has explained a clear plan for assessing students' critical thinking skills. Lack of plans or clear polices for CT assessment is a concern that was also raised by Allamnakhrah (2013) who found that at two well-known universities in Saudi Arabia, King Abdul Aziz University and the Arab Open University, no plans for assessment were followed though there is reference to the importance of teaching critical thinking. Milanesio (2017) and previously Steffen (2011) also alerted to the fact that despite instructors perceive the assessment of critical thinking as important, they unfortunately have no plans in practice.

5.1.2 Results for College Students' Perceptions of Their Critical Thinking Experience in English Writing Courses

A discussion of relevant findings from student questionnaire about how college student perceived the definition of critical thinking, how can critical thinking be best developed, and finally how this development can be effectively assessed is fully presented in this section.

5.1.2.1 College Students' Perceptions of Critical Thinking Definition and Skills

Investigating students' perceptions of critical thinking definition and skills revealed students' ability to identify main critical thinking skills, which opposes literature about students' inability to conceptualize critical thinking, such as the studies of Barnaby (2016) and Deveci and Ayish (2017). In Deveci and Ayish (2017), respondents were freshmen students from the Petroleum Institute (IP), and they were found to lack the basic knowledge of critical thinking. Undergraduates from Early Childhood Studies in Barnaby (2016) were also found to have blur view of critical thinking. One suggestion could be made here upon comparing the kind of respondents involved in the previous two studies with the respondents of this study in terms of major and subject domain is that advanced writing course students were more likely to be exposed to CT, and therefore they were more likely to be able to conceptualise CT. This is also in line with Flower and Hayes and the Cognitive Process Theory of Writing.

Numeric data from student questionnaire showed that critical thinking is mostly perceived by students as analysis of information. Cargas et al. (2017) also reported that students in his study defined critical thinking as an analysis of information. Similar results obtained from the analysis of narrative data. Students' responses to the first open-ended question also revealed students' inclination to define critical thinking as an act of analyzing information, a

problem, data, or a real-world problem… etc. The use of terms such as to solve a problem, to help a person take a decision, to create and think out of the box to define critical thinking was also frequent in students' answers to the open-ended question that requires them to define critical thinking. Students in Small's (2016) study also perceived critical thinking as mostly relevant to decision-making and problem-solving skills.

Students' responses to the open-ended question also made connections between critical thinking, creative thinking, and thinking out of the box. The frequent perception of critical thinking as a tool to think out of the box in this study was remarkable. The repetition of this phrase poses an important question, which probably could be addressed in future research; Is this phrase a trendy cliché frequently students found themselves to be using it, or is it really how students perceive critical thinking? Upon consulting previous studies on this, similar results were reported by Werff (2016). The frequent reference to critical thinking as thinking out of the box was recorded several times in that study, yet no further explanation had been made.

Analysis of students' responses to the first open-ended question also showed their awareness of the complex nature of critical thinking and the need for practice and effort to be able to develop it, which echoes Wilson-Mulnix's (2012) reference to the important role of 'deliberate practice' in enhancing students' critical thinking skills.

5.1.2.2 College Students' Perceptions of Best Critical Thinking Teaching Methods

Upon investigating students' perceptions of how critical thinking can be best developed, numeric data revealed that students are less likely to agree that critical thinking comes naturally to students. Being aware of how complex the concept is and showing worries about

not being able to develop critical thinking were reflected in such responses as "*not all people have it*" and "*very difficult to have it*" (Students' written responses to open-ended questions). Therefore, explicit teaching of how students could think critically during class time was highly preferred by students. Students' preference of explicit instruction on CT has been reported by previous research done in the Gulf and Middle Eastern countries. Alsalem (2015) argued that college students of the Gulf Area feel the need for more explicit instruction on how to develop their critical thinking skills because they mostly view it as a tool to question traditional beliefs.

Students also listed the use of class discussions and group work within the best methods to develop their critical thinking skills. According to narrative data from open-ended questions, class discussions allow students' own opinions, ideas, and voices to be heard and discussed. The influencing role of class discussions and Socratic questioning in enhancing students' critical thinking has been highlighted by many previous studies (Cacchiotti 2011, Murray 2016, Cargas et al. 2017, Boa et al. 2018). Boa et al. (2018) outlined that negotiations and cooperative learning provide students with opportunities to exchange viewpoints and receive feedback from peers. In the same vein, debates were also perceived as useful by students to enhance students' abilities to evaluate an argument and weigh evidence. Studies supporting Habermas communicative reasoning (1981) usually found in debates a practice of 'argumentation' between a teacher and his/her students (Han 2002 and Murphy and Fleming 2010). Essay writing activities such as opinion essays and argumentative essays were less like to be preferred by students. Journal writing was also perceived by students as not that useful in enhancing students' critical thinking and was at the very bottom of the list.

Finally, the analysis of students' responses to the second open-ended question revealed their ability to suggest additional methods for teaching critical thinking. Students' new suggestions were varied between the integration of technology, the use of outdoor activities, and the use of mental activities to strengthen students' critical thinking skills. Like instructors, integration of technology was suggested through the use of social platforms and visual aids such as YouTube, as illustrated in Table 5.1

Table 5.1: Instructors and Students' Suggestions for Technology Integration (Source: Author)

instructors' suggestion	students' suggestions
"Analyzing commercials and YouTube videos"	"Use of YouTube"
"discussing online quotes and relating them too real-life"	"online discussions"
"Facebook posts analysis"	"use of social media discussion"

Findings from a recent study by Firips et al. (2018) revealed that learning interventions using mobile devices improved college students' critical thinking skills especially their creativity in problem-solving. Although evidence for the effectiveness of using outdoor and extracurricular activities in enhancing students' critical thinking, in the long run, is still debatable if not weak, Kisida et al. (2016) argue that such activities allow students to see how critical thinking could be applied to a real-world situation. Students' ability to suggest different strategies to teach critical thinking reflects two things: (1) students' clear conceptualization of critical thinking and (2) and their growing awareness of the importance of enhancing their critical thinking skills.

Finally, the results revealed students' reference to the necessity for instructors to design levelled activities. Several responses, instead of suggesting different methods to teach critical thinking, highlighted the urgent need for students to see real examples of how they could practice critical thinking skills, and more important these examples and illustrations should be levelled to students' potentials and abilities. Taghinezhad et al. (2018) outlined that college instructors of second language academic writing classes need to design levelled activities for practicing critical thinking. Chen (2017) reported that that the main challenge for Chinese college students to display critical thinking was language barriers, as expressed by students themselves. The students in this study further mentioned the need to be provided with sample essays, discussions, or linguistic formulas to support them in their attempts to enhance their critical thinking skills, which lends support to the area of scaffolding in critical thinking teaching. Floyd (2011) explained that students thinking in a second language take more time to read and understand the ideas of a text. Therefore, McKinley (2013) and Cargas et al. (2017) suggested that due to linguistic barriers, students of English language classes in college undergraduate programs need to be provided with certain linguistic formulas and expressions to support their attempts to write critically.

5.1.2.3 College Students' Perceptions of Effective Critical Thinking Assessment Methods

The only assessment method which most of the students agreed on its effectiveness is formative assessment. Formative assessment has been ranked at the top of a list followed by directed discussions assessed by peers and instructors, which again gives the rise for the highly significant role of teacher observation and feedback in recording growth in students' critical thinking (Siles and Solano 2016). Students were unsure about structured essay exams

as effective methods of assessment. Students' preferences for formative rather than summative assessment methods are not surprising as reviewing previous literature reveals that students, in general, find summative or traditional examinations causing them to be anxious, and they restrict their abilities to be creative in their thinking (Cargas et al. 2017). Use of rubrics for assessment purposes was also perceived good by less than half of the students. Use of rubrics in assessing students' essays is common, and according to many studies investigating the use of rubrics to assess students' argumentation and reasoning in writing, rubrics were found to be liked by students. Rubrics, if well designed, explain for students how they are expected to be evaluated (Nejmaoui 2019).

Narrative data from students' responses to open-ended questions focused on teacher feedback as effective tools to assess students' development of critical thinking. While some studies view teachers' observation and feedback as subjective (Preiss et al. 2013), students in this study referred in their responses how teacher feedback was useful to evaluate their performance and to provide them with further guidance for improvement. This is fully congruous with Anderson's (2016) reference to the impact of teacher feedback on positively affecting students' intrinsic motivation to develop critical thinking.

Students suggested a few additional interactive assessment tools such as using exit cards at the end of class, playing question games, case studies. The effectiveness of such methods has been not examined in the area of college English writing and assessing students' critical thinking skills, yet in marketing courses, for example, the use of case studies found to be "promising" to assess marketing students' critical thinking (Klebba and Hamilton, 2007, p. 137) and similarly effective for measuring nursing students' critical thinking skills as outlined by Hong and Yu (2017).

Finally, designing levelled activities to assess students' critical thinking was also mentioned in this part. In addition to directing attention to students' levels, a few responses focused on the need for teachers to consider students' different learning styles and utilize different methods for assessment. Studies examining the correlation between students' learning styles and critical thinking have mostly indicated a positive correlation between the two variables. Andereou et al. (2014) in their systematic review of previous studies in this area concluded that "all learning styles might be positive determiners towards critical thinking", and therefore, the study ended with a recommendation to design diverse activities for teaching and assessing critical thinking to meet the diversity of learners' learning styles (p.362).

5.1.3 Demographic Variables and Instructors' and Students' Perceptions of Critical Thinking Definition, Teaching and Assessment

To find out whether there is a relationship between demographic variables and instructors and students' perceptions of their critical thinking experience in English writing courses, frequencies of agreement were calculated and compared between different groups. Based on numeric findings, the researcher probed further and included one question regarding this issue during the semi-structured teacher interviews to obtain further understanding of this relationship.

5.1.3.1 Demographic Variables and Instructors' Perceptions of Critical Thinking Definition, Teaching and Assessment

While very few studies found positive relations between instructors' perceptions of critical thinking and their teaching experience and educational background (Fulford 2018 and Yoder 2018), others such as Smith (2015) reported that none of the demographic variables has a significant influence on college instructors' intent to teach critical thinking. In comparison

with previous studies, findings of this study revealed no major differences do exist between five demographic variables, including age, gender, nationality, educational background, and teaching experience and instructors' perceptions of defining critical thinking. The small size of the instructors' sample also limited the results in relation to this question. Roberts (2018) explained once that usually studies of a small sample size might not reveal significant relationships between demographic variables and critical thinking, so probably, the small number of instructors in this study (n=20) had an impact on the results.

A few remarks, however, were found which hopefully can be substantiated by further studies. Odds ratios were used to investigate differences between instructors' perceptions in terms of gender, academic degree, and culture. Female instructors are more likely to perceive critical thinking as reflection, whereas male instructors prefer to view it as making inferences. Also, the activity of writing reflecting journals was found to be highly preferred by females rather than males. The frequent use of reflective journals as an effective method to enhance students' critical thinking in writing courses has been extensively researched (Murray 2016, Deveci and Ayish 2017, and Petek and Bedir 2018); however, if there is a tendency to be used mostly by female instructors rather than male instructors has not been referred to by earlier studies. Male instructors were all found to agree with the use of peer reviews and instructing about fallacies to effectively enhance students' critical thinking. Extensive research has been done to test the effectiveness of peer reviews and instructing about fallacies (Kölbel and Jentges 2017, Barnhill 2010, and Werff 2016) yet no connection has been made in relation to demographic differences. Odds ratios also revealed that instructors with PhD are more likely to use synthesis essays to enhance students' critical

thinking and embedded assessment to measure their development. Barnhill (2010) found that use of synthesis is less likely to be perceived by associate professors as effective in comparison to other 82 methods.

A further interesting finding relevant to instructors' culture revealed that no major differences were found in the way western and eastern instructors perceive the definition of critical thinking, which leads support to need to avoid the binary view of critical thinking of eastern and western cultures (Sperrazze and Raddawi 2016). Yoder (2018) indicated that instructors who are open to other cultures and believe in globalization displayed positive and clear perceptions of critical thinking. Eastern instructors teaching in the context of UAE are usually open and interact with instructors and students of different countries. So, probably this unique teaching experience in the UAE has had its impact on instructors' perceptions.

In terms of age groups and teaching experience, use of debates was found to be preferred by instructors who are younger in age and less in teaching experience. The older the age is, the less the preference of using debates is. Unfortunately, the small number of the participants (n=3) presenting the age group of 51 and above makes it difficult to form a generalization. A recent study by Derouiche (2019) reported that EFL first-year Master instructors had positive attitudes towards using debates in classrooms, yet no connection to age has been made. In contrast, another study in the field of business (Desai et al. 2016) has reported that only three percent of the participating instructors preferred the use of debates to teach critical thinking for business students, and similarly no reference to instructors' age has been made.

5.1.3.2 Demographic Variables and Students' Perceptions of Critical Thinking Definition, Teaching and Assessment

The relationship between students' gender, age, nationality, major, and academic level and their perceptions of critical thinking definition, importance, teaching, and assessment methods was examined through two ways. First, odds ratio were calculated for student gender. Second, frequencies of students' agreement with each survey item were compared in light of their nationality and subject major. No major differences were found in relation to student gender and nationality. Shim and Walczack (2012) reported similar results and found that demographic elements such as gender, race, and ethnicity have an insignificant correlation with college students' self-perception of CT. More recently Hachlaf (2018) and Yoder (2018) also reported similar findings. With regard to student subject major, 90 percent of business students were found to see critical thinking as problem solving, while all engineering students perceive CT as analysis of information. All students majored in security and strategic studies perceive critical thinking as exploring new ideas and keep options open. Whether perceptions are influenced by discipline is debatable as the focus of previous studies was on development of critical thinking in relation to discipline (Rodzalan and Saat 2015)

Nevertheless, when the instructors during the interview were asked about any observations, they noticed in their critical thinking teaching experience, they reported two observations. First, a reference regarding gender and students' engagement in a critical thinking practice has been mentioned by two teachers. Instructors' responses focused on how females are usually more serious about their learning and are more engaged in CT activities than males. Female students' engagement and commitment is being influenced by female students' inclination to prove themselves in a male-dominant community, as justified by the two

instructors. This goes in line with Deveci and Ayish's (2017) conclusion that female students' outperformance in CT at one college in the UAE could be attributed to their strong determination to prove themselves in a male-oriented major such as engineering. Halpern (2013, 2014) who extensively studied gender differences and critical thinking also outlined that female students are more dedicated than being better critical thinkers.

Findings from semi-structured teacher interviews had unexpectedly brought up the controversial argument regarding culture and critical thinking. Although the researcher's main question was about instructors' observation of the possible influence of demographic factors on students' perceptions and practices of critical thinking, it is quite interesting how the instructors raised the role of culture, instead. Three instructors brought this up and seem to have conflicting views about the role that culture can play in enhancing students' critical thinking. While a few studies outlined that some western instructors had fixed views that students of collective cultures cannot think critically (Liu and Stapleton 2018, McKinley 2013), a western instructor here raised this argument during the interview and strongly disagreed with it and instead rather stressed on the role of the quality of students' educational background in students' ability to think critically. This echoes Roberts' (2018) alert when he cautioned that it is not only culture that plays a role, but also the quality of students' educational background. In contrast, a Muslim instructor talked about the stress that Muslim culture might cause for thinkers while trying to enhance their critical thinking skills when she said how people are better thinkers when they are relaxed and believed that her being educated at one Catholic school as an advantage for her way of thinking. The Muslim instructor's reference to the type of education she got goes in line with the western instructor's reference to the quality of students' education, which again lends support to a

few previous studies (Hachlaf 2018, Yoder 2018, Sperrazze and Raddawi 2016) arguing that academic achievement, the length and quality of prior education, and cognitive abilities are key players in the development of students' critical thinking skills. Further investigation examining the possible significance of these factors becomes worth exploring.

5.1.4 Critical Thinking Practices in the Classroom

The fourth research question is about college instructors and students' practices of critical thinking during English writing classes. Findings from class observations and semi-structured were divided into four themes and discussed below.

5.1.4.1 Instructor's Instruction and Practice of Critical Thinking Skill

Overall, college instructors provided students with opportunities to practice critical thinking in their classes. This highlights the influencing role that writing activities can play in providing a productive space to enhance students' critical thinking skills (Chen 2017). Furthermore, it was evident from instructors' planned activities and discussions that the focus of the class was beyond surface levels of language teaching (English language grammar and mechanics) to move towards deeper levels of teaching such as encouraging students to practice analysis, reflection, solving-problem, or evaluation skills. Such a finding converts from Nejmaoui (2019), Dong and Yue (2015), and Petek and Bedir (2018) who noticed that in many cases, writing college instructors focus on improving college students' deficiencies in grammar and mechanics at the expense of promoting students' analytical skills.

Types of critical thinking activities used during class observations were found to be varied. Each activity required students to practice more than one critical thinking skill, and more important these skills were levelled, starting from interpretation skills moving towards the

more demanding skills such as evaluation and reflection. In addition to variety, the types of activities used were ones that are commonly used in writing classes. Problem-solving essays (Kumar and Refaei 2017), peer-review writing activities (Kolbel and Jentges 2018), freewriting (Hudd et al. 2012), and short story analysis and reflection (Chittooran 2015) have been found useful to encourage students to practice their critical thinking in previous studies.

Probably the least commonly used and examined in earlier studies is the Rogerian argumentative research essay. Even though argumentative essays have been extensively used in experimental research in the area of critical teaching, the Rogerian argumentative research essay is not similarly widely used. The type of argumentation in this essay has common ground assumptions with Habermas' work on communicative reasoning (1984). Habermas supports the view that any practice of argumentation should seek to reach an agreement based on rationality and validation of claims through the use of evidence and reason, and that is the essence of the Rogerian argumentative research essay. In this study, the Rogerian argumentative research essay has been by used one instructor. Students were expected to state the two opposing viewpoints and then try to suggest a common- ground solution based on research studies. Such activities where students need to reach an agreement also go in line with Fox (2006) view of critical thinking as a tool to validate the truthfulness of one's beliefs, yet without being influenced by self-egocentrism. Besides, these activities shared Paul and Elders' connection (2005) between critical thinking and being fair-minded and empathetic.

Thirdly, instructors varied in their choices of students' work mode while conducting the activity: individual, pair, or group work. Two instructors used more than one work mode (individual and group work) and also used student-student and student-teacher interaction.

Two instructors mainly depended on individual work mode and teacher-student interaction, and the last instructor mainly used pair work for the peer-review activity. Instructors' different attitudes towards the effectiveness of group work in enhancing CT skills have been highlighted by many previous studies. Fulford (2018) reported that English college instructors were found to prefer to use questioning techniques rather than learning groups and collaborative work in practicing critical reflection because, in group work, instructors feel they lose control. LaBeouf et al. (2016) reported that while some instructors disliked group work and see no academic value in using it, others emphasized the need to urge students to practice critical thinking in groups as a kind of preparation for future workplace experience.

The analysis of data collected from instructors' practices during class observation was further examined considering their responses to the questionnaire. Overall, the analysis revealed there is a general consistency between stated responses and instructors' actual practices during class time. This supports Ajzen's (1991) theory about the relationship between perception and behaviors, and how one's perceptions influence his/ her intention to practice a certain behaviour. All the observed instructors stressed the importance of critical thinking and disagreed with the argument that it comes naturally to students, which later had been reflected in their practices and activities. This resonates with Loes et al. (2015) emphasis on the relationship between teachers' perceptions and their practices in class and the possible influence of this on learners' perceptions. In this study, for instance, one of the instructors perceived critical thinking as an analysis and evaluation of knowledge, and in practice, the designed activity was requiring students to analyze and reflect on the main events and characters. The same applies to observation five where the instructor's main perception of

critical thinking is judging, and in practice, she was urging students to evaluate and judge whether their free writing makes sense or not.

Nevertheless, while four instructors out of the five observed expressed their strong agreement towards the item that is concerned with explicit teaching of the definition of critical thinking, the findings from semi-structured interviews concerning this revealed that in practice instructors differed in their viewpoints towards how much of critical thinking explication and integration should be. Two instructors view critical thinking as could be integrated into everything and every activity, whereas others believe that integration is determined by the nature of the assignments. This reflects the controversial argument about if critical thinking skills are generic or highly determined by disciplines and activities. The first two instructors were in line with the general approach of teaching critical thinking, which is supported by Ennis (2002) and Paul and Elder (2005, 2006). Those who had a specific approach to critical thinking are congruous with the immersion method of teaching critical thinking (Kamin, O'sullivan, and Deterding 2002, Sendag and Odabasi 2009 cited in Chen 2017).

The existence of conflicting views on how much of critical thinking explication and integration should be done had been previously reported by a recent study by Taghinezhad et al. (2018). The researchers similarly reported how college writing instructors highlighted the importance of developing critical thinking skills of academic writing students, yet they were unable to support with examples how they explained the concept to their students. In this study, only one instructor was found to devote classes on defining critical thinking, and it is the same instructor who has a theoretical background about the concept. This lends support to Paul and Elder (2005) recommendations for the necessity of educating instructors on critical thinking. Wagely (2013) also pointed out that for instructors to be able to explicitly

teach the concept of critical thinking, they need to read relevant theories. Eventually, the debate if instructors should infuse explicit instruction on the definition of critical thinking into their writing activities to trace real gains in the long run or it is enough to practice its skills, has still a contested one (Werff 2016).

5.1.4.2 Students' Practices of Critical Thinking Skills

Upon observing students' practices of critical thinking during class time, two main findings were observed: (1) students differed in their abilities to practice different critical thinking skills, and (2) levels of students' interaction and engagement with CT activities were also different. Students were more capable of interpreting and analyzing information than evaluating and reflecting. For instance, identifying the main ideas of a story or the main reasons for a real-world problem was easier for the students than trying to evaluate solutions or reflect on the main events of a story. The participation level dropped when students were required to evaluate, reflect, or weigh evidence. Previous literature has noted that there are critical thinking skills that are easier to be practiced rather than others. Upon investigating the writing behaviour of college writing students, Ahmadpour and Khaaste (2017) reported a positive correlation between evaluation skills and the revision of behaviour, while no significant correlation found with interpretation and deduction skills. In this study, even in the free writing activity, many students when asked to judge how informative this type of writing is, some gave a yes/no answer, yet when those who answered were further asked to justify their responses, they failed to illustrate their point. In the peer-review activity as well, they were able to identify repeated ideas; however, students failed to identify those which lack supporting evidence. Similarly, in Taghinezhad et al. (2018), undergraduate writing

students found difficulties in developing truth-seeking, while their abilities to analyze had drastically improved after a certain intervention.

Upon observing students' practices, findings also showed that levels of students' interaction and engagement with CT activities had been influenced by the following major factors: choice of topic, use of incentives, work mode, and instructors' feedback. Choice of the topic played a significant role in students' engagement in the activity. In the two observations where teacher-student interaction was prevalent and the Socratic questioning method was adopted, the choice of the topic made a difference between students' levels of interaction. Students seemed to be more engaged with updated and familiar topics such as internet addiction than with reading a short old story. This adds support to Liu and Stapleton (2018) and Stapleton (2001) that familiar topics influence students' abilities to display their critical thinking. In contrast, unfamiliar topics especially in ESL contexts where differences might exist between the instructor and the students' interests were found to be one of the major barriers for students to display their critical thinking skills in writing. Similarly, Sperrazze and Raddawi (2016) reported that asking students to be involved in a practice of critical thought relevant to local issues increased students' engagement in the process of critical writing.

In addition to familiarity with topics, incentives such as credit points or bonus points were found to be an influencing factor in students' engagement in the task. Even during the semi-structured interviews, the use of incentives was referred to by instructors as a tool to encourage students' motivation and increase their engagement with the task. Anderson (2016) once argued that using a learning incentive system can increase English college

students' engagement, confidence, and even enjoyment, especially in writing tasks, as students might find writing tasks as boring.

In this study, findings give the rise to the role of group work in creating a productive opportunity for practicing critical thinking skills, especially during tasks that required students to practice analysis and evaluation skills. Exchanging views among group members helped them to be open to analyze new options. This supports Werff's suggestion (2016) to use facilitated class discussions, as they provide peer-scaffolding and safe environment for those who are reluctant to display their critical thinking skills. However, as reported by many studies, such as LeBouf et al. (2016), students' contribution to group work was found to be different. LeBouf et al. (2016) used the terms "social loafers" and "slackers" to refer to those who are heavily dependent on others to complete the task (p. 17).

One cannot ignore the role of instructors' class monitoring and feedback on students' practices. Having felt that instructors are monitoring their performance and interested in listening to their viewpoints, students showed more interest to discuss points with instructors and ask for guidance. In accordance with Hicks et al. (2019), students expressed their appreciation for their instructors' feedback and viewed it as a kind of valuing their voices and opinions. Instructors' feedback also had a role in assessing students' argumentation as will be discussed in the following section.

5.1.4.3 Types of Assessment Methods Used to Assess Students' Practices

Each instructor was observed once. One common finding among all instructors is that formative assessment was used to assess students' critical thinking practices, which supports the increasing calls among scholars to use class monitoring and observation, class

discussions, and teacher feedback to trace gains in students' critical thinking skills (Werff 2016). Manitos (2010) also argued that the use of formative assessment tools, including class discussions and observation would help teachers to determine the zone of intervention in critical thinking. Speaking of the zone of intervention, instructors were found to intervene in class discussions whenever they felt the need for more guidance or correction for the direction of students' argumentation. Feedback as a "means of scaffolding" rather than imposing has been similarly emphasized by Butakor (2016, p. 156). Moreover, findings of this study also showed that while some scholars raised major things against the validity of using class discussions for assessment purposes, mainly as subjective (Preiss et al. 2013 and Ahmad and Cook 2016), some instructors made it clear during the interview that in their viewpoints, critical thinking is subjective in nature, and therefore they believe that formative assessment tools are more effective in assessing students' critical thinking skills. In addition to class observation and monitoring, two instructors used credit points or bonus points for assessing students' group work. When asked about this during teacher interviews, the two instructors mentioned that they use bonus points to engage students in the activity. This goes in line with Cargas et al. (2017) which recommended the use of more than one method for critical thinking assessment.

Findings from class observations also recorded two cases where instructors used checklists and rubrics to assess students' ability to analyze ideas, identify repeated ones, and evaluate how strong the evidence is. Peer checklists are commonly used in assessing students' argumentation as highlighted by Milanesio (2017) who argued that the main benefit of using such checklists is to engage students in the process of assessment and let them be aware of how they are going to be evaluated. That was evident during the observation where peer-

review was used. So, while students trying to use the peer checklist to assess how clear and well-supported the written arguments of their peers are, they kept asking their instructors for more clarifications and guidance to make the right decisions and to avoid such mistakes in future work.

5.1.5 Comparing Tutors' and Students' Understanding of CT, Their Perceptions of Effective Methods of Teaching and Assessing CT.

Mismatches in perceptions and practices of critical thinking between faculty and their students was another important area of investigation for many scholars. When teachers and students do not share the same concept and importance of critical thinking, then this raises questions of how effective the process of critical thinking teaching is (Barnaby 2016). Therefore, this study tried to shed light on this issue and compared between six instructors' perceptions of the definition, importance, and effective teaching and assessment methods of critical thinking with those of their students. To do so, instructors' responses to the close an open-ended questions and interviews were analysed in comparison to their students' responses to the students' survey the close and open-ended questions.

The findings from the comparison did not only highlight the differences and similarities between instructors and their students' perceptions, but also did help to understand how instructors' perceptions and practices might influence positively or negatively on students' perceptions and practices.

Starting with similarities, instructors and their students have shared definitions of critical thinking, mostly as analyzing information, exploring new ideas, and questioning traditional beliefs. Taleb and Chadwick (2016) also found that students and instructors have shared

views about critical thinking. Findings contradict with other studies, Węgrzecka-Kowalewski (2018) and Barnaby (2016), which reported that instructors and students have vague and conflicting views on critical thinking.

A small gap then starts to appear between instructors and students' perceptions of the natural acquisition of critical thinking and the importance of explicit instruction to enhance students' critical thinking skills. While all the six instructors disagreed with the argument that critical thinking comes naturally to individuals, students of four instructors out of the six were found to be unsure of natural acquisition. Previous literature has not referred to the existing difference in perceptions between instructors and students about this issue. The focus is mostly on comparing perceptions concerning critical thinking definition and instruction methods, yet Barnaby (2016) once indicated that when instructors do not explicitly share their definition and knowledge of CT, students were found to have blur views of CT definition.

The comparison of six cases revealed that except for one case, instructors and students did agree on the need for explicit instruction on how define and develop critical thinking. In the exceptional case, the instructor completely disagreed with the idea of explicit instruction on CT definition and skills, while most of his students strongly agreed with the idea. Such findings controvert from Chen's (2017) findings where the study revealed that students are the ones who underestimate the importance of being explicitly instructed on the concept of critical thinking. The results are more in line with Allamnakhrah (2013) which found that students of the Gulf area seem to value explicit instruction on critical thinking to the extent that they appreciated it more than their instructors, and he attributed this awareness to

developments in technology that have made the younger generation in this area eager to question old assumptions and consider new ones.

Disparity between instructors and their students' perceptions was clearer in relation to effective instructional methods and activities to teach critical thinking. While instructors mostly see in essay writing activities the most effective tools to enhance students' critical thinking, their students preferred more interactive methods such as class discussion and group work. These findings support Mortellaro (2015) where she also reported instructors' tendency to utilize essay-writing to practice critical thinking skills and Werff (2016) where students preferred more interactive activities such as class discussions and group work activities to the more demanding ones such as essay writing.

When it comes to critical thinking assessment, the gap narrowed down a little bit, since both instructors and their students seem to be uncertain about which methods are most effective. A major similarity between instructors and students' perceptions about assessment is their preferences for the use of formative assessment methods, especially directed class discussions assessed by peers and instructors. Although the topic of investigating similarities and differences between instructors and their students' perceptions in the area of critical thinking assessment is under-researched, previous studies such as Siles and Solo (2016), Werff (2016), and Manitos (2010) revealed instructors and students' favouritism towards formative assessment methods, yet separately without comparing their perceptions.

In conclusion, it can be noticed from the above discussion how mismatches between instructors and students' perceptions and practices were found to influence students' perceptions and practices. In cases where instructors' perceptions were vague, this negatively impacted students, as in the case of assessing critical thinking. However, the more educated

on critical thinking the instructors are and the more explicit their instruction on CT definition is, the more positive and certain the students' perceptions seemed to be, which fully lends support to literature (Węgrzecka-Kowalewski 2018 and Chen 2017, Wagely 2013, Werff 2016) arguing that college instructors need to be educated on theories related to critical thinking and be trained on effective teaching methods.

5.2 Conclusion

This study aimed to investigate how critical thinking is being perceived, practiced, and assessed by college English language writing instructors and students. Beginning with instructors and students' perceptions, the findings demonstrated that instructors and students have a positive and clear conceptualization of critical thinking. More important, both instructors and students perceive critical thinking as a set of skills rather than one skill. Both parties emphasized on the skill of allowing students to explore new ideas and keep options open. Instructors and students are less likely to perceive critical thinking is about reasoning, which contradicts from Habermas' communicative reasoning and Paul and Elders' Model where reasoning is listed the first competency of critical thinking. Instructors have instead placed value on making informed judgments, yet students focused on analysis skills. Further investigation of instructors and students' responses to the open-ended questions revealed that their perceptions, were found to be almost aligned with Paul and Elder's (2005) conceptualization of critical thinking as an act of self-regulation and reflection to develop intellectual and moral traits. For whether critical thinking is a natural gift or a nurtured skill, whereas instructors disagreed with perceiving critical thinking as coming naturally to

individuals, students were found to have insufficient knowledge about this. However, both valued devoting classes to define CT and teach students how they can develop their CT skills. The study unexpectedly highlighted on the controversial perception of whether critical thinking is a generic or domain-dependent skill, and what is concluded is that instructors had varied views about this argument. While some instructors believe that critical thinking skills apply to daily activities and situations, as supported by Ennis (1992, 2002), others believe that integration is determined by the nature of the assignment, supporting in this the specific view of critical thinking.

Perceptions regarding effective critical thinking teaching methods were varied. Instructors' preferences were influenced by the discipline, supporting essay writing activities such as opinion and argumentative essays. Instructors' belief that essay-writing activities develop students' critical thinking is in line with the Cognitive Process Theory of Writing (CPTW) by Flower and Hayes (1981). Students, on the other hand, mostly preferred class discussions and group work. It is mostly expected that students would prefer less demanding and more interactive methods. Therefore, the study concluded with the need for diversity in designing critical thinking activities. Interactive and practical methods such as fieldtrips and debates could increase students' engagement in critical thinking tasks.

In this study, it is concluded that the area of critical thinking assessment is still underrated by practitioners. Instructors had blur views on how to effectively assess students' critical thinking skills. Furthermore, while there is an emphasis on CT in writing-course syllabi, still they do not specify clear polices or guidelines for CT assessment. Therefore, instructors mainly used formative assessment methods such as class observation and discussions. Having perceived critical thinking as a subjective concept, instructors were also found to

disagree with the use of standardized tests for assessment purposes, especially those tests of MCQs design. Students similarly perceived directed class discussions and formative methods as the most effective methods for critical thinking assessment. As explained by Butakor (2016), students usually tend to be in favour of less threatening assessment methods.

The influence that demographic variables might have on instructors and students' perceptions is still debatable, as concluded from this study. No significant relation was found between instructors' years of experience, educational qualification, gender, age, and nationality and their perceptions of critical. Most likely is that female instructors tend to define critical thinking as reflection, and therefore, they placed a high value on the effectiveness of reflective journals to enhance students' critical thinking. Additionally, instructors of old age 40 and above preferred traditional writing tasks such as opinion and synthesis essays, while those of younger age between 25-40 mostly preferred use of debates and class discussions. The study could attribute this to the tendency in world's today towards globalization and dialogue between different civilizations and religions, and so more emphasis had been lately placed on conversational activities like debates (Allamnakhrah 2013). Though it was not included in the survey, findings concluded that prior education on critical thinking is advantageous, as instructors who are well acquainted with theories of critical thinking are more capable of articulating systematic methods for teaching and assessing critical thinking. The relation between students' academic level and their perceptions of critical thinking was also examined, and no significant influence had been reported. However, the study concluded that students of different disciplines might have different perceptions of critical thinking, and those perceptions might be influenced by their subject major.

Examining instructors' practices in light of their responses to the survey was insightful. Instructors' perceptions of critical thinking, on one hand, seemed to be reflected in the activities they designed for practicing critical thinking during class time. On the other hand, while instructors strongly agreed with the importance of devoting classes to define critical thinking, most of their practices fell within the immersion approach of teaching critical thinking (Huber and Kuncel 2016 and McPeck 1981). Students were immersed in rigorous tasks that allowed students to practice critical thinking. They were rigorous in the sense that they were challenging and required the utilization of more than two or more skills of critical thinking (basic and demanding skills).

The study also concluded that most of the instructors' practices and teaching methods mostly depending on Socratic questioning and one-way direction interaction (teacher-student). In spite of its proven effectiveness by many studies, there have been recent calls to modify the traditional structure of the Socratic questioning method. Instead of instructors taking control over the discussions, the new modification implies to challenge students and require them to structure and ask the questions to their peers (Fulford 2018). This increases students' engagement as explained by Fulford (2018). Keeping in mind students' suggestions about diversifying activities and using more interactive ones, the need for striking balance in teaching pedagogy becomes essential.

Students' practices of critical thinking during class time were varied in ability and pace. Much more effort is still required to enhance reflection and evaluation skills. The choice of topic, the type of work mode, and the use of incentives and teacher feedback are key factors influencing the pace of performance and students' engagement with the critical thinking task. The more updated and relevant the topic for students' interests the more engaged the students

are. Similarly, the more student-cantered classes are used, the higher the levels of students' engagement are. Group discussions provided students with an opportunity to interact with their peers and share different viewpoints. Whether it eventually assists in enhancing students' critical thinking or not, it was concluded that whenever instructors used bonus points/credit points, students were found to be more committed and engaged in completing their tasks. As Cargas et al. (2017) outlined once, college students are meticulous about their grades, and therefore they are mostly driven to complete work if it affects their academic achievement. "Tertiary students" as Anderson (2016, p. 29) described them, through the use of systematic incentives, could be especially encouraged to be engaged in critical thinking tasks, and still their intrinsic motivation is not thwarted.

In the absence of specific polices and guidelines for assessment, instructors' class monitoring, and teacher feedback play an influential role in assessing students' critical thinking practices during class time. Reminiscing Manitos (2010) concept of 'zone of intervention in critical thinking', instructors' feedback worked as intervention to guide students in their attempts to think critically, whether in groups, pairs, or individual work mode. The nature of instructors' feedback; however, is conditioned by the design of the activity and how it is conducted. Individual feedback is not easy and feasible during group work and is directed to the whole group members. Individual feedback is only given to those who participate. Instructors' feedback is also conditioned by class size. The quality of teacher feedback given in cases where class size is large suffers in contrast to that given in cases of smaller sizes, as Boso (2019) outlined. Monitoring students' practices of large classes (around 50 students) is challenging if it is not impossible to maintain quality; sometimes it negatively impacts teachers and students' behaviours and practices.

Instructors' feedback was effective in "breaking the deadlocks" as put by Chun-Lok Fung et al. (2016, p. 146). This is more evident in activities requiring students to reach a common ground solution. Besides, instructors' feedback was useful for as a guidance, "modelling" the critical thought, as Hicks et al. (2019) described it.

An important conclusion of this study is that key stakeholders' perceptions of the effectiveness of explicit instruction on how critical thinking are different. While instructors assumed that they were immersing their students in activities that could help students develop their critical thinking, without a need to explicitly instruct on how to do so, students felt the need to be provided with enough models and examples to be able to develop their skills. More important, students of this digital era are practical and looking for more interactive and student-cantered activities, whereas sometimes instructors are still dependent on traditional methods of teaching, such as questioning. The need for instructors to adapt their methods to fit into the "unique characteristics" of today's students as pointed out by Hashim (2018, p.1). Identifying mismatches between instructors and students' perceptions was insightful to obtain an in-depth understanding of students' critical thinking practices during class time. As Denette (2014) explained, instructors' perceptions play a role in increasing students' engagement and learning and in reducing student-teacher frustration upon examining results. Instructors whose perceptions and practices are still holding into traditional and passive learning would be probably the first ones to be disappointed by students' low levels of engagement. The opposite does not guarantee though more promising results, but still being aware of such differences in perceptions could help in bridging gaps between students and instructors in practice.

Finally, while the main purpose of this study is to draw on conclusions relevant to instructors and students' perceptions, practices, and assessment of critical thinking, the research process has addressed several challenges hindering instructors' efforts to enhance their students' critical thinking skills, mainly students' engagement in the critical thinking task, class size and time, and conservative culture. As many studies in the area of critical thinking teaching (Anderson 2016, Hicks et al. 2019, LeBouf et al. 2016, and Butakor 2016) suggest, there is an urgent need for instructors to identify major factors influencing students' engagement and motivation and address them. Class size and time were also among these factors that influence students' engagement. The pace and quality of students' practices during late evening classes as indicated by Boso (2019) is usually low, which causes additional stress for instructors and requires more effort from them. The study also concluded that practicing critical thinking in public colleges in conservative cultures might be risky unless the instructors know how to do so by building appropriate channels of communication where consideration and respect to the cultures of the majority and minority are maintained. As Yoder (2018) suggested that the more college instructors are open and comprehensive of different cultures, the more students are willing to display their critical thinking skills. So, avoiding this binary view about cultures of public and private universities would help students at public universities to not be deprived of the opportunity to demonstrate their critical thinking skills.

5.3 Limitations

This study aimed to examine how critical thinking is being perceived, practiced, and assessed by college English writing instructors and students. While it contributed to literature relevant

to this area, a few limitations should be addressed and highlighted. Every study might face limitations that are beyond the researcher's control, mainly accessibility, participation rate, and voluntary nature of the instructors.

The first limitation was to obtain access from the Provost Office at universities for data collection purposes, especially from public universities. While many public universities disapproved it, those which provided official approvals spent two-three months to do so. Even those universities which gave their approvals, approvals were conditioned with using online links for administering students' survey. Students' online responses were limited in number and took a while. This forced the researcher to seek another approach to seek additional approval to administer student survey in person, which was not always guaranteed. Though instructors received directive emails from administration inviting them to voluntarily cooperate with the researcher, instructors were still reluctant to fully participate especially in class observation and interviews, which forced the researcher to seek further approval to be allowed to speak to them in person and reassure them of the confidentiality of the data collected.

Second, this research is exploratory in design, showing association between variables due to the sampling method and the small size of the college instructors, which cannot show causal effects.

The small size of the instructors' sample limits the generalization of the results on the whole population of college English writing instructors. The sample included twenty instructors completed the survey, five approved to be observed, and six were interviewed. Even those who were observed, they are self-selected and approved to be observed one time. One observation per instructor might not be sufficient to determine any pattern.

Thirdly, for investigating students' perceptions about their critical thinking experience, the study only depended on the use of students' surveys, which was found by the researcher as insufficient to gain an in-depth understanding of their perceptions especially in the two sections of teaching and assessment where the frequent use of "I don't know" was noticeable. This could be mostly attributed to the use of word "effective" in the survey instead of the word "preferred". The assumption that students should know effective methods for teaching or assessing CT in addition to the non-existence of additional data collection tool could be major limitation of the study. Even after class observations, a few students' practices were not fully understood by the researcher. Students' responses to the questionnaire could not fully explain such practices, which limited the researcher's ability to report a detailed understanding of students' practices.

The presence of the researcher during class observations might negatively influence students' participation, as some students did not feel comfortable to share their ideas in the presence of strangers (Creswell 2014). Simultaneously, the presence of the researcher might have influenced instructors' practices in the sense that instructors might have behaved in a way that conforms with the researcher's expectations and the aim of the study. For the same reasons, instructors' answers during the semi-structured interviews might be highly biased to meet the researcher's expectations and might not necessarily reflect the truth.

5.4 Research Recommendations and Implications

Data analysis and discussion revealed some recommendations for future investigation in addition to some suggestions for key stakeholders, including students, instructors, and administrations, and CEOs of the higher education institutes.

5.4.1 Research Recommendations

The first recommendation is the need for a larger sample size to ensure the generalizability of results on the whole population of college English writing instructors. A sample of further investigation is recommended to be expanded to include representatives from all the emirates. A larger sample could yield different results in relation to the impact that demographic variables might have on instructors and students' perceptions. More important a larger sample allows researchers to set comparisons between private and public universities. A further comparison in future research would be between the views of tutors and students in other disciplines.

Second, the use of another data collection tool in combination with the use of student survey to probe further information on students' perceptions and practices is highly recommended. The use of semi-structured interviews or focus groups, for example, would allow the researcher to conduct further inquiries and ask follow-up questions and clarify any ambiguities or contradictions revealing from students' responses to the questionnaire.

Even though one of the important contributions of this study is to direct attention towards the area of critical thinking assessment in writing courses, the blur in instructors and students' perceptions of effective assessment methods suggested the urgent need for identifying best practices in the area of assessment and test their effectiveness when applied into writing courses.

Finally, further research might dig deeper into the topic of identifying possible mismatches between perceptions of key stakeholders and even include chief executive officers (CEOs)' perceptions in comparison to instructors' ones especially in the area of explicit instruction and assessment of critical thinking.

5.4.2 Implications

Several important implications to inform the teaching, practice, and assessment of critical thinking arise from the overall findings and the insights gained about perceptions and practices by the main key players: College teachers and students

First of all, the chief executive officers of universities along with the support of the ministry of higher education and research are invited to provide guidance and support into the process of critical thinking integration into the undergraduate curriculum. Stipulating regulations about the need for enhancing students' critical thinking skills is found to be insufficient unless this is supported by guidance and practical measures. The absence of systematic guidelines for teaching and assessing students' critical thinking in the syllabus suggests the need for an urgent policy outlining in practical points how these two processes could be effectively practiced.

Once polices are developed, professional plans for instructors' professional development are then highly advised. CEOs and policymakers along with the support of the ministry of higher education and research need to ensure the best implementation through conducting workshops and practical training sessions for instructors. Instructors are integral to the success of the process of critical thinking integration, so their motivations and their needs must be met through developing an engagement strategy to ensure best practices on their behalf.

Since instructors are key players in the process of integration, they are also advised to diversify their teaching and assessment methods and include oral and written activities that are levelled to students' language skills and relevant to students' interests. While no tested evidence has been obtained from this study about the effectiveness of systematic integration

of technology to practice critical thinking, still it might be recommended to utilize the use of digital devices and social platforms for engagement purposes.

Finally, a major implication of this study is to emphasize the essential role of being educated on theories relevant to critical thinking. Therefore, instructors are invited to familiarize themselves with basic theories especially about critical thinking teaching and assessment. This builds confidence in instructors' perceptions and increases their awareness for more explicit instruction and modelling on critical thinking definition and skills. Hopefully, this will eventually lead to significant positive changes in the effectiveness of instructors' practices in classes.

Eventually, instructors' who are well-acquainted with enough knowledge and theories and are trained on effective methods of teaching and assessing students' critical thinking are seen as pillars for effective integration of critical thinking. To achieve this, the ministry of higher education and scientific research and CEOs of higher education institutions are therefore invited to effectively collaborate with college instructors' efforts to help college students develop their critical thinking skills.

5.5 Research Ethics

Upon the completion of the study, it is essential to reiterate that throughout the research stages, ethical procedures have been followed, and to ensure the commitment to the main principles of research ethics as outlined by the Belmont report (1974): beneficence, justice, confidentiality, respect, and integrity. Researcher's academic integrity implies being honest, and so honesty was reflected throughout the different stages of the research process,

including the data collection and analysis stages (Tashakkori and Teddlie 2010). The researcher was also honest and clearly articulated the purpose of the study for the official administration of the participating universities.

The ethical procedures to respect participants' rights and protect them started with sending informed consent letters along with the approved research application from the Ethics Advisory Committee of the British University in Dubai to the administration offices of the five participating universities. In the informed consent letters, the researcher pledged to be committed to the main research ethics ensuring the voluntary participation and the confidentiality of the data collected. In action, additional informed consent letters were sent to the instructors who volunteered, and it was explained to them that their participation would be kept anonymous and they had the right to withdraw whenever wanted. These informed consent letters also included full details about the research purposes and data collection and analysis tools, reassuring the confidentiality of names, questionnaire findings, observation field notes, and interview answers and transcriptions. Therefore, during the data analysis stage, especially the analysis of the qualitative data, instructors' names were coded and given numbers to ensure the anonymity of participants.

Once the process of data analysis is completed, two further ethical procedures were done. First was to collapse groups of small numbers into fewer ones to avoid revealing the identity of the participant, especially for the two categories of age and nationality. The second procedure was to share the research findings with the participants for two purposes. First, it was important to ensure the participants' final agreement on what had been stated by them during the interviews and what had been observed during class observations, and so the knowledge gained was shared with them. Second, sharing the findings was a precaution to

ensure that findings were not influenced by the researcher's bias. Especially after class observations and teacher semi-structured interviews, the researcher met the instructors and shared the findings with the observed and interviewed instructors to get their confirmation and official agreement of the findings from the field notes and interview transcriptions. These meetings were informative to obtain a deeper understanding of certain practices and stated responses in the interview. Eventually, this final procedure helped the researcher to avoid unbiased interpretations of the data collected and to ensure the validity and reliability of the overall findings.

6. References

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7. Appendices

Appendix A Teacher Questionnaire

Thank you for your time to complete this questionnaire. The purpose of the study is to investigate college instructors' perceptions, practices, and assessment of critical thinking in writing courses. Please be assured of the anonymity and confidentiality of your answers. Also, you are allowed to withdraw at any time without any penalty, or any social, financial, or psychological harm. On the other hand, the researcher will present the data obtained in an objective manner without any interference or manipulation.

A. Demographic Information

Gender:	-Female	-Male		
Age:	- 25-30	- 25-40	-41-50	51 and above
Nationality:				
Teaching Experience:	- 5-10	- 11-15	- 16-20	21 and above
Academic Degree:	- Master	- PhD		

B. Please indicate to what extent you agree or disagree with the following statements.

Statement	Strongly Agree	Agree	I do notknow	Disagree	Strongly Disagree
1. Critical thinking focuses on the interpretation of information					
2. Critical thinking is deep reflection					
3. Reasoning is the main element of critical thinking					
4. Critical thinking is problem-solving					
5. Critical thinking focuses on evaluation					
6. Critical thinking is making inferences					

Statement	Strongly Agree	Agree	I do notknow	Disagree	Strongly Disagree
7. Analysis of information is the main element of critical thinking					
8. Critical thinking allows students to explore ideas, keep options open and imagine					
9. Critical thinking makes students take decision in different situations					
10. Critical thinking prepares the students to identify a real-world problem and explore possible solutions					
11. Critical thinking helps the students to develop intellectual standards to make informed judgments					
12. Critical thinking makes students evaluate information					
13. Critical thinking makes the students look for evidence					

	Strongly Agree	Agree	I do notknow	Disagree	Strongly disagree
14. Critical thinking comes naturally to students					
15. Critical thinking should be explicitly taught during class time					
16. Critical thinking should be intentionally applied in course assignments and lessons					
17. Critical thinking could be enhanced through structured					

	controversy or debate				
18.	Critical thinking is best practiced through cooperative learning – sharing in groups and working together to achieve a goal				
19.	Asking students to consider how course material relates to them helps to foster students' critical thinking				
20.	Critical thinking is best enhanced by asking students to identify a real-world problem and consider different solutions				

As this study seeks to investigate college instructors' practices and assessment of critical thinking in writing courses, the following statements are related to the areas of instruction in writing courses. So, please indicate to what extent you agree or disagree with the following statements.

The following method is mostly effective for fostering students' critical thinking in English writing courses	Strongly Agree	Agree	I do not know	Disagree	Strongly disagree
21. Asking students to write reflective journals					
22. Peer reviews of writing					
23. Process writing where students receive feedback from instructors on their writing					
24. Assignments requiring students to justify their opinions supported by evidence					
25. Argumentative essays					
26. Instructing students about fallacies					
27. Short assignments requiring students evaluating information					
28. Providing writing prompts in which students are engaged in textual analyses					
29. Socratic teaching (Questioning for oral discussions)					
30. Requiring students to analyze a real problem and evaluate solutions					
31. Synthesis essays					
32. Asking students to write a critique					
33. Asking students to review articles, evaluate evidence, and evaluate sources used.					

C. As this study seeks to investigate college instructors' practices and assessment of critical thinking in writing courses, the following statements are related to the area of assessment in writing courses. So, please indicate to what extent you agree or disagree with the following statements

The following assessment technique is most effective for measuring students' gains of critical thinking in writing courses	Strongly agree	Agree	I do notknow	Disagree	Strongly disagree
34. Structured essay writing examination that requires students to employ critical thinking					
35. Student-directed discussions, assessed by both the instructor and peers					
36. Student self-assessment					

37. Use of formative assessment where students receive written and oral feedback on their critical thinking skills					
38. Embedded Assessment on exams					
39. Use of rubrics to grade students' work and measure students' critical thinking skills					
40. Use of a ready- made Critical Thinking standardized test					

D. Answer the following open- ended questions:

1. To me, critical thinking is

_____

_____

_____

2. List other effective techniques you usually use for teaching critical thinking skills in writing courses.

_____

_____

_____

3. List other methods of assessment/ evaluation you use to measure/assess students' critical thinking skills in writing courses.

_____

_____

_____

Appendix B: Student Questionnaire

Thank you for your time to complete this questionnaire. The purpose of the study is to investigate students' perceptions of critical thinking in writing courses. Please be assured with anonymity and confidentiality of your answers. Also, you are allowed to withdraw at any time without any penalty, or any social, financial, or psychological harm. On the other hand, the researcher will present the data obtained in an objective manner without any interference or manipulation.

E. Demographic Information

Gender:	-Female	-Male		
Age:	- 17-24	- 25-30	-30-40	41 and above
Nationality:				
Major:				
Academic Level:	- Freshman	- Sophomore	- Junior	- Senior

Please indicate to what extent you agree or disagree with the following statements.

Statement	**Strongly Agree**	**Agree**	**I do notknow**	**Disagree**	**Strongly Disagree**
1. Critical thinking focuses on understanding the information					
2. Critical thinking focuses on problem-solving					
3. Critical thinking focuses on evaluating how true the information is					

Statement	**Strongly Agree**	**Agree**	**I do notknow**	**Disagree**	**Strongly Disagree**
4. Critical thinking makes the students analyze the information					
5. Critical thinking allows students to explore ideas, keep options open and imagine					
6. Critical thinking makes students take decision in different situations					
7. Critical thinking makes the students look for evidence					

Statement	Strongly Agree	Agree	I do notknow	Disagree	Strongly disagree
8. Critical thinking comes naturally to students					
9. Teachers should teach students how to think critically during class time.					

As this study seeks to investigate college instructors' practices and assessment of critical thinking in writing courses, the following statements are related to the areas of instruction and assessment in Writing courses. So, please indicate to what extent you agree or disagree with the following statements.

The following method is mostly effective for fostering students' critical thinking in English writing courses	Strongly Agree	Agree	I do not know	Disagree	Strongly disagree
10. Students' critical thinking can be improved in groups and by working together to achieve a goal					
11. Argumentative essays					
12. Short assignments requiring students to analyze and evaluate material					
13. Questioning and oral discussions					
14. Asking students to write opinion essays					
15. Asking students to review their work by themselves first and then with their teachers and get feedback					
16. Asking students to review articles, evaluate evidence, and evaluate sources used is mostly useful to improve their critical thinking.					
17. Asking students to write reflective journals					

D- Assessment

The following assessment technique is mostly effective for measuring students' gains of critical thinking in writing courses	Strongly agree	Agree	I do notknow	Disagree	Strongly disagree
18. Structured essay writing examination that requires students to employ critical thinking					
19. Student directed discussions, assessed by both the instructor and peers					
20. Student self-assessment					
21. Use of formative assessment where students receive written and oral feedback on their critical thinking skills					
22. Use of rubrics to grade students' work and measure students' critical thinking skills					

E. Answer the following open- ended questions:

4. To me, critical thinking is _____

_____

5. List other effective techniques you usually use for teaching critical thinking skills in writing courses.

_____

_____

6. List other methods of assessment/ evaluation you use to measure/assess students' critical thinking skills in writing courses.

_____

_____

Appendix C: Observation Checklist

Observation Checklist adopted from: Saudi English Supervisor Program: Shaping the Way Forward, 2006, L. Opp-Beckman and K. Westerfield, University of Oregon, http://oelp.uoregon.edu/shaping.html

Retrieved from: https://cpb-us-e1.wpmucdn.com/blogs.uoregon.edu/dist/d/14812/files/2017/07/09_shaping_checklist-2759erv.pdf

Checklist: Critical Thinking Skills

Directions

The teacher and the observer should each complete a copy of this form (total of two forms). When the observation is finished, they can sit down together, compare results, and come up with an agreed upon plan of action as needed.

A) For each of the points listed below, **circle** the appropriate response to…

Question: Do you see this in the lesson?
Answer: **YES**, **NO**, **??** (not sure), or **NA** (not applicable).

B) When you are finished, put a check √ by the three items that are most important to you.

1.	The lesson includes the use of critical thinking skills.	**YES**	**NO**	**??**	**NA**
2.	Clear learning goals are in evidence at all times.	**YES**	**NO**	**??**	**NA**
3.	There are student-centered learning practices (the teacher guides rather than "spoon feeds").	**YES**	**NO**	**??**	**NA**
4.	The lesson is flexible and allows students to make choices in their learning.	**YES**	**NO**	**??**	**NA**
5.	Students are motivated, enthusiastic , and on task.	**YES**	**NO**	**??**	**NA**
6.	There is evidence of higher order thinking and learning (predict, imagine, analyze, synthesize, etc.).	**YES**	**NO**	**??**	**NA**
7.	The teacher allows an appropriate amount of time and pacing for students to complete the task(s).	**YES**	**NO**	**??**	**NA**
8.	More than one "right" answer is possible, so there is more than one way for students to succeed.	**YES**	**NO**	**??**	**NA**
9.	Students complete tasks in a timely manner.	**YES**	**NO**	**??**	**NA**
10.	Transitions between activities are smooth and efficient.	**YES**	**NO**	**??**	**NA**
11.	Type(s) of assessment (peer, self, portfolio, etc.) are appropriate for the learning goals.	**YES**	**NO**	**??**	**NA**

2006 Saudi English Supervisor Program: Shaping the Way Forward
L. Opp-Beckman and K. Westerfield, University of Oregon, http://oelp.uoregon.edu/shaping.html

Appendix D: Semi-Structured Interviews

(developed by the researcher after being adapted from Steffen 2011: Teacher Perceptions of Critical Thinking in Instruction, p. 166)

Interview Protocol

I. Instruction for interviewer:

Protocol script: Adapted from **(Steffen 2011, p. 180)**

Thank you for your time to speak with me today. The interview will take around one hour. The purpose of the study is to investigate college instructors' perceptions, practices, and assessment of critical thinking in writing courses. It will be audio recorded. The audio data will not be accessible except this researcher. After transcription, the audio data will be destroyed. After transcription and the subsequent data analysis document will use pseudonym to maintain confidentiality of your identity. Before we proceed the interview, you need to sign some documents that you understand and agree. Participation is voluntary; you can withdraw study at any time with no rumination to you and the study is confidential.

Interview Questions

Q1. To what extent do you think that teaching critical thinking skills is important for college students? Justify

Q2. Have you tried to explicitly teach or refer to the concept of critical thinking in your writing classes?

Q.3. Upon reviewing your writing course syllabus, in what units/sections/topics might be found useful for you to integrate critical thinking skills?

Q.4. In your opinion, what effective methods can be used to assess students' critical thinking in writing courses?

Q.5. How successful is your experience of teaching critical thinking in writing courses? Explain

Q.6. How challenging is your experience of teaching critical thinking in writing courses? Explain these challenges.

Appendix E: Approved Research Ethics Application

Research Ethics Form (Low Risk Research) To be completed by the researcher and submitted to the Dean's nominated faculty representative on the Research Ethics Committee I. Applicants/Researcher's information: Name of Researcher /student Banan AL Kafri Contact telephone No. 0567465513 Email address banan.a81@yahoo.com Date

ii. Summary of Proposed Research: BRIEF OUTLINE OF PROJECT (100-250 words; this may be attached separately. You may prefer to use the abstract from the original bid):

This study aims to examine how teachers of writing courses in five universities in the UAE define and assess their students' critical thinking skills. It also seeks to highlight challenges countering teachers in their attempts to integrate and assess students' critical thinking skills in writing assignments. Therefore, a mixed method has been utilized. The qualitative part will be collecting documents including lesson plans, classwork activities on critical thinking, and then will be analyzed. Second, semi-structured interviews with the participating teachers will be conducted. As for the quantitative part, students' essays will be collected, and their critical writing will be assessed.

MAIN ETHICAL CONSIDERATION(S) OF THE PROJECT (e.g., working with vulnerable adults; children with disabilities; photographs of participants; material that could offend etc…):

As for respecting participants' rights and protecting them from any harm, the first step will be to seek approvals from sites following the BUID's guidelines. Second, consent forms will be distributed on the participants (teachers) to obtain their approval and signature and reassure the confidentiality of data collected, including names, documents, interview answers, and transcriptions. The informed consent will state that participants have the right to withdraw at any stage of the research process. Thirdly, the purpose of the study, the data collection tools, and the research procedure will be fully explained to the participants as a further step to follow ethical research protocol. Finally, research findings will be discussed with the participants to ensure that they agree on what has been stated by them in the interviews and to share the knowledge gained and the implications that might be suggested upon the completion of the study.

DURATION OF PROPOSED PROJECT (please provide dates as month/year):

Starting September 2019 Ending by September 2020 Date you wish to start Data Collection: September 2019 Date for issue of consent forms: May 2019 iii. Declaration by the Researcher: I have

read the University's policies for Research and the information contained herein, to the best of my knowledge and belief, accurate.

I am satisfied that I have attempted to identify all risks related to the research that may arise in conducting this research and acknowledge my obligations as a researcher and the rights of participants. I am satisfied that members of staff (including myself) working on the project have the appropriate qualifications, experience, and facilities to conduct the research set out in the

attached document and that I, as researcher take full responsibility for the ethical conduct of the research in accordance with subject-specific and University Research Policy (9.3 Policies and Procedures Manual), as well as any other condition laid down by the BUiD Ethics Committee. I am fully aware of the timelines and content for the participant's information and consent.

Print name: Banan AL Kafri

Signature: __Banan_____ Date: February 28

If the research is confirmed as not medium or high risk, it is endorsed HERE by the Faculty's Research Ethics Committee member (following discussion and clarification of any issues or concerns) *…….and forwarded to the Research Office to be recorded.

I confirm that this project fits within the University's Research Policy (9.3 Policies and Procedures Manual) and I approve the proposal on behalf of BUiD's Research Ethics Committee.

Name and signature of nominated Faculty Representative: ___Professor Abdulai Abukari_____

Signature: ___ Professor Abdulai Abukari _____ Date: ____4 March 2019_____

Name and signature of Dean of Research: __Professor Ashly Pinnington_____

Signature: ____ Professor Ashly Pinnington _____ Date: ____4 March 2019_____

iv. If the Faculty's Research Ethics Committee member or the Vice Chancellor considers the research of medium or high risk, it is forwarded to the Research Ethics Officer to follow the higher-level procedures.

* If the Faculty representative is the DoS, the form needs the approval of the Chair of the Research Ethics Committee.

Appendix F: Informed Consent Letter for Survey and Interview Participation

Consent Form

Letter to the Research Department/ Academic Provost at the University

Investigating College Instructors' Perceptions, Practices, and Assessment of College Students' Critical Thinking Skills in Writing Courses in Higher Education in the UAE

(Date)

Dear (Name of the Director)

UAE

My name is Banan AL Kafri, I am a Ph.D. student in Education at The British University in Dubai. I am writing to request your permission to visit your university to collect data for my study.

As you know, the Ministry of Higher Education and Scientific Research (MOHESR) has required universities to integrate critical thinking skills into the curriculum of each course being taught at the college level. Critical thinking is viewed by the Ministry of Higher Education and Scientific Research (MOHESR) as one of the 21st century soft skills, and college students need to get training on it. So, the main purpose of this proposed research paper is to investigate college instructors' perceptions, practices, and assessment of critical thinking in writing courses and how college students of English writing course perceive their critical thinking experience. Based on this, faculty members who teach English writing courses and students who are taking these courses are the participants of the study. The data collection procedure will include Teacher questionnaire, class observation, semi-structured interviews with the teachers, and finally, student questionnaire.

Please be assured of the anonymity and confidentiality of the faculty members, students, and the university itself. Also, that faculty members and students' participation in the data collection process is voluntary and that they can withdraw at any time without any penalty or any social, financial, or psychological harm. On the other hand, the researcher will present the data obtained in an objective manner without any interference or manipulation.

Investigating how faculty members perceive, teach, and assess students' critical thinking will hopefully support your efforts to integrate critical thinking into the course curriculum and ultimately promote students' critical thinking skills. Upon investigating current practices, the results of my study will hopefully suggest useful implications for future implementation. Finally, it seeks to increase awareness of the importance of critical thinking among faculty members and students.

Please sign the consent form attached to indicate your approval of visiting your university. Kindly, provide me with a suitable period – if any – where you think I should visit your university and conduct the data collection procedure.

Thank you for your time and consideration.

Contact Information

If you have any further questions or concerns about this study, please contact:

Name of researcher: Banan AL Kafri

Tel: 0567465513

E-mail: 20170362@student.buid.ac.ae

You can also contact the Director of Studies (Researcher's Supervisor):

Name: Dr. Christopher Hill

Phone: 042791400/ Ext: 448

Email: Christopher.hill@buid.ac.ae

Interview Consent Form

Research project title: Investigating College Instructors' Perceptions, Practices, and Assessment of College Students' Critical Thinking Skills in Writing Courses in Higher Education in the UAE

Research investigator: Banan AL Kafri

Research Participants name:

The interview will take around one hour. We do not anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

Thank you for your time to speak with me today. The purpose of the study is to investigate college instructors' perceptions, practices, and assessment of critical thinking in writing courses. It will be audio recorded. The audio data will not be accessible except by this researcher. After transcription, the audio data will be destroyed. After transcription and the subsequent data analysis document will use a pseudonym to maintain the confidentiality of your identity. Before we proceed with the interview, you need to sign some documents that you understand and agree. Participation is voluntary; you can withdraw study at any time with no rumination to you and the study is confidential.

By signing this form, I agree that.

1. I am voluntarily taking part in this project. I understand that I do not have to take part, and I can stop the interview at any time.
2. The transcribed interview or extracts from it may be used as described above.
3. I have read the Information sheet.
4. I can request a copy of the transcript of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality.
5. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

_____

Printed Name

_____ _____

Participant's Signature Date

_____ _____

Researcher's Signature Date

Contact Information

If you have any further questions or concerns about this study, please contact:

Name of researcher: Banan AL Kafri

Tel: 0567465513

E-mail: 20170362@student.buid.ac.ae

You can also contact the Director of Studies (Researcher's Supervisor):

Name: Dr. Christopher Hill

Phone: 042791400/ Ext: 448

Email: Christopher.hill@buid.ac.ae

Appendix G: Critical Thinking and Demographics

A. Instructors' Demographic Background and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

1. Odds Ratio for Instructors' genders

Question	Gender	Agree	Disagree	Odds ratio value
Q1 Critical thinking focuses on the interpretation of information	Male	6	2	0
	Female	12	0	
Q2 Critical thinking is deep reflection thinking	Male	7	1	0
	Female	12	0	
Q3 Reasoning is the main element of critical	Male	7	1	0.636
	Female	11	1	
Q 4 Critical thinking is problem-solving	Male	6	2	0.273
	Female	11	1	
Q 5 Critical thinking focuses on evaluation	Male	8	0	0
	Female	12	0	
Q 6 Critical thinking is making inferences	Male	8	0	0
	Female	11	1	
Q 7 Analysis of information is the main element of critical thinking	Male	8	0	0
	Female	12	0	
Q 8 Critical thinking allows students to explore ideas, keep options open and imagine	Male	8	0	0
	Female	12	0	
Q 9 Critical thinking makes students take decision in different situations	Male	8	0	0
	Female	12	0	
Q 10 Critical thinking prepares the students to identify a real-world problem and explore possible solutions	Male	8	0	0
	Female	12	0	
Q 11 Critical thinking helps the students to develop intellectual standards to make informed judgments	Male	8	0	0
	Female	12	0	
Q 12 Critical thinking makes students evaluate information	Male	8	0	0
	Female	12	0	
Q 13 Critical thinking makes the students look for evidence	Male	8	0	0
	Female	12	0	
	Male	1	7	0

Question	Gender	Agree	Disagree	Odds ratio value
Q 14 Critical thinking comes naturally to students	Female	0	12	
Q 15 Critical thinking should be explicitly taught during class time	Male	5	3	0.167
	Female	10	1	
Q 16 Critical thinking should be intentionally applied in course assignments and lessons	Male	5	3	0.833
	Female	8	4	
Q 17 Critical thinking could be enhanced through structured controversy or debate	Male	7	1	0
	Female	12	0	
Q 18 Critical thinking is best practiced through cooperative learning –sharing in groups and working together to achieve a goal	Male	6	2	0
	Female	12	0	
Q 19 Asking students to consider how course material relates to them helps to foster students' critical thinking	Male	7	1	0.700
	Female	10	1	
Q 20 Critical thinking is best enhanced by asking students to identify a real-world problem and consider different solutions	Male	7	1	0
	Female	12	0	
Q 21 Asking students to write reflective journals	Male	5	3	0
	Female	12	0	
Q 22 Peer reviews of writing	Male	7	1	2.33
	Female	9	3	
Q 23 Process writing where students receive feedback from instructors on their writing	Male	8	0	0
	Female	11	1	
Q 24 Assignments requiring students to justify their opinions supported by evidence	Male	8	0	0
	Female	12	0	
Q 25 Argumentative essays	Male	8	0	0
	Female	12	0	
Q 26 Instructing students about fallacies	Male	8	0	0
	Female	11	1	
Q 27 Short assignments requiring students evaluating information	Male	8	0	0
	Female	11	1	
Q 28 Providing writing prompts in which students are engaged in textual analyses	Male	7	1	0
	Female	12	0	
Q 29 Socratic teaching (Questioning for oral discussions)	Male	6	2	0.273
	Female	11	1	
Q 30 Requiring students to analyze a real problem and evaluate solutions	Male	7	0	0
	Female	12	0	
Q 31 Synthesis essays	Male	5	3	0.333
	Female	12	2	
Q 32 Asking students to write a critique	Male	8	0	0
	Female	11	0	
Q 33 Asking students to review articles, evaluate evidence, and evaluate sources used.	Male	8	0	0
	Female	12	0	
Q 341. Structured essay writing examination that requires students to employ critical thinking	Male	7	1	1.400
	Female	10	2	
Q 35 Student-directed discussions, assessed by both the instructor and peers	Male	6	2	0.273
	Female	11	1	
Q 36 Student self-assessment	Male	4	4	0.333
	Female	9	3	

Question	Gender	Agree	Disagree	Odds ratio value
Q 37 Use of formative assessment where students receive written and oral feedback on their critical thinking skills	Male	7	1	0.636
	Female	11	1	
Q 38 Embedded Assessment on exams	Male	4	3	0.267
	Female	10	2	
Q 39 Use of rubrics to grade students' work and measure students' critical thinking skills	Male	5	3	0.556
	Female	9	3	
Q 40 Use of a ready- made Critical Thinking standardized test	Male	1	7	0.102
	Female	7	5	

2. Instructors' Age Groups and Frequencies of Agreement with Each Survey Item

Age * Q1 Crosstabulation

			Q1 Disagree	Agree	Strongly Agree	Total
Age	25-40	Count	0	3	4	7
		% within Age	0.0%	42.9%	57.1%	100.0%
	41-50	Count	1	3	6	10
		% within Age	10.0%	30.0%	60.0%	100.0%
	51 and above	Count	1	0	2	3
		% within Age	33.3%	0.0%	66.7%	100.0%
Total		Count	2	6	12	20
		% within Age	10.0%	30.0%	60.0%	100.0%

Age * Q2 Crosstabulation

			Q2 I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	1	6	7
		% within Age	0.0%	14.3%	85.7%	100.0%
	41-50	Count	0	3	7	10
		% within Age	0.0%	30.0%	70.0%	100.0%
	51 and above	Count	1	0	2	3
		% within Age	33.3%	0.0%	66.7%	100.0%
Total		Count	1	4	15	20
		% within Age	5.0%	20.0%	75.0%	100.0%

Age * Q3 Crosstabulation

			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	0	3	4	7
		% within Age	0.0%	0.0%	42.9%	57.1%	100.0%
	41-50	Count	1	1	7	1	10

		% within Age	10.0%	10.0%	70.0%	10.0%	100.0%
	51 and above	Count	0	0	0	3	3
		% within Age	0.0%	0.0%	0.0%	100.0%	100.0%
Total		Count	1	1	10	8	20
		% within Age	5.0%	5.0%	50.0%	40.0%	100.0%

Age * Q4 Crosstabulation

			Q4			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	3	4	7
		% within Age	0.0%	42.9%	57.1%	100.0%
	41-50	Count	2	4	4	10
		% within Age	20.0%	40.0%	40.0%	100.0%
	51 and above	Count	1	1	1	3
		% within Age	33.3%	33.3%	33.3%	100.0%
Total		Count	3	8	9	20
		% within Age	15.0%	40.0%	45.0%	100.0%

Age * Q5 Crosstabulation

			Q5		
			Agree	Strongly Agree	Total
Age	25-40	Count	1	6	7
		% within Age	14.3%	85.7%	100.0%
	41-50	Count	4	6	10
		% within Age	40.0%	60.0%	100.0%
	51 and above	Count	1	2	3
		% within Age	33.3%	66.7%	100.0%
Total		Count	6	14	20
		% within Age	30.0%	70.0%	100.0%

Age * Q6 Crosstabulation

			Q6			
			Disagree	Agree	Strongly Agree	Total
Age	25-40	Count	1	1	5	7
		% within Age	14.3%	14.3%	71.4%	100.0%
	41-50	Count	0	4	6	10
		% within Age	0.0%	40.0%	60.0%	100.0%
	51 and above	Count	0	0	3	3
		% within Age	0.0%	0.0%	100.0%	100.0%
Total		Count	1	5	14	20
		% within Age	5.0%	25.0%	70.0%	100.0%

Age * Q7 Crosstabulation

			Q7		
			Agree	Strongly Agree	Total

Age	25-40	Count	0	7	7
		% within Age	0.0%	100.0%	100.0%
	41-50	Count	5	5	10
		% within Age	50.0%	50.0%	100.0%
	51 and above	Count	1	2	3
		% within Age	33.3%	66.7%	100.0%
Total		Count	6	14	20
		% within Age	30.0%	70.0%	100.0%

Age * Q8 Crosstabulation

			Q8		
			Agree	Strongly Agree	Total
Age	25-40	Count	1	6	7
		% within Age	14.3%	85.7%	100.0%
	41-50	Count	3	7	10
		% within Age	30.0%	70.0%	100.0%
	51 and above	Count	0	3	3
		% within Age	0.0%	100.0%	100.0%
Total		Count	4	16	20
		% within Age	20.0%	80.0%	100.0%

Age * Q9 Crosstabulation

			Q9		
			Agree	Strongly Agree	Total
Age	25-40	Count	2	5	7
		% within Age	28.6%	71.4%	100.0%
	41-50	Count	4	6	10
		% within Age	40.0%	60.0%	100.0%
	51 and above	Count	2	1	3
		% within Age	66.7%	33.3%	100.0%
Total		Count	8	12	20
		% within Age	40.0%	60.0%	100.0%

Age * Q10 Crosstabulation

			Q10		
			Agree	Strongly Agree	Total
Age	25-40	Count	1	6	7
		% within Age	14.3%	85.7%	100.0%
	41-50	Count	4	6	10
		% within Age	40.0%	60.0%	100.0%
	51 and above	Count	1	2	3
		% within Age	33.3%	66.7%	100.0%
Total		Count	6	14	20
		% within Age	30.0%	70.0%	100.0%

Age * Q11 Crosstabulation

			Q11 Agree	Strongly Agree	Total
Age	25-40	Count	1	6	7
		% within Age	14.3%	85.7%	100.0%
	41-50	Count	3	7	10
		% within Age	30.0%	70.0%	100.0%
	51 and above	Count	0	3	3
		% within Age	0.0%	100.0%	100.0%
Total		Count	4	16	20
		% within Age	20.0%	80.0%	100.0%

Age * Q12 Crosstabulation

			Q12 Agree	Strongly Agree	Total
Age	25-40	Count	2	5	7
		% within Age	28.6%	71.4%	100.0%
	41-50	Count	4	6	10
		% within Age	40.0%	60.0%	100.0%
	51 and above	Count	0	3	3
		% within Age	0.0%	100.0%	100.0%
Total		Count	6	14	20
		% within Age	30.0%	70.0%	100.0%

Age * Q13 Crosstabulation

			Q13 Agree	Strongly Agree	Total
Age	25-40	Count	2	5	7
		% within Age	28.6%	71.4%	100.0%
	41-50	Count	4	6	10
		% within Age	40.0%	60.0%	100.0%
	51 and above	Count	0	3	3
		% within Age	0.0%	100.0%	100.0%
Total		Count	6	14	20
		% within Age	30.0%	70.0%	100.0%

Age * Q14 Crosstabulation

			Q14 Strongly disagree	Disagree	I don't know	Agree	Total
Age	25-40	Count	0	7	0	0	7
		% within Age	0.0%	100.0%	0.0%	0.0%	100.0%
	41-50	Count	2	5	2	1	10
		% within Age	20.0%	50.0%	20.0%	10.0%	100.0%
	51 and above	Count	0	3	0	0	3
		% within Age	0.0%	100.0%	0.0%	0.0%	100.0%

Total		Count	2	15	2	1	20
		% within Age	10.0%	75.0%	10.0%	5.0%	100.0%

Age * Q15 Crosstabulation

			Q15				
			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	2	0	3	2	7
		% within Age	28.6%	0.0%	42.9%	28.6%	100.0%
	41-50	Count	0	2	6	1	9
		% within Age	0.0%	22.2%	66.7%	11.1%	100.0%
	51 and above	Count	0	0	1	2	3
		% within Age	0.0%	0.0%	33.3%	66.7%	100.0%
Total		Count	2	2	10	5	19
		% within Age	10.5%	10.5%	52.6%	26.3%	100.0%

Age * Q16 Crosstabulation

			Q16				
			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	1	1	4	1	7
		% within Age	14.3%	14.3%	57.1%	14.3%	100.0%
	41-50	Count	2	1	4	3	10
		% within Age	20.0%	10.0%	40.0%	30.0%	100.0%
	51 and above	Count	2	0	0	1	3
		% within Age	66.7%	0.0%	0.0%	33.3%	100.0%
Total		Count	5	2	8	5	20
		% within Age	25.0%	10.0%	40.0%	25.0%	100.0%

Age * Q17 Crosstabulation

			Q17			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	1	6	7
		% within Age	0.0%	14.3%	85.7%	100.0%
	41-50	Count	0	6	4	10
		% within Age	0.0%	60.0%	40.0%	100.0%
	51 and above	Count	1	2	0	3
		% within Age	33.3%	66.7%	0.0%	100.0%
Total		Count	1	9	10	20
		% within Age	5.0%	45.0%	50.0%	100.0%

Age * Q18 Crosstabulation

			Q18				Total

			Disagree	I don't know	Agree	Strongly Agree	
Age	25-40	Count	0	0	3	4	7
		% within Age	0.0%	0.0%	42.9%	57.1%	100.0%
	41-50	Count	1	0	6	3	10
		% within Age	10.0%	0.0%	60.0%	30.0%	100.0%
	51 and above	Count	0	1	1	1	3
		% within Age	0.0%	33.3%	33.3%	33.3%	100.0%
Total		Count	1	1	10	8	20
		% within Age	5.0%	5.0%	50.0%	40.0%	100.0%

Age * Q19 Crosstabulation

			Q19				
			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	1	0	1	5	7
		% within Age	14.3%	0.0%	14.3%	71.4%	100.0%
	41-50	Count	0	1	3	5	9
		% within Age	0.0%	11.1%	33.3%	55.6%	100.0%
	51 and above	Count	0	0	1	2	3
		% within Age	0.0%	0.0%	33.3%	66.7%	100.0%
Total		Count	1	1	5	12	19
		% within Age	5.3%	5.3%	26.3%	63.2%	100.0%

Age * Q20 Crosstabulation

			Q20			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	3	4	7
		% within Age	0.0%	42.9%	57.1%	100.0%
	41-50	Count	1	4	5	10
		% within Age	10.0%	40.0%	50.0%	100.0%
	51 and above	Count	0	2	1	3
		% within Age	0.0%	66.7%	33.3%	100.0%
Total		Count	1	9	10	20
		% within Age	5.0%	45.0%	50.0%	100.0%

Age * Q21 Crosstabulation

			Q21				
			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	0	3	4	7
		% within Age	0.0%	0.0%	42.9%	57.1%	100.0%
	41-50	Count	1	0	5	4	10
		% within Age	10.0%	0.0%	50.0%	40.0%	100.0%
	51 and above	Count	0	2	0	1	3
		% within Age	0.0%	66.7%	0.0%	33.3%	100.0%
Total		Count	1	2	8	9	20
		% within Age	5.0%	10.0%	40.0%	45.0%	100.0%

Age * Q22 Crosstabulation

			Q22				
			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	2	0	2	3	7
		% within Age	28.6%	0.0%	28.6%	42.9%	100.0%
	41-50	Count	0	0	5	5	10
		% within Age	0.0%	0.0%	50.0%	50.0%	100.0%
	51 and above	Count	0	2	1	0	3
		% within Age	0.0%	66.7%	33.3%	0.0%	100.0%
Total		Count	2	2	8	8	20
		% within Age	10.0%	10.0%	40.0%	40.0%	100.0%

Age * Q23 Crosstabulation

			Q23			
			Disagree	Agree	Strongly Agree	Total
Age	25-40	Count	0	3	4	7
		% within Age	0.0%	42.9%	57.1%	100.0%
	41-50	Count	1	6	3	10
		% within Age	10.0%	60.0%	30.0%	100.0%
	51 and above	Count	0	1	2	3
		% within Age	0.0%	33.3%	66.7%	100.0%
Total		Count	1	10	9	20
		% within Age	5.0%	50.0%	45.0%	100.0%

Age * Q24 Crosstabulation			Agree	Strongly Agree	Total
Age	25-40	Count	3	4	7

		% within Age	42.9%	57.1%	100.0%
	41-50	Count	1	9	10
		% within Age	10.0%	90.0%	100.0%
	51 and above	Count	0	3	3
		% within Age	0.0%	100.0%	100.0%
Total		Count	4	16	20
		% within Age	20.0%	80.0%	100.0%

Age * Q 25 Crosstabulation			Agree	Strongly Agree	
Age	25-40	Count	2	5	7
		% within Age	28.6%	71.4%	100.0%
	41-50	Count	3	7	10
		% within Age	30.0%	70.0%	100.0%
	51 and above	Count	1	2	3
		% within Age	33.3%	66.7%	100.0%
Total		Count	6	14	20
		% within Age	30.0%	70.0%	100.0%

Age * Q26 Crosstabulation

			Q26			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	1	2	4	7
		% within Age	14.3%	28.6%	57.1%	100.0%
	41-50	Count	0	3	7	10
		% within Age	0.0%	30.0%	70.0%	100.0%
	51 and above	Count	0	1	2	3
		% within Age	0.0%	33.3%	66.7%	100.0%
Total		Count	1	6	13	20
		% within Age	5.0%	30.0%	65.0%	100.0%

Age * Q27 Crosstabulation

			Q27			
			Disagree	Agree	Strongly Agree	Total
Age	25-40	Count	1	2	4	7
		% within Age	14.3%	28.6%	57.1%	100.0%
	41-50	Count	0	6	4	10
		% within Age	0.0%	60.0%	40.0%	100.0%
	51 and above	Count	0	0	3	3
		% within Age	0.0%	0.0%	100.0%	100.0%
Total		Count	1	8	11	20
		% within Age	5.0%	40.0%	55.0%	100.0%

Age * Q28 Crosstabulation

			Q28			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	2	5	7
		% within Age	0.0%	28.6%	71.4%	100.0%
	41-50	Count	0	5	5	10
		% within Age	0.0%	50.0%	50.0%	100.0%
	51 and above	Count	1	1	1	3
		% within Age	33.3%	33.3%	33.3%	100.0%
Total		Count	1	8	11	20
		% within Age	5.0%	40.0%	55.0%	100.0%

Age * Q29 Crosstabulation

			Q29			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	1	1	5	7
		% within Age	14.3%	14.3%	71.4%	100.0%
	41-50	Count	2	3	5	10
		% within Age	20.0%	30.0%	50.0%	100.0%
	51 and above	Count	0	2	1	3
		% within Age	0.0%	66.7%	33.3%	100.0%
Total		Count	3	6	11	20
		% within Age	15.0%	30.0%	55.0%	100.0%

Age * Q30 Crosstabulation			Agree	Strongly Agree	
Age	25-40	Count	2	4	6
		% within Age	33.3%	66.7%	100.0%
	41-50	Count	2	8	10
		% within Age	20.0%	80.0%	100.0%
	51 and above	Count	2	1	3
		% within Age	66.7%	33.3%	100.0%

Total	Count	6	13	19
	% within Age	31.6%	68.4%	100.0%

Age * Q31 Crosstabulation

			Q31			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	2	3	2	7
		% within Age	28.6%	42.9%	28.6%	100.0%
	41-50	Count	1	3	6	10
		% within Age	10.0%	30.0%	60.0%	100.0%
	51 and above	Count	2	0	1	3
		% within Age	66.7%	0.0%	33.3%	100.0%
Total		Count	5	6	9	20
		% within Age	25.0%	30.0%	45.0%	100.0%

Age * Q32 Crosstabulation			Agree	Strongly Agree	
Age	25-40	Count	2	5	7
		% within Age	28.6%	71.4%	100.0%
	41-50	Count	2	7	9
		% within Age	22.2%	77.8%	100.0%
	51 and above	Count	2	1	3
		% within Age	66.7%	33.3%	100.0%
Total		Count	6	13	19
		% within Age	31.6%	68.4%	100.0%

Age * Q33 Crosstabulation			Agree	Strongly Agree	
Age	25-40	Count	3	4	7
		% within Age	42.9%	57.1%	100.0%
	41-50	Count	3	7	10
		% within Age	30.0%	70.0%	100.0%
	51 and above	Count	1	2	3
		% within Age	33.3%	66.7%	100.0%
Total		Count	7	13	20
		% within Age	35.0%	65.0%	100.0%

Age * Q34 Crosstabulation

			Q34				
			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	0	2	5	7
		% within Age	0.0%	0.0%	28.6%	71.4%	100.0%
	41-50	Count	1	1	4	4	10
		% within Age	10.0%	10.0%	40.0%	40.0%	100.0%
	51 and above	Count	1	0	0	2	3
		% within Age	33.3%	0.0%	0.0%	66.7%	100.0%
Total		Count	2	1	6	11	20

		% within Age	10.0%	5.0%	30.0%	55.0%	100.0%

Age * Q35 Crosstabulation

			Q35			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	1	1	5	7
		% within Age	14.3%	14.3%	71.4%	100.0%
	41-50	Count	1	4	5	10
		% within Age	10.0%	40.0%	50.0%	100.0%
	51 and above	Count	1	2	0	3
		% within Age	33.3%	66.7%	0.0%	100.0%
Total		Count	3	7	10	20
		% within Age	15.0%	35.0%	50.0%	100.0%

Age * Q36 Crosstabulation

			Q36				
			Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	2	1	0	4	7
		% within Age	28.6%	14.3%	0.0%	57.1%	100.0%
	41-50	Count	1	2	4	3	10
		% within Age	10.0%	20.0%	40.0%	30.0%	100.0%
	51 and above	Count	1	0	2	0	3
		% within Age	33.3%	0.0%	66.7%	0.0%	100.0%
Total		Count	4	3	6	7	20
		% within Age	20.0%	15.0%	30.0%	35.0%	100.0%

Age * Q37 Crosstabulation

			Q37			
			I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	0	2	5	7
		% within Age	0.0%	28.6%	71.4%	100.0%
	41-50	Count	2	4	4	10
		% within Age	20.0%	40.0%	40.0%	100.0%
	51 and above	Count	0	1	2	3
		% within Age	0.0%	33.3%	66.7%	100.0%
Total		Count	2	7	11	20
		% within Age	10.0%	35.0%	55.0%	100.0%

Age * Q38 Crosstabulation

			Q38			Total

			Disagree	I don't know	Agree	Strongly Agree	
Age	25-40	Count	0	1	1	5	7
		% within Age	0.0%	14.3%	14.3%	71.4%	100.0%
	41-50	Count	2	1	3	3	9
		% within Age	22.2%	11.1%	33.3%	33.3%	100.0%
	51 and above	Count	0	1	0	2	3
		% within Age	0.0%	33.3%	0.0%	66.7%	100.0%
Total		Count	2	3	4	10	19
		% within Age	10.5%	15.8%	21.1%	52.6%	100.0%

Age * Q39 Crosstabulation

			Q39 Disagree	I don't know	Agree	Strongly Agree	Total
Age	25-40	Count	1	2	1	3	7
		% within Age	14.3%	28.6%	14.3%	42.9%	100.0%
	41-50	Count	2	1	4	3	10
		% within Age	20.0%	10.0%	40.0%	30.0%	100.0%
	51 and above	Count	0	0	2	1	3
		% within Age	0.0%	0.0%	66.7%	33.3%	100.0%
Total		Count	3	3	7	7	20
		% within Age	15.0%	15.0%	35.0%	35.0%	100.0%

Age * Q40 Crosstabulation			Strongly disagree	Disagree	I don't know	Agree	Strongly Agree	
Age	25-40	Count	1	0	2	3	1	7
		% within Age	14.3%	0.0%	28.6%	42.9%	14.3%	100.0%
	41-50	Count	1	3	2	3	1	10
		% within Age	10.0%	30.0%	20.0%	30.0%	10.0%	100.0%
	51 and above	Count	0	1	2	0	0	3
		% within Age	0.0%	33.3%	66.7%	0.0%	0.0%	100.0%
Total		Count	2	4	6	6	2	20

	% within Age	10.0%	20.0%	30.0%	30.0%	10.0%	100.0%

3. **Instructors' Nationality and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.**

Nationality 3 * Q1

Crosstab

			Q1		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	2	16	18
		% within Nationality 3	11.1%	88.9%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.000	.053	18.915
For cohort Q1 = Disagree	1.000	.073	13.644
For cohort Q1 = Agree	1.000	.721	1.386
N of Valid Cases	18		

Nationality 3 * Q2

Crosstab

			Q2		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	1	17	18
		% within Nationality 3	5.6%	94.4%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q2 = Agree	.889	.706	1.120
N of Valid Cases	18		

Nationality 3 * Q3

Crosstab

		Q3		
		Disagree	Agree	Total
Nationality 3	Count	1	8	9

	Eastern Countries	% within Nationality 3	11.1%	88.9%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	2	16	18
		% within Nationality 3	11.1%	88.9%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.000	.053	18.915
For cohort Q3 = Disagree	1.000	.073	13.644
For cohort Q3 = Agree	1.000	.721	1.386
N of Valid Cases	18		

Nationality 3 * Q4

Crosstab

			Q4		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	2	16	18
		% within Nationality 3	11.1%	88.9%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.000	.053	18.915
For cohort Q4 = Disagree	1.000	.073	13.644
For cohort Q4 = Agree	1.000	.721	1.386
N of Valid Cases	18		

Nationality 3 * Q5

Crosstab

			Q5 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	.[a]

a. No statistics are computed because Q5 is a constant.

Nationality 3 * Q6

Crosstab

			Q6		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	1	17	18
		% within Nationality 3	5.6%	94.4%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q6 = Agree	.889	.706	1.120
N of Valid Cases	18		

Nationality 3 * Q7

Crosstab

			Q7	
			Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18

	% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q7 is a constant.

Nationality 3 * Q8

Crosstab

			Q8 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q8 is a constant.

Nationality 3 * Q9

Crosstab

			Q9 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	.[a]

a. No statistics are computed because Q9 is a constant.

Nationality 3 * Q10

Crosstab

			Q10 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9

	% within Nationality 3	100.0%	100.0%
Total	Count	18	18
	% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q10 is a constant.

Nationality 3 * Q11

Crosstab

			Q11 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q11 is a constant.

Nationality 3 * Q12

Crosstab

			Q12 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	.[a]

a. No statistics are computed because Q12 is a constant.

Nationality 3 * Q13

Crosstab

			Q13 Agree	Total

Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q13 is a constant.

Nationality 3 * Q14

Crosstab

			Q14		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	8	1	9
		% within Nationality 3	88.9%	11.1%	100.0%
	Western Countries	Count	9	0	9
		% within Nationality 3	100.0%	0.0%	100.0%
Total		Count	17	1	18
		% within Nationality 3	94.4%	5.6%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper

For cohort Q14 = Disagree	1.125	.893	1.417
N of Valid Cases	18		

Nationality 3 * Q15

Crosstab

			Q15		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	3	6	9
		% within Nationality 3	33.3%	66.7%	100.0%
Total		Count	3	15	18
		% within Nationality 3	16.7%	83.3%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q15 = Agree	.667	.420	1.058
N of Valid Cases	18		

Nationality 3 * Q16

Crosstab

			Q16		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	4	5	9

		% within Nationality 3	44.4%	55.6%	100.0%
	Western Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
Total		Count	6	12	18
		% within Nationality 3	33.3%	66.7%	100.0%

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	.357	.046	2.771
For cohort Q16 = Disagree	.500	.120	2.077
For cohort Q16 = Agree	1.400	.709	2.765
N of Valid Cases	18		

Nationality 3 * Q17

Crosstab

			Q17		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	1	17	18
		% within Nationality 3	5.6%	94.4%	100.0%

Risk Estimate

Value	95% Confidence Interval

		Lower	Upper
For cohort Q17 = Agree	.889	.706	1.120
N of Valid Cases	18		

Nationality 3 * Q18

Crosstab

			Q18		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	2	16	18
		% within Nationality 3	11.1%	88.9%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.000	.053	18.915
For cohort Q18 = Disagree	1.000	.073	13.644
For cohort Q18 = Agree	1.000	.721	1.386
N of Valid Cases	18		

Nationality 3 * Q19

Crosstab

			Q19		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	2	16	18
		% within Nationality 3	11.1%	88.9%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.000	.053	18.915
For cohort Q19 = Disagree	1.000	.073	13.644
For cohort Q19 = Agree	1.000	.721	1.386
N of Valid Cases	18		

Nationality 3 * Q20

Crosstab

			Q20	
			Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18

	% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q20 is a constant.

Nationality 3 * Q21

Crosstab

			Q21		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	3	6	9
		% within Nationality 3	33.3%	66.7%	100.0%
Total		Count	3	15	18
		% within Nationality 3	16.7%	83.3%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q21 = Agree	.667	.420	1.058
N of Valid Cases	18		

Nationality 3 * Q22

Crosstab

			Q22		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
	Western Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
Total		Count	4	14	18
		% within Nationality 3	22.2%	77.8%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.000	.108	9.229
For cohort Q22 = Disagree	1.000	.178	5.632
For cohort Q22 = Agree	1.000	.610	1.639
N of Valid Cases	18		

Nationality 3 * Q23

Crosstab

			Q23		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%

	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	1	17	18
		% within Nationality 3	5.6%	94.4%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q23 = Agree	.889	.706	1.120
N of Valid Cases	18		

Nationality 3 * Q24

Crosstab

			Q24	
			Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q24 is a constant.

Nationality 3 * Q25

Crosstab

			Q25 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	.[a]

a. No statistics are computed because Q25 is a constant.

Nationality 3 * Q26

Crosstab

			Q26		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%

	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	1	17	18
		% within Nationality 3	5.6%	94.4%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q26 = Agree	.889	.706	1.120
N of Valid Cases	18		

Nationality 3 * Q27

Crosstab

			Q27		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	1	17	18
		% within Nationality 3	5.6%	94.4%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q27 = Agree	.889	.706	1.120
N of Valid Cases	18		

Nationality 3 * Q28

Crosstab

			Q28		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
Total		Count	1	17	18
		% within Nationality 3	5.6%	94.4%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q28 = Agree	.889	.706	1.120
N of Valid Cases	18		

Nationality 3 * Q29

Crosstab

			Q29		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
	Western Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%

Total	Count	3	15	18
	% within Nationality 3	16.7%	83.3%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	.438	.032	5.926
For cohort Q29 = Disagree	.500	.055	4.583
For cohort Q29 = Agree	1.143	.752	1.737
N of Valid Cases	18		

Nationality 3 * Q30

Crosstab

			Q30 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	8	8
		% within Nationality 3	100.0%	100.0%
Total		Count	17	17
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q30 is a constant.

Nationality 3 * Q31

Crosstab

			Q31		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
	Western Countries	Count	3	6	9
		% within Nationality 3	33.3%	66.7%	100.0%
Total		Count	5	13	18
		% within Nationality 3	27.8%	72.2%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.750	.215	14.224
For cohort Q31 = Disagree	1.500	.324	6.942
For cohort Q31 = Agree	.857	.480	1.530
N of Valid Cases	18		

Nationality 3 * Q32

Crosstab

			Q32 Agree	Total
Nationality 3	Eastern Countries	Count	8	8
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	17	17
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	.[a]

a. No statistics are computed because Q32 is a constant.

Nationality 3 * Q33

Crosstab

			Q33 Agree	Total
Nationality 3	Eastern Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
	Western Countries	Count	9	9
		% within Nationality 3	100.0%	100.0%
Total		Count	18	18
		% within Nationality 3	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	. [a]

a. No statistics are computed because Q33 is a constant.

Nationality 3 * Q34

Crosstab

			Q34		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
	Western Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
Total		Count	3	15	18
		% within Nationality 3	16.7%	83.3%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	2.286	.169	30.959
For cohort Q34 = Disagree	2.000	.218	18.332
For cohort Q34 = Agree	.875	.576	1.330
N of Valid Cases	18		

Nationality 3 * Q35

Crosstab

			Q35		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	3	6	9
		% within Nationality 3	33.3%	66.7%	100.0%
Total		Count	3	15	18
		% within Nationality 3	16.7%	83.3%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q35 = Agree	.667	.420	1.058
N of Valid Cases	18		

Nationality 3 * Q36

Crosstab

			Q36		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
	Western Countries	Count	5	4	9
		% within Nationality 3	55.6%	44.4%	100.0%
Total		Count	7	11	18
		% within Nationality 3	38.9%	61.1%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	4.375	.564	33.949
For cohort Q36 = Disagree	2.500	.645	9.690
For cohort Q36 = Agree	.571	.254	1.284
N of Valid Cases	18		

Nationality 3 * Q37

Crosstab

			Q37 Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	0	9	9
		% within Nationality 3	0.0%	100.0%	100.0%
	Western Countries	Count	2	7	9
		% within Nationality 3	22.2%	77.8%	100.0%
Total		Count	2	16	18
		% within Nationality 3	11.1%	88.9%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q37 = Agree	.778	.549	1.103
N of Valid Cases	18		

Nationality 3 * Q38

Crosstab

			Q38		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	1	8	9
		% within Nationality 3	11.1%	88.9%	100.0%
	Western Countries	Count	4	5	9
		% within Nationality 3	44.4%	55.6%	100.0%
Total		Count	5	13	18
		% within Nationality 3	27.8%	72.2%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	6.400	.547	74.891
For cohort Q38 = Disagree	4.000	.548	29.174
For cohort Q38 = Agree	.625	.333	1.172
N of Valid Cases	18		

Nationality 3 * Q39

Crosstab

			Q39		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	3	6	9
		% within Nationality 3	33.3%	66.7%	100.0%
	Western Countries	Count	3	6	9

	% within Nationality 3	33.3%	66.7%	100.0%
Total	Count	6	12	18
	% within Nationality 3	33.3%	66.7%	100.0%

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.000	.141	7.099
For cohort Q39 = Disagree	1.000	.271	3.694
For cohort Q39 = Agree	1.000	.520	1.922
N of Valid Cases	18		

Nationality 3 * Q40

Crosstab

			Q40		
			Disagree	Agree	Total
Nationality 3	Eastern Countries	Count	5	4	9
		% within Nationality 3	55.6%	44.4%	100.0%
	Western Countries	Count	6	3	9
		% within Nationality 3	66.7%	33.3%	100.0%
Total		Count	11	7	18
		% within Nationality 3	61.1%	38.9%	100.0%

Risk Estimate

Value	95% Confidence Interval	
	Lower	Upper

Odds Ratio for Nationality 3 (Western Countries / Eastern Countries)	1.600	.237	10.809
For cohort Q40 = Disagree	1.200	.570	2.527
For cohort Q40 = Agree	.750	.231	2.435
N of Valid Cases	18		

4. Instructor's Academic Degree and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

Academic_degree * Q1

Crosstab

			Q1		
			Disagree	Agree	Total
Academic_degree	PhD	Count	0	9	9
		% within Academic_degree	0.0%	100.0%	100.0%
	Master	Count	2	9	11
		% within Academic_degree	18.2%	81.8%	100.0%
Total		Count	2	18	20
		% within Academic_degree	10.0%	90.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q1 = Agree	.818	.619	1.081
N of Valid Cases	20		

Academic_degree * Q2

Crosstab

			Q2		
			Disagree	Agree	Total
Academic_degree	PhD	Count	0	9	9
		% within Academic_degree	0.0%	100.0%	100.0%
	Master	Count	1	10	11
		% within Academic_degree	9.1%	90.9%	100.0%
Total		Count	1	19	20
		% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q2 = Agree	.909	.754	1.096
N of Valid Cases	20		

Academic_degree * Q3

Crosstab

			Q3		
			Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	1	10	11
		% within Academic_degree	9.1%	90.9%	100.0%
Total		Count	2	18	20

	% within Academic_degree	10.0%	90.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	.800	.043	14.886
For cohort Q3 = Disagree	.818	.059	11.330
For cohort Q3 = Agree	1.023	.760	1.377
N of Valid Cases	20		

Academic_degree * Q4

Crosstab

			Q4 Disagree	Agree	Total
Academic_degree	PhD	Count	0	9	9
		% within Academic_degree	0.0%	100.0%	100.0%
	Master	Count	3	8	11
		% within Academic_degree	27.3%	72.7%	100.0%
Total		Count	3	17	20
		% within Academic_degree	15.0%	85.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q4 = Agree	.727	.506	1.044
N of Valid Cases	20		

Academic_degree * Q5

Crosstab

			Q5 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q5 is a constant.

Academic_degree * Q6

Crosstab

			Q6		
			Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	0	11	11

	% within Academic_degree	0.0%	100.0%	100.0%
Total	Count	1	19	20
	% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
For cohort Q6 = Agree	1.125	.893	1.417
N of Valid Cases	20		

Academic_degree * Q7

Crosstab

			Q7	
			Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q7 is a constant.

Academic_degree * Q8

Crosstab

			Q8 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q8 is a constant.

Academic_degree * Q9

Crosstab

			Q9 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11

	% within Academic_degree	100.0%	100.0%
Total	Count	20	20
	% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	. [a]

a. No statistics are computed because Q9 is a constant.

Academic_degree * Q10

Crosstab

			Q10 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	. [a]

a. No statistics are computed because Q10 is a constant.

Academic_degree * Q11

Crosstab

			Q11 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q11 is a constant.

Academic_degree * Q12

Crosstab

	Q12 Agree	Total

Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q12 is a constant.

Academic_degree * Q13

Crosstab

			Q13	
			Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value

Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q13 is a constant.

Academic_degree * Q14

Crosstab

			Q14		
			Disagree	Agree	Total
Academic_degree	PhD	Count	8	1	9
		% within Academic_degree	88.9%	11.1%	100.0%
	Master	Count	11	0	11
		% within Academic_degree	100.0%	0.0%	100.0%
Total		Count	19	1	20
		% within Academic_degree	95.0%	5.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q14 = Disagree	1.125	.893	1.417
N of Valid Cases	20		

Academic_degree * Q15

Crosstab

	Q15	Total

			Disagree	Agree	
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	2	8	10
		% within Academic_degree	20.0%	80.0%	100.0%
Total		Count	4	15	19
		% within Academic_degree	21.1%	78.9%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	.875	.096	7.952
For cohort Q15 = Disagree	.900	.158	5.132
For cohort Q15 = Agree	1.029	.645	1.641
N of Valid Cases	19		

Academic_degree * Q16

Crosstab

			Q16		
			Disagree	Agree	Total
Academic_degree	PhD	Count	3	6	9
		% within Academic_degree	33.3%	66.7%	100.0%
	Master	Count	4	7	11
		% within Academic_degree	36.4%	63.6%	100.0%
Total		Count	7	13	20
		% within Academic_degree	35.0%	65.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	1.143	.179	7.283
For cohort Q16 = Disagree	1.091	.325	3.659
For cohort Q16 = Agree	.955	.502	1.815
N of Valid Cases	20		

Academic_degree * Q17

Crosstab

			Q17 Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	0	11	11
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q17 = Agree	1.125	.893	1.417
N of Valid Cases	20		

Academic_degree * Q18

Crosstab

			Q18		
			Disagree	Agree	Total
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	0	11	11
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	2	18	20
		% within Academic_degree	10.0%	90.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q18 = Agree	1.286	.907	1.823
N of Valid Cases	20		

Academic_degree * Q19

Crosstab

			Q19		
			Disagree	Agree	Total
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	0	10	10
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	2	17	19
		% within Academic_degree	10.5%	89.5%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q19 = Agree	1.286	.907	1.823
N of Valid Cases	19		

Academic_degree * Q20

Crosstab

			Q20 Disagree	Agree	Total
Academic_degree	PhD	Count	0	9	9
		% within Academic_degree	0.0%	100.0%	100.0%
	Master	Count	1	10	11
		% within Academic_degree	9.1%	90.9%	100.0%
Total		Count	1	19	20
		% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q20 = Agree	.909	.754	1.096
N of Valid Cases	20		

Academic_degree * Q21

Crosstab

			Q21	Total

			Disagree	Agree	
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	1	10	11
		% within Academic_degree	9.1%	90.9%	100.0%
Total		Count	3	17	20
		% within Academic_degree	15.0%	85.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	.350	.026	4.654
For cohort Q21 = Disagree	.409	.044	3.816
For cohort Q21 = Agree	1.169	.787	1.737
N of Valid Cases	20		

Academic_degree * Q22

Crosstab

			Q22		
			Disagree	Agree	Total
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	2	9	11
		% within Academic_degree	18.2%	81.8%	100.0%
Total		Count	4	16	20
		% within Academic_degree	20.0%	80.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	.778	.087	6.983
For cohort Q22 = Disagree	.818	.142	4.712
For cohort Q22 = Agree	1.052	.673	1.644
N of Valid Cases	20		

Academic_degree * Q23

Crosstab

			Q23 Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	0	11	11
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q23 = Agree	1.125	.893	1.417
N of Valid Cases	20		

Academic_degree * Q24

Crosstab

			Q24 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q24 is a constant.

Academic_degree * Q25

Crosstab

			Q25 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q25 is a constant.

Academic_degree * Q26

Crosstab

			Q26		
			Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	0	11	11
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q26 = Agree	1.125	.893	1.417
N of Valid Cases	20		

Academic_degree * Q27

Crosstab

			Q27		
			Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	0	11	11
		% within Academic_degree	0.0%	100.0%	100.0%

Total	Count	1	19	20
	% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q27 = Agree	1.125	.893	1.417
N of Valid Cases	20		

Academic_degree * Q28

Crosstab

			Q28 Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	0	11	11
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Academic_degree	5.0%	95.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q28 = Agree	1.125	.893	1.417
N of Valid Cases	20		

Academic_degree * Q29

Crosstab

			Q29 Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	2	9	11

	% within Academic_degree	18.2%	81.8%	100.0%
Total	Count	3	17	20
	% within Academic_degree	15.0%	85.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	1.778	.134	23.520
For cohort Q29 = Disagree	1.636	.175	15.263
For cohort Q29 = Agree	.920	.641	1.322
N of Valid Cases	20		

Academic_degree * Q30

Crosstab

			Q30	
			Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	10	10
		% within Academic_degree	100.0%	100.0%
Total		Count	19	19
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	. [a]

a. No statistics are computed because Q30 is a constant.

Academic_degree * Q31 Q 31 Synthesis essays

Crosstab

			Q31		
			Disagree	Agree	Total
Academic_degree	PhD	Count	1	8	9
		% within Academic_degree	11.1%	88.9%	100.0%
	Master	Count	4	7	11
		% within Academic_degree	36.4%	63.6%	100.0%
Total		Count	5	15	20
		% within Academic_degree	25.0%	75.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	4.571	.409	51.138
For cohort Q31 = Disagree	3.273	.440	24.338
For cohort Q31 = Agree	.716	.433	1.184
N of Valid Cases	20		

Academic_degree * Q32

Crosstab

			Q32	
			Agree	Total
Academic_degree	PhD	Count	8	8
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	19	19
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q32 is a constant.

Academic_degree * Q33

Crosstab

			Q33 Agree	Total
Academic_degree	PhD	Count	9	9
		% within Academic_degree	100.0%	100.0%
	Master	Count	11	11
		% within Academic_degree	100.0%	100.0%
Total		Count	20	20
		% within Academic_degree	100.0%	100.0%

Risk Estimate

	Value
Odds Ratio for Academic_degree (Master / PhD)	.[a]

a. No statistics are computed because Q33 is a constant.

Academic_degree * Q34

Crosstab

			Q34		
			Disagree	Agree	Total
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	1	10	11
		% within Academic_degree	9.1%	90.9%	100.0%
Total		Count	3	17	20
		% within Academic_degree	15.0%	85.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	.350	.026	4.654
For cohort Q34 = Disagree	.409	.044	3.816
For cohort Q34 = Agree	1.169	.787	1.737
N of Valid Cases	20		

Academic_degree * Q35

Crosstab

			Q35		
			Disagree	Agree	Total
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	1	10	11
		% within Academic_degree	9.1%	90.9%	100.0%
Total		Count	3	17	20

	% within Academic_degree	15.0%	85.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	.350	.026	4.654
For cohort Q35 = Disagree	.409	.044	3.816
For cohort Q35 = Agree	1.169	.787	1.737
N of Valid Cases	20		

Academic_degree * Q36

Crosstab

			Q36 Disagree	Agree	Total
Academic_degree	PhD	Count	4	5	9
		% within Academic_degree	44.4%	55.6%	100.0%
	Master	Count	3	8	11
		% within Academic_degree	27.3%	72.7%	100.0%
Total		Count	7	13	20
		% within Academic_degree	35.0%	65.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	.469	.072	3.035
For cohort Q36 = Disagree	.614	.183	2.058

For cohort Q36 = Agree	1.309	.658	2.603
N of Valid Cases	20		

Academic_degree * Q37

Crosstab

			Q37		
			Disagree	Agree	Total
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	0	11	11
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	2	18	20
		% within Academic_degree	10.0%	90.0%	100.0%

Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
For cohort Q37 = Agree	1.286	.907	1.823
N of Valid Cases	20		

Academic_degree * Q38

Crosstab

			Q38		
			Disagree	Agree	Total
Academic_degree	PhD	Count	5	4	9
		% within Academic_degree	55.6%	44.4%	100.0%
	Master	Count	0	10	10
		% within Academic_degree	0.0%	100.0%	100.0%
Total		Count	5	14	19

	% within Academic_degree	26.3%	73.7%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
For cohort Q38 = Agree	2.250	1.084	4.671
N of Valid Cases	19		

Academic_degree * Q39

Crosstab

			Q39 Disagree	Agree	Total
Academic_degree	PhD	Count	2	7	9
		% within Academic_degree	22.2%	77.8%	100.0%
	Master	Count	4	7	11
		% within Academic_degree	36.4%	63.6%	100.0%
Total		Count	6	14	20
		% within Academic_degree	30.0%	70.0%	100.0%

Risk Estimate

	Value	95% Confidence Interval Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	2.000	.272	14.699
For cohort Q39 = Disagree	1.636	.384	6.982
For cohort Q39 = Agree	.818	.464	1.442
N of Valid Cases	20		

Academic_degree * Q40

Crosstab

			Q40		
			Disagree	Agree	Total
Academic_degree	PhD	Count	5	4	9
		% within Academic_degree	55.6%	44.4%	100.0%
	Master	Count	7	4	11
		% within Academic_degree	63.6%	36.4%	100.0%
Total		Count	12	8	20
		% within Academic_degree	60.0%	40.0%	100.0%

Risk Estimate			
		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Academic_degree (Master / PhD)	1.400	.232	8.464
For cohort Q40 = Disagree	1.145	.549	2.390
For cohort Q40 = Agree	.818	.281	2.385
N of Valid Cases	20		

5. Instructors' Teaching Experience and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

Years of Experience * Q1 Crosstabulation

			Q1		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	0	6	6
		% within Years of Experience	0.0%	100.0%	100.0%
	16-20	Count	1	4	5

		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	2	18	20
		% within Years of Experience	10.0%	90.0%	100.0%

Years of Experience * Q2 Crosstabulation

			Q2		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	0	6	6
		% within Years of Experience	0.0%	100.0%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q3 Crosstabulation

			Q3		
			Disagree	Agree	Total
	1-10	Count	0	4	4

Years of Experience		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	2	18	20
		% within Years of Experience	10.0%	90.0%	100.0%

Years of Experience * Q4 Crosstabulation

			Q4		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	0	6	6
		% within Years of Experience	0.0%	100.0%	100.0%
	16-20	Count	2	3	5
		% within Years of Experience	40.0%	60.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	3	17	20
		% within Years of Experience	15.0%	85.0%	100.0%

Years of Experience * Q5 Crosstabulation

			Q5	
			Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q6 Crosstabulation

			Q6		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	0	5	5

		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q7 Crosstabulation

			Q7 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q8 Crosstabulation

	Q8 Agree	Total

Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q9 Crosstabulation

			Q9 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20

		% within Years of Experience	100.0%	100.0%

Years of Experience * Q10 Crosstabulation

			Q10 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q11 Crosstabulation

			Q11 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5

		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q12 Crosstabulation

			Q12 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q13 Crosstabulation

			Q13 Agree	Total
	1-10	Count	4	4

Years of Experience		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q14 Crosstabulation

			Q14		
			Disagree	Agree	Total
Years of Experience	1-10	Count	4	0	4
		% within Years of Experience	100.0%	0.0%	100.0%
	11-15	Count	6	0	6
		% within Years of Experience	100.0%	0.0%	100.0%
	16-20	Count	4	1	5
		% within Years of Experience	80.0%	20.0%	100.0%
	21 and above	Count	5	0	5
		% within Years of Experience	100.0%	0.0%	100.0%
Total		Count	19	1	20
		% within Years of Experience	95.0%	5.0%	100.0%

Years of Experience * Q15 Crosstabulation

			Q15		
			Disagree	Agree	Total
Years of Experience	1-10	Count	1	3	4
		% within Years of Experience	25.0%	75.0%	100.0%
	11-15	Count	2	3	5
		% within Years of Experience	40.0%	60.0%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	4	15	19
		% within Years of Experience	21.1%	78.9%	100.0%

Years of Experience * Q16 Crosstabulation

			Q16		
			Disagree	Agree	Total
Years of Experience	1-10	Count	1	3	4
		% within Years of Experience	25.0%	75.0%	100.0%
	11-15	Count	2	4	6
		% within Years of Experience	33.3%	66.7%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	3	2	5

		% within Years of Experience	60.0%	40.0%	100.0%
Total		Count	7	13	20
		% within Years of Experience	35.0%	65.0%	100.0%

Years of Experience * Q17 Crosstabulation

			Q17		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	0	6	6
		% within Years of Experience	0.0%	100.0%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	1	19	20
		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q18 Crosstabulation

			Q18		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	0	6	6

		% within Years of Experience	0.0%	100.0%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	2	18	20
		% within Years of Experience	10.0%	90.0%	100.0%

Years of Experience * Q19 Crosstabulation

			Q19		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	2	17	19
		% within Years of Experience	10.5%	89.5%	100.0%

Years of Experience * Q20 Crosstabulation

			Q20		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	0	6	6
		% within Years of Experience	0.0%	100.0%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q21 Crosstabulation

			Q21		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%

Total	Count	3	17	20
	% within Years of Experience	15.0%	85.0%	100.0%

Years of Experience * Q22 Crosstabulation

			Q22		
			Disagree	Agree	Total
Years of Experience	1-10	Count	1	3	4
		% within Years of Experience	25.0%	75.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	2	3	5
		% within Years of Experience	40.0%	60.0%	100.0%
Total		Count	4	16	20
		% within Years of Experience	20.0%	80.0%	100.0%

Years of Experience * Q23 Crosstabulation

			Q23		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%

	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q24 Crosstabulation

			Q24 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q25 Crosstabulation

	Q25 Agree	Total

Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q26 Crosstabulation

			Q26		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	1	19	20

		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q27 Crosstabulation

			Q27		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	1	19	20
		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q28 Crosstabulation

			Q28		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	0	6	6
		% within Years of Experience	0.0%	100.0%	100.0%
	16-20	Count	0	5	5

		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	1	19	20
		% within Years of Experience	5.0%	95.0%	100.0%

Years of Experience * Q29 Crosstabulation

			Q29		
			Disagree	Agree	Total
Years of Experience	1-10	Count	1	3	4
		% within Years of Experience	25.0%	75.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	3	17	20
		% within Years of Experience	15.0%	85.0%	100.0%

Years of Experience * Q30 Crosstabulation

			Q30	
			Agree	Total
	1-10	Count	3	3

Years of Experience		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	19	19
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q31 Crosstabulation

			Q31		
			Disagree	Agree	Total
Years of Experience	1-10	Count	1	3	4
		% within Years of Experience	25.0%	75.0%	100.0%
	11-15	Count	1	5	6
		% within Years of Experience	16.7%	83.3%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	2	3	5
		% within Years of Experience	40.0%	60.0%	100.0%
Total		Count	5	15	20
		% within Years of Experience	25.0%	75.0%	100.0%

Years of Experience * Q32 Crosstabulation

			Q32 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	4	4
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5
		% within Years of Experience	100.0%	100.0%
Total		Count	19	19
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q33 Crosstabulation

			Q33 Agree	Total
Years of Experience	1-10	Count	4	4
		% within Years of Experience	100.0%	100.0%
	11-15	Count	6	6
		% within Years of Experience	100.0%	100.0%
	16-20	Count	5	5
		% within Years of Experience	100.0%	100.0%
	21 and above	Count	5	5

		% within Years of Experience	100.0%	100.0%
Total		Count	20	20
		% within Years of Experience	100.0%	100.0%

Years of Experience * Q34 Crosstabulation

			Q34		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	2	4	6
		% within Years of Experience	33.3%	66.7%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	3	17	20
		% within Years of Experience	15.0%	85.0%	100.0%

Years of Experience * Q35 Crosstabulation

			Q35		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	2	4	6

		% within Years of Experience	33.3%	66.7%	100.0%
	16-20	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	3	17	20
		% within Years of Experience	15.0%	85.0%	100.0%

Years of Experience * Q36 Crosstabulation

			Q36		
			Disagree	Agree	Total
Years of Experience	1-10	Count	2	2	4
		% within Years of Experience	50.0%	50.0%	100.0%
	11-15	Count	3	3	6
		% within Years of Experience	50.0%	50.0%	100.0%
	16-20	Count	2	3	5
		% within Years of Experience	40.0%	60.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	7	13	20
		% within Years of Experience	35.0%	65.0%	100.0%

Years of Experience * Q37 Crosstabulation

			Q37		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	2	4	6
		% within Years of Experience	33.3%	66.7%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
Total		Count	2	18	20
		% within Years of Experience	10.0%	90.0%	100.0%

Years of Experience * Q38 Crosstabulation

			Q38		
			Disagree	Agree	Total
Years of Experience	1-10	Count	0	4	4
		% within Years of Experience	0.0%	100.0%	100.0%
	11-15	Count	3	3	6
		% within Years of Experience	50.0%	50.0%	100.0%
	16-20	Count	1	3	4
		% within Years of Experience	25.0%	75.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%

Total		Count	5	14	19
		% within Years of Experience	26.3%	73.7%	100.0%

Years of Experience * Q39 Crosstabulation

			Q39		
			Disagree	Agree	Total
Years of Experience	1-10	Count	2	2	4
		% within Years of Experience	50.0%	50.0%	100.0%
	11-15	Count	3	3	6
		% within Years of Experience	50.0%	50.0%	100.0%
	16-20	Count	0	5	5
		% within Years of Experience	0.0%	100.0%	100.0%
	21 and above	Count	1	4	5
		% within Years of Experience	20.0%	80.0%	100.0%
Total		Count	6	14	20
		% within Years of Experience	30.0%	70.0%	100.0%

Years of Experience * Q40 Crosstabulation

			Q40		
			Disagree	Agree	Total
Years of Experience	1-10	Count	2	2	4
		% within Years of Experience	50.0%	50.0%	100.0%
	11-15	Count	3	3	6
		% within Years of Experience	50.0%	50.0%	100.0%

	16-20	Count	3	2	5
		% within Years of Experience	60.0%	40.0%	100.0%
	21 and above	Count	4	1	5
		% within Years of Experience	80.0%	20.0%	100.0%
Total		Count	12	8	20
		% within Years of Experience	60.0%	40.0%	100.0%

B. Students' Demographic Background and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

1. Odds Ratios for Students Gender and Frequencies of Agreement with Each Survey Item

Question	Gender	Agree	Disagree	Odds ratio value
Q 1 Critical thinking focuses on understanding the information	Male	72	9	1.128
	Female	149	21	
Q 2 Critical thinking focuses on problem-solving	Male	71	10	0.779
	Female	155	17	
Q 3 Critical thinking focuses on evaluating how true the information is	Male	61	20	1.017
	Female	129	43	
Q 4 Critical thinking makes the students analyze the information	Male	72	7	0.917
	Female	157	14	
Q 5 Critical thinking allows students to explore ideas, keep options open and imagine	Male	71	10	0.346
	Female	164	8	
Q 6 Critical thinking makes students take decision in different situations	Male	71	10	1.207
	Female	147	25	
Q 7 Critical thinking makes the students look for evidence	Male	63	17	0.721
	Female	144	28	
Q 8 Critical thinking comes naturally to students	Male	37	42	1.198
	Female	74	98	
Q 9 Teachers should teach students how to think critically during class time.	Male	65	16	0.504
	Female	153	19	
Q 10 Students' critical thinking can be improved in groups and by working together to achieve a goal	Male	64	17	0.581
	Female	149	23	
Q 11 Argumentative essays	Male	49	32	0.977
	Female	105	67	
Q 12 Short assignments requiring students to analyze and evaluate material	Male	63	18	1.095
	Female	131	41	
Q 13 Questioning and oral discussions	Male	67	14	0.630
	Female	152	20	

Question	Gender	Agree	Disagree	Odds ratio value
Q 14 Asking students to write opinion essays	Male	54	27	0.843
	Female	121	51	
Q 15 Asking students to review their work by themselves first and then with their teachers and get feedback	Male	55	24	0.507
	Female	140	31	
Q 16 Asking students to review articles, evaluate evidence, and evaluate sources used is mostly useful to improve their critical thinking.	Male	62	19	1.273
	Female	123	48	
Q 17 Asking students to write reflective journals	Male	47	33	1.113
	Female	98	75	
Q 18 1. Structured essay writing examination that requires students to employ critical thinking	Male	49	31	1.118
	Female	99	70	
Q 19 Student directed discussions, assessed by both the instructor and peers	Male	63	16	0.984
	Female	136	34	
Q 20 Student self-assessment	Male	56	24	1.105
	Female	114	54	
Q 21 Use of formative assessment where students receive written and oral feedback on their critical thinking skills	Male	71	9	2.030
	Female	136	35	
Q 22 Use of rubrics to grade students' work and measure students' critical thinking skills	Male	52	28	0.752

2. Students' Age Groups and Frequencies of Agreement with Each Survey Item

Age * Q1 Crosstabulation

Count

		Q1		
		Disagree	Agree	Total
Age	17-24	28	198	226
	25-30	1	14	15
	30-40	1	7	8
	41 and above	0	1	1
Total		30	220	250

Age * Q2 Crosstabulation

Count

		Q2		
		Disagree	Agree	Total
Age	17-24	24	204	228

	25-30	2	13	15
	30-40	1	7	8
	41 and above	0	1	1
Total		27	225	252

Age * Q3 Crosstabulation

Count

		Q3		
		Disagree	Agree	Total
Age	17-24	55	173	228
	25-30	4	11	15
	30-40	3	5	8
	41 and above	0	1	1
Total		62	190	252

Age * Q4 Crosstabulation

Count

		Q4		
		Disagree	Agree	Total
Age	17-24	19	207	226
	25-30	2	12	14
	30-40	0	8	8
	41 and above	0	1	1
Total		21	228	249

Age * Q5 Crosstabulation

Count

		Q5		
		Disagree	Agree	Total
Age	17-24	17	211	228
	25-30	0	15	15

	30-40	1	7	8
	41 and above	0	1	1
Total		18	234	252

Age * Q6 Crosstabulation

Count

		Q6		
		Disagree	Agree	Total
Age	17-24	32	196	228
	25-30	1	14	15
	30-40	2	6	8
	41 and above	0	1	1
Total		35	217	252

Age * Q7 Crosstabulation

Count

		Q7		
		Disagree	Agree	Total
Age	17-24	40	187	227
	25-30	2	13	15
	30-40	2	6	8
	41 and above	0	1	1
Total		44	207	251

Age * Q8 Crosstabulation

Count

		Q8		
		Disagree	Agree	Total
Age	17-24	128	99	227
	25-30	5	10	15
	30-40	5	3	8

	41 and above	1	0	1
Total		139	112	251

Age * Q9 Crosstabulation

Count

		Q9		
		Disagree	Agree	Total
Age	17-24	34	194	228
	25-30	0	15	15
	30-40	1	7	8
	41 and above	0	1	1
Total		35	217	252

Age * Q10 Crosstabulation

Count

		Q10		
		Disagree	Agree	Total
Age	17-24	37	191	228
	25-30	1	14	15
	30-40	2	6	8
	41 and above	0	1	1
Total		40	212	252

Age * Q11 Crosstabulation

Count

		Q11		
		Disagree	Agree	Total
Age	17-24	93	135	228
	25-30	3	12	15
	30-40	2	6	8
	41 and above	0	1	1

Total	98	154	252

Age * Q12 Crosstabulation

Count

		Q12		
		Disagree	Agree	Total
Age	17-24	56	172	228
	25-30	1	14	15
	30-40	2	6	8
	41 and above	0	1	1
Total		59	193	252

Age * Q13 Crosstabulation

Count

		Q13		
		Disagree	Agree	Total
Age	17-24	32	196	228
	25-30	2	13	15
	30-40	0	8	8
	41 and above	0	1	1
Total		34	218	252

Age * Q14 Crosstabulation

Count

		Q14		
		Disagree	Agree	Total
Age	17-24	74	154	228
	25-30	2	13	15
	30-40	1	7	8
	41 and above	0	1	1
Total		77	175	252

Age * Q15 Crosstabulation

Count

		Q15		
		Disagree	Agree	Total
Age	17-24	49	177	226
	25-30	2	12	14
	30-40	3	5	8
	41 and above	0	1	1
Total		54	195	249

Age * Q16 Crosstabulation

Count

		Q16		
		Disagree	Agree	Total
Age	17-24	63	164	227
	25-30	2	13	15
	30-40	2	6	8
	41 and above	0	1	1
Total		67	184	251

Age * Q17 Crosstabulation

Count

		Q17		
		Disagree	Agree	Total
Age	17-24	98	128	226
	25-30	5	10	15
	30-40	4	4	8
	41 and above	0	1	1
Total		107	143	250

Age * Q18 Crosstabulation

Count

		Q18		
		Disagree	Agree	Total
Age	17-24	98	126	224
	25-30	1	14	15
	30-40	1	7	8
	41 and above	0	1	1
Total		100	148	248

Age * Q19 Crosstabulation

Count

		Q19		
		Disagree	Agree	Total
Age	17-24	47	178	225
	25-30	1	13	14
	30-40	2	6	8
	41 and above	0	1	1
Total		50	198	248

Age * Q20 Crosstabulation

Count

		Q20		
		Disagree	Agree	Total
Age	17-24	74	150	224
	25-30	2	13	15
	30-40	2	5	7
	41 and above	0	1	1
Total		78	169	247

Age * Q21 Crosstabulation

Count

		Q21		Total

		Disagree	Agree	
Age	17-24	43	183	226
	25-30	0	15	15
	30-40	1	7	8
	41 and above	0	1	1
Total		44	206	250

Age * Q22 Crosstabulation

Count

		Q22		
		Disagree	Agree	Total
Age	17-24	70	155	225
	25-30	2	13	15
	30-40	5	3	8
	41 and above	0	1	1
Total		77	172	249

3. Students' Nationality and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

Q1

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	9	18.8	18.8	18.8
		Agree	39	81.3	81.3	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	19	10.3	10.4	10.4
		Agree	163	88.6	89.6	100.0
		Total	182	98.9	100.0	
	Missing	System	2	1.1		
	Total		184	100.0		
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0

South Asia	Valid	Agree	12	100.0	100.0	100.0
Africa	Valid	Agree	3	100.0	100.0	100.0

Q2

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	8	16.7	16.7	16.7
		Agree	40	83.3	83.3	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	19	10.3	10.3	10.3
		Agree	165	89.7	89.7	100.0
		Total	184	100.0	100.0	
Europe	Valid	Agree	4	100.0	100.0	100.0
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Agree	12	100.0	100.0	100.0
Africa	Valid	Agree	3	100.0	100.0	100.0

Q3

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	13	27.1	27.1	27.1
		Agree	35	72.9	72.9	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	45	24.5	24.5	24.5
		Agree	139	75.5	75.5	100.0
		Total	184	100.0	100.0	
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	3	25.0	25.0	25.0
		Agree	9	75.0	75.0	100.0
		Total	12	100.0	100.0	

Africa	Valid	Agree	3	100.0	100.0	100.0

Q4

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	5	10.4	10.6	10.6
		Agree	42	87.5	89.4	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Middle East	Valid	Disagree	15	8.2	8.2	8.2
		Agree	167	90.8	91.8	100.0
		Total	182	98.9	100.0	
	Missing	System	2	1.1		
	Total		184	100.0		
Europe	Valid	Agree	4	100.0	100.0	100.0
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Agree	3	100.0	100.0	100.0

Q5

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	5	10.4	10.4	10.4
		Agree	43	89.6	89.6	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	11	6.0	6.0	6.0
		Agree	173	94.0	94.0	100.0
		Total	184	100.0	100.0	
Europe	Valid	Agree	4	100.0	100.0	100.0
North America	Valid	Agree	2	100.0	100.0	100.0

South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	1	33.3	33.3	33.3
		Agree	2	66.7	66.7	100.0
		Total	3	100.0	100.0	

Q6

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	9	18.8	18.8	18.8
		Agree	39	81.3	81.3	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	25	13.6	13.6	13.6
		Agree	159	86.4	86.4	100.0
		Total	184	100.0	100.0	
Europe	Valid	Agree	4	100.0	100.0	100.0
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Agree	3	100.0	100.0	100.0

Q7

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	11	22.9	22.9	22.9
		Agree	37	77.1	77.1	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	32	17.4	17.4	17.4
		Agree	152	82.6	82.6	100.0
		Total	184	100.0	100.0	
Europe	Valid	Agree	4	100.0	100.0	100.0

North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	2	16.7	18.2	18.2
		Agree	9	75.0	81.8	100.0
		Total	11	91.7	100.0	
	Missing	System	1	8.3		
	Total		12	100.0		
Africa	Valid	Agree	3	100.0	100.0	100.0

Q8

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	22	45.8	45.8	45.8
		Agree	26	54.2	54.2	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	103	56.0	56.3	56.3
		Agree	80	43.5	43.7	100.0
		Total	183	99.5	100.0	
	Missing	System	1	.5		
	Total		184	100.0		
Europe	Valid	Disagree	4	100.0	100.0	100.0
North America	Valid	Disagree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	8	66.7	66.7	66.7
		Agree	4	33.3	33.3	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	1	33.3	33.3	33.3
		Agree	2	66.7	66.7	100.0
		Total	3	100.0	100.0	

Q9

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	5	10.4	10.4	10.4
		Agree	43	89.6	89.6	100.0

		Total	48	100.0	100.0	
Middle East	Valid	Disagree	27	14.7	14.7	14.7
		Agree	157	85.3	85.3	100.0
		Total	184	100.0	100.0	
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Agree	3	100.0	100.0	100.0

Q10

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	6	12.5	12.5	12.5
		Agree	42	87.5	87.5	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	29	15.8	15.8	15.8
		Agree	155	84.2	84.2	100.0
		Total	184	100.0	100.0	
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	2	66.7	66.7	66.7
		Agree	1	33.3	33.3	100.0
		Total	3	100.0	100.0	

Q11

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	16	33.3	33.3	33.3
		Agree	32	66.7	66.7	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	78	42.4	42.4	42.4
		Agree	106	57.6	57.6	100.0
		Total	184	100.0	100.0	
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	3	25.0	25.0	25.0
		Agree	9	75.0	75.0	100.0
		Total	12	100.0	100.0	
Africa	Valid	Agree	3	100.0	100.0	100.0

Q12

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	11	22.9	22.9	22.9
		Agree	37	77.1	77.1	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	46	25.0	25.0	25.0
		Agree	138	75.0	75.0	100.0
		Total	184	100.0	100.0	
Europe	Valid	Disagree	1	25.0	25.0	25.0
		Agree	3	75.0	75.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	

Africa	Valid	Agree	3	100.0	100.0	100.0

Q13

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	7	14.6	14.6	14.6
		Agree	41	85.4	85.4	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	22	12.0	12.0	12.0
		Agree	162	88.0	88.0	100.0
		Total	184	100.0	100.0	
Europe	Valid	Disagree	1	25.0	25.0	25.0
		Agree	3	75.0	75.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Disagree	1	50.0	50.0	50.0
		Agree	1	50.0	50.0	100.0
		Total	2	100.0	100.0	
South Asia	Valid	Disagree	2	16.7	16.7	16.7
		Agree	10	83.3	83.3	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	1	33.3	33.3	33.3
		Agree	2	66.7	66.7	100.0
		Total	3	100.0	100.0	

Q14

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	16	33.3	33.3	33.3
		Agree	32	66.7	66.7	100.0
		Total	48	100.0	100.0	
Middle East	Valid	Disagree	53	28.8	28.8	28.8
		Agree	131	71.2	71.2	100.0
		Total	184	100.0	100.0	

Europe	Valid	Disagree	1	25.0	25.0	25.0
		Agree	3	75.0	75.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	7	58.3	58.3	58.3
		Agree	5	41.7	41.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	1	33.3	33.3	33.3
		Agree	2	66.7	66.7	100.0
		Total	3	100.0	100.0	

Q15

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	6	12.5	12.8	12.8
		Agree	41	85.4	87.2	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Middle East	Valid	Disagree	44	23.9	24.2	24.2
		Agree	138	75.0	75.8	100.0
		Total	182	98.9	100.0	
	Missing	System	2	1.1		
	Total		184	100.0		
Europe	Valid	Agree	4	100.0	100.0	100.0
North America	Valid	Disagree	1	50.0	50.0	50.0
		Agree	1	50.0	50.0	100.0
		Total	2	100.0	100.0	
South Asia	Valid	Disagree	4	33.3	33.3	33.3
		Agree	8	66.7	66.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Agree	3	100.0	100.0	100.0

Q16

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	15	31.3	31.9	31.9
		Agree	32	66.7	68.1	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Middle East	Valid	Disagree	50	27.2	27.2	27.2
		Agree	134	72.8	72.8	100.0
		Total	184	100.0	100.0	
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Agree	12	100.0	100.0	100.0
Africa	Valid	Agree	3	100.0	100.0	100.0

Q17

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	13	27.1	27.7	27.7
		Agree	34	70.8	72.3	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Middle East	Valid	Disagree	86	46.7	47.0	47.0
		Agree	97	52.7	53.0	100.0
		Total	183	99.5	100.0	
	Missing	System	1	.5		
	Total		184	100.0		
Europe	Valid	Disagree	3	75.0	75.0	75.0
		Agree	1	25.0	25.0	100.0
		Total	4	100.0	100.0	

North America	Valid	Disagree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	2	16.7	16.7	16.7
		Agree	10	83.3	83.3	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	2	66.7	66.7	66.7
		Agree	1	33.3	33.3	100.0
		Total	3	100.0	100.0	

Q18

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	16	33.3	34.0	34.0
		Agree	31	64.6	66.0	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Middle East	Valid	Disagree	78	42.4	43.1	43.1
		Agree	103	56.0	56.9	100.0
		Total	181	98.4	100.0	
	Missing	System	3	1.6		
	Total		184	100.0		
Europe	Valid	Disagree	1	25.0	25.0	25.0
		Agree	3	75.0	75.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Disagree	1	50.0	50.0	50.0
		Agree	1	50.0	50.0	100.0
		Total	2	100.0	100.0	
South Asia	Valid	Disagree	3	25.0	25.0	25.0
		Agree	9	75.0	75.0	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	2	66.7	66.7	66.7
		Agree	1	33.3	33.3	100.0
		Total	3	100.0	100.0	

Q19

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	10	20.8	21.3	21.3
		Agree	37	77.1	78.7	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Middle East	Valid	Disagree	35	19.0	19.3	19.3
		Agree	146	79.3	80.7	100.0
		Total	181	98.4	100.0	
	Missing	System	3	1.6		
	Total		184	100.0		
Europe	Valid	Agree	4	100.0	100.0	100.0
North America	Valid	Disagree	1	50.0	50.0	50.0
		Agree	1	50.0	50.0	100.0
		Total	2	100.0	100.0	
South Asia	Valid	Disagree	2	16.7	16.7	16.7
		Agree	10	83.3	83.3	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	2	66.7	66.7	66.7
		Agree	1	33.3	33.3	100.0
		Total	3	100.0	100.0	

Q20

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	13	27.1	28.3	28.3
		Agree	33	68.8	71.7	100.0
		Total	46	95.8	100.0	
	Missing	System	2	4.2		
	Total		48	100.0		
Middle East	Valid	Disagree	57	31.0	31.5	31.5

		Agree	124	67.4	68.5	100.0
		Total	181	98.4	100.0	
	Missing	System	3	1.6		
	Total		184	100.0		
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Disagree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	4	33.3	33.3	33.3
		Agree	8	66.7	66.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Agree	3	100.0	100.0	100.0

Q21

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	9	18.8	19.1	19.1
		Agree	38	79.2	80.9	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Middle East	Valid	Disagree	32	17.4	17.5	17.5
		Agree	151	82.1	82.5	100.0
		Total	183	99.5	100.0	
	Missing	System	1	.5		
	Total		184	100.0		
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Agree	2	100.0	100.0	100.0
South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Agree	3	100.0	100.0	100.0

Q22

Nationality_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	13	27.1	28.3	28.3
		Agree	33	68.8	71.7	100.0
		Total	46	95.8	100.0	
	Missing	System	2	4.2		
	Total		48	100.0		
Middle East	Valid	Disagree	59	32.1	32.2	32.2
		Agree	124	67.4	67.8	100.0
		Total	183	99.5	100.0	
	Missing	System	1	.5		
	Total		184	100.0		
Europe	Valid	Disagree	2	50.0	50.0	50.0
		Agree	2	50.0	50.0	100.0
		Total	4	100.0	100.0	
North America	Valid	Disagree	1	50.0	50.0	50.0
		Agree	1	50.0	50.0	100.0
		Total	2	100.0	100.0	
South Asia	Valid	Disagree	1	8.3	8.3	8.3
		Agree	11	91.7	91.7	100.0
		Total	12	100.0	100.0	
Africa	Valid	Disagree	1	33.3	33.3	33.3
		Agree	2	66.7	66.7	100.0
		Total	3	100.0	100.0	

4. Students' Subject Major and Their Perceptions of CT Definition and Best Teaching and Assessment Methods.

Q1

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	6	11.8	11.8	11.8

		Agree	45	88.2	88.2	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	6	12.5	12.5	12.5
		Agree	42	87.5	87.5	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	4	12.9	12.9	12.9
		Agree	27	87.1	87.1	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	3	11.1	11.1	11.1
		Agree	24	88.9	88.9	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	7	25.0	25.0	25.0
		Agree	21	75.0	75.0	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	4	12.5	12.9	12.9
		Agree	27	84.4	87.1	100.0
		Total	31	96.9	100.0	
	Missing	System	1	3.1		
	Total		32	100.0		
IT	Valid	Agree	15	93.8	100.0	100.0
	Missing	System	1	6.3		
	Total		16	100.0		
Secretary	Valid	Agree	11	100.0	100.0	100.0
Education	Valid	Agree	9	100.0	100.0	100.0

Q2

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	8	15.7	15.7	15.7
		Agree	43	84.3	84.3	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	2	4.2	4.2	4.2
		Agree	46	95.8	95.8	100.0
		Total	48	100.0	100.0	

Engineer	Valid	Disagree	5	16.1	16.1	16.1
		Agree	26	83.9	83.9	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	2	7.4	7.4	7.4
		Agree	25	92.6	92.6	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	5	17.9	17.9	17.9
		Agree	23	82.1	82.1	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	4	12.5	12.5	12.5
		Agree	28	87.5	87.5	100.0
		Total	32	100.0	100.0	
IT	Valid	Agree	16	100.0	100.0	100.0
Secretary	Valid	Disagree	1	9.1	9.1	9.1
		Agree	10	90.9	90.9	100.0
		Total	11	100.0	100.0	
Education	Valid	Agree	9	100.0	100.0	100.0

Q3

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	11	21.6	21.6	21.6
		Agree	40	78.4	78.4	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	15	31.3	31.3	31.3
		Agree	33	68.8	68.8	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	8	25.8	25.8	25.8
		Agree	23	74.2	74.2	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	4	14.8	14.8	14.8
		Agree	23	85.2	85.2	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	12	42.9	42.9	42.9
		Agree	16	57.1	57.1	100.0

		Total	28	100.0	100.0	
Media	Valid	Disagree	7	21.9	21.9	21.9
		Agree	25	78.1	78.1	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	3	18.8	18.8	18.8
		Agree	13	81.3	81.3	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	2	18.2	18.2	18.2
		Agree	9	81.8	81.8	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	1	11.1	11.1	11.1
		Agree	8	88.9	88.9	100.0
		Total	9	100.0	100.0	

Q4

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	5	9.8	10.2	10.2
		Agree	44	86.3	89.8	100.0
		Total	49	96.1	100.0	
	Missing	System	2	3.9		
	Total		51	100.0		
Business and management	Valid	Disagree	3	6.3	6.3	6.3
		Agree	45	93.8	93.8	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Agree	31	100.0	100.0	100.0
Art	Valid	Disagree	2	7.4	7.4	7.4
		Agree	25	92.6	92.6	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	6	21.4	21.4	21.4
		Agree	22	78.6	78.6	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	3	9.4	9.4	9.4
		Agree	29	90.6	90.6	100.0

		Total	32	100.0	100.0	
IT	Valid	Agree	15	93.8	100.0	100.0
	Missing	System	1	6.3		
	Total		16	100.0		
Secretary	Valid	Disagree	2	18.2	18.2	18.2
		Agree	9	81.8	81.8	100.0
		Total	11	100.0	100.0	
Education	Valid	Agree	9	100.0	100.0	100.0

Q5

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	4	7.8	7.8	7.8
		Agree	47	92.2	92.2	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	5	10.4	10.4	10.4
		Agree	43	89.6	89.6	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	2	6.5	6.5	6.5
		Agree	29	93.5	93.5	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	1	3.7	3.7	3.7
		Agree	26	96.3	96.3	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	3	10.7	10.7	10.7
		Agree	25	89.3	89.3	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	1	3.1	3.1	3.1
		Agree	31	96.9	96.9	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	1	6.3	6.3	6.3
		Agree	15	93.8	93.8	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Agree	11	100.0	100.0	100.0

Education	Valid	Disagree	1	11.1	11.1	11.1
		Agree	8	88.9	88.9	100.0
		Total	9	100.0	100.0	

Q6

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	9	17.6	17.6	17.6
		Agree	42	82.4	82.4	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	2	4.2	4.2	4.2
		Agree	46	95.8	95.8	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	4	12.9	12.9	12.9
		Agree	27	87.1	87.1	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	4	14.8	14.8	14.8
		Agree	23	85.2	85.2	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	9	32.1	32.1	32.1
		Agree	19	67.9	67.9	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	5	15.6	15.6	15.6
		Agree	27	84.4	84.4	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	1	6.3	6.3	6.3
		Agree	15	93.8	93.8	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Agree	11	100.0	100.0	100.0
Education	Valid	Disagree	1	11.1	11.1	11.1
		Agree	8	88.9	88.9	100.0
		Total	9	100.0	100.0	

Q7

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	8	15.7	15.7	15.7
		Agree	43	84.3	84.3	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	10	20.8	21.3	21.3
		Agree	37	77.1	78.7	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	3	9.7	9.7	9.7
		Agree	28	90.3	90.3	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	5	18.5	18.5	18.5
		Agree	22	81.5	81.5	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	10	35.7	35.7	35.7
		Agree	18	64.3	64.3	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	4	12.5	12.5	12.5
		Agree	28	87.5	87.5	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	2	12.5	12.5	12.5
		Agree	14	87.5	87.5	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	3	27.3	27.3	27.3
		Agree	8	72.7	72.7	100.0
		Total	11	100.0	100.0	
Education	Valid	Agree	9	100.0	100.0	100.0

Q8

Major_1	Frequency	Percent	Valid Percent	Cumulative Percent

.00	Valid	Disagree	27	52.9	54.0	54.0
		Agree	23	45.1	46.0	100.0
		Total	50	98.0	100.0	
	Missing	System	1	2.0		
	Total		51	100.0		
Business and management	Valid	Disagree	23	47.9	47.9	47.9
		Agree	25	52.1	52.1	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	20	64.5	64.5	64.5
		Agree	11	35.5	35.5	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	12	44.4	44.4	44.4
		Agree	15	55.6	55.6	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	14	50.0	50.0	50.0
		Agree	14	50.0	50.0	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	21	65.6	65.6	65.6
		Agree	11	34.4	34.4	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	11	68.8	68.8	68.8
		Agree	5	31.3	31.3	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	7	63.6	63.6	63.6
		Agree	4	36.4	36.4	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	5	55.6	55.6	55.6
		Agree	4	44.4	44.4	100.0
		Total	9	100.0	100.0	

Q9

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	9	17.6	17.6	17.6

		Agree	42	82.4	82.4	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	2	4.2	4.2	4.2
		Agree	46	95.8	95.8	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	6	19.4	19.4	19.4
		Agree	25	80.6	80.6	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	7	25.9	25.9	25.9
		Agree	20	74.1	74.1	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	3	10.7	10.7	10.7
		Agree	25	89.3	89.3	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	4	12.5	12.5	12.5
		Agree	28	87.5	87.5	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	1	6.3	6.3	6.3
		Agree	15	93.8	93.8	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	3	27.3	27.3	27.3
		Agree	8	72.7	72.7	100.0
		Total	11	100.0	100.0	
Education	Valid	Agree	9	100.0	100.0	100.0

Q10

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	9	17.6	17.6	17.6
		Agree	42	82.4	82.4	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	9	18.8	18.8	18.8
		Agree	39	81.3	81.3	100.0
		Total	48	100.0	100.0	

Engineer	Valid	Disagree	8	25.8	25.8	25.8
		Agree	23	74.2	74.2	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	2	7.4	7.4	7.4
		Agree	25	92.6	92.6	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	6	21.4	21.4	21.4
		Agree	22	78.6	78.6	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	4	12.5	12.5	12.5
		Agree	28	87.5	87.5	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	1	6.3	6.3	6.3
		Agree	15	93.8	93.8	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Agree	11	100.0	100.0	100.0
Education	Valid	Disagree	1	11.1	11.1	11.1
		Agree	8	88.9	88.9	100.0
		Total	9	100.0	100.0	

Q11

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	18	35.3	35.3	35.3
		Agree	33	64.7	64.7	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	13	27.1	27.1	27.1
		Agree	35	72.9	72.9	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	14	45.2	45.2	45.2
		Agree	17	54.8	54.8	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	8	29.6	29.6	29.6
		Agree	19	70.4	70.4	100.0

		Total	27	100.0	100.0	
Health	Valid	Disagree	15	53.6	53.6	53.6
		Agree	13	46.4	46.4	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	16	50.0	50.0	50.0
		Agree	16	50.0	50.0	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	8	50.0	50.0	50.0
		Agree	8	50.0	50.0	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	3	27.3	27.3	27.3
		Agree	8	72.7	72.7	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	4	44.4	44.4	44.4
		Agree	5	55.6	55.6	100.0
		Total	9	100.0	100.0	

Q12

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	11	21.6	21.6	21.6
		Agree	40	78.4	78.4	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	10	20.8	20.8	20.8
		Agree	38	79.2	79.2	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	7	22.6	22.6	22.6
		Agree	24	77.4	77.4	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	8	29.6	29.6	29.6
		Agree	19	70.4	70.4	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	10	35.7	35.7	35.7
		Agree	18	64.3	64.3	100.0

		Total	28	100.0	100.0	
Media	Valid	Disagree	7	21.9	21.9	21.9
		Agree	25	78.1	78.1	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	3	18.8	18.8	18.8
		Agree	13	81.3	81.3	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	2	18.2	18.2	18.2
		Agree	9	81.8	81.8	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	1	11.1	11.1	11.1
		Agree	8	88.9	88.9	100.0
		Total	9	100.0	100.0	

Q13

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	7	13.7	13.7	13.7
		Agree	44	86.3	86.3	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	9	18.8	18.8	18.8
		Agree	39	81.3	81.3	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	3	9.7	9.7	9.7
		Agree	28	90.3	90.3	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	3	11.1	11.1	11.1
		Agree	24	88.9	88.9	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	4	14.3	14.3	14.3
		Agree	24	85.7	85.7	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	5	15.6	15.6	15.6
		Agree	27	84.4	84.4	100.0

		Total	32	100.0	100.0	
IT	Valid	Disagree	3	18.8	18.8	18.8
		Agree	13	81.3	81.3	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Agree	11	100.0	100.0	100.0
Education	Valid	Agree	9	100.0	100.0	100.0

Q14

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	15	29.4	29.4	29.4
		Agree	36	70.6	70.6	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	14	29.2	29.2	29.2
		Agree	34	70.8	70.8	100.0
		Total	48	100.0	100.0	
Engineer	Valid	Disagree	12	38.7	38.7	38.7
		Agree	19	61.3	61.3	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	8	29.6	29.6	29.6
		Agree	19	70.4	70.4	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	8	28.6	28.6	28.6
		Agree	20	71.4	71.4	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	9	28.1	28.1	28.1
		Agree	23	71.9	71.9	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	5	31.3	31.3	31.3
		Agree	11	68.8	68.8	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	4	36.4	36.4	36.4
		Agree	7	63.6	63.6	100.0
		Total	11	100.0	100.0	

Education	Valid	Disagree	3	33.3	33.3	33.3
		Agree	6	66.7	66.7	100.0
		Total	9	100.0	100.0	

Q15

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	8	15.7	16.0	16.0
		Agree	42	82.4	84.0	100.0
		Total	50	98.0	100.0	
	Missing	System	1	2.0		
	Total		51	100.0		
Business and management	Valid	Disagree	12	25.0	25.5	25.5
		Agree	35	72.9	74.5	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	13	41.9	41.9	41.9
		Agree	18	58.1	58.1	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	2	7.4	7.4	7.4
		Agree	25	92.6	92.6	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	7	25.0	25.0	25.0
		Agree	21	75.0	75.0	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	8	25.0	25.8	25.8
		Agree	23	71.9	74.2	100.0
		Total	31	96.9	100.0	
	Missing	System	1	3.1		
	Total		32	100.0		
IT	Valid	Disagree	1	6.3	6.3	6.3
		Agree	15	93.8	93.8	100.0
		Total	16	100.0	100.0	

Secretary	Valid	Disagree	2	18.2	18.2	18.2
		Agree	9	81.8	81.8	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	2	22.2	22.2	22.2
		Agree	7	77.8	77.8	100.0
		Total	9	100.0	100.0	

Q16

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	13	25.5	25.5	25.5
		Agree	38	74.5	74.5	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	8	16.7	17.0	17.0
		Agree	39	81.3	83.0	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	8	25.8	25.8	25.8
		Agree	23	74.2	74.2	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	7	25.9	25.9	25.9
		Agree	20	74.1	74.1	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	14	50.0	50.0	50.0
		Agree	14	50.0	50.0	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	11	34.4	34.4	34.4
		Agree	21	65.6	65.6	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	3	18.8	18.8	18.8
		Agree	13	81.3	81.3	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	3	27.3	27.3	27.3

		Agree	8	72.7	72.7	100.0
		Total	11	100.0	100.0	
Education	Valid	Agree	9	100.0	100.0	100.0

Q17

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	16	31.4	32.0	32.0
		Agree	34	66.7	68.0	100.0
		Total	50	98.0	100.0	
	Missing	System	1	2.0		
	Total		51	100.0		
Business and management	Valid	Disagree	22	45.8	46.8	46.8
		Agree	25	52.1	53.2	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	16	51.6	51.6	51.6
		Agree	15	48.4	48.4	100.0
		Total	31	100.0	100.0	
Art	Valid	Disagree	12	44.4	44.4	44.4
		Agree	15	55.6	55.6	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	13	46.4	46.4	46.4
		Agree	15	53.6	53.6	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	15	46.9	46.9	46.9
		Agree	17	53.1	53.1	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	4	25.0	25.0	25.0
		Agree	12	75.0	75.0	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	5	45.5	45.5	45.5
		Agree	6	54.5	54.5	100.0

		Total	11	100.0	100.0	
Education	Valid	Disagree	5	55.6	55.6	55.6
		Agree	4	44.4	44.4	100.0
		Total	9	100.0	100.0	

Q18

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	14	27.5	27.5	27.5
		Agree	37	72.5	72.5	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	15	31.3	31.9	31.9
		Agree	32	66.7	68.1	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	15	48.4	50.0	50.0
		Agree	15	48.4	50.0	100.0
		Total	30	96.8	100.0	
	Missing	System	1	3.2		
	Total		31	100.0		
Art	Valid	Disagree	11	40.7	40.7	40.7
		Agree	16	59.3	59.3	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	15	53.6	53.6	53.6
		Agree	13	46.4	46.4	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	18	56.3	58.1	58.1
		Agree	13	40.6	41.9	100.0
		Total	31	96.9	100.0	
	Missing	System	1	3.1		
	Total		32	100.0		
IT	Valid	Disagree	6	37.5	40.0	40.0
		Agree	9	56.3	60.0	100.0

		Total	15	93.8	100.0	
	Missing	System	1	6.3		
	Total		16	100.0		
Secretary	Valid	Disagree	3	27.3	27.3	27.3
		Agree	8	72.7	72.7	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	4	44.4	44.4	44.4
		Agree	5	55.6	55.6	100.0
		Total	9	100.0	100.0	

Q19

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	12	23.5	23.5	23.5
		Agree	39	76.5	76.5	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	11	22.9	23.4	23.4
		Agree	36	75.0	76.6	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	4	12.9	13.3	13.3
		Agree	26	83.9	86.7	100.0
		Total	30	96.8	100.0	
	Missing	System	1	3.2		
	Total		31	100.0		
Art	Valid	Disagree	4	14.8	14.8	14.8
		Agree	23	85.2	85.2	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	8	28.6	28.6	28.6
		Agree	20	71.4	71.4	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	4	12.5	12.9	12.9
		Agree	27	84.4	87.1	100.0

		Total	31	96.9	100.0	
	Missing	System	1	3.1		
	Total		32	100.0		
IT	Valid	Disagree	3	18.8	20.0	20.0
		Agree	12	75.0	80.0	100.0
		Total	15	93.8	100.0	
	Missing	System	1	6.3		
	Total		16	100.0		
Secretary	Valid	Disagree	3	27.3	27.3	27.3
		Agree	8	72.7	72.7	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	1	11.1	11.1	11.1
		Agree	8	88.9	88.9	100.0
		Total	9	100.0	100.0	

Q20

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	9	17.6	17.6	17.6
		Agree	42	82.4	82.4	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	20	41.7	42.6	42.6
		Agree	27	56.3	57.4	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	7	22.6	23.3	23.3
		Agree	23	74.2	76.7	100.0
		Total	30	96.8	100.0	
	Missing	System	1	3.2		
	Total		31	100.0		
Art	Valid	Disagree	6	22.2	22.2	22.2
		Agree	21	77.8	77.8	100.0
		Total	27	100.0	100.0	

Health	Valid	Disagree	12	42.9	42.9	42.9
		Agree	16	57.1	57.1	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	10	31.3	32.3	32.3
		Agree	21	65.6	67.7	100.0
		Total	31	96.9	100.0	
	Missing	System	1	3.1		
	Total		32	100.0		
IT	Valid	Disagree	4	25.0	28.6	28.6
		Agree	10	62.5	71.4	100.0
		Total	14	87.5	100.0	
	Missing	System	2	12.5		
	Total		16	100.0		
Secretary	Valid	Disagree	4	36.4	36.4	36.4
		Agree	7	63.6	63.6	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	6	66.7	66.7	66.7
		Agree	3	33.3	33.3	100.0
		Total	9	100.0	100.0	

Q21

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	8	15.7	15.7	15.7
		Agree	43	84.3	84.3	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	10	20.8	21.3	21.3
		Agree	37	77.1	78.7	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	4	12.9	13.3	13.3
		Agree	26	83.9	86.7	100.0
		Total	30	96.8	100.0	

	Missing	System	1	3.2		
	Total		31	100.0		
Art	Valid	Disagree	5	18.5	18.5	18.5
		Agree	22	81.5	81.5	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	6	21.4	21.4	21.4
		Agree	22	78.6	78.6	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	8	25.0	25.0	25.0
		Agree	24	75.0	75.0	100.0
		Total	32	100.0	100.0	
IT	Valid	Disagree	2	12.5	12.5	12.5
		Agree	14	87.5	87.5	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	1	9.1	9.1	9.1
		Agree	10	90.9	90.9	100.0
		Total	11	100.0	100.0	
Education	Valid	Agree	9	100.0	100.0	100.0

Q22

Major_1			Frequency	Percent	Valid Percent	Cumulative Percent
.00	Valid	Disagree	16	31.4	31.4	31.4
		Agree	35	68.6	68.6	100.0
		Total	51	100.0	100.0	
Business and management	Valid	Disagree	13	27.1	27.7	27.7
		Agree	34	70.8	72.3	100.0
		Total	47	97.9	100.0	
	Missing	System	1	2.1		
	Total		48	100.0		
Engineer	Valid	Disagree	10	32.3	33.3	33.3
		Agree	20	64.5	66.7	100.0
		Total	30	96.8	100.0	
	Missing	System	1	3.2		
	Total		31	100.0		

Art	Valid	Disagree	7	25.9	25.9	25.9
		Agree	20	74.1	74.1	100.0
		Total	27	100.0	100.0	
Health	Valid	Disagree	12	42.9	42.9	42.9
		Agree	16	57.1	57.1	100.0
		Total	28	100.0	100.0	
Media	Valid	Disagree	9	28.1	29.0	29.0
		Agree	22	68.8	71.0	100.0
		Total	31	96.9	100.0	
	Missing	System	1	3.1		
	Total		32	100.0		
IT	Valid	Disagree	2	12.5	12.5	12.5
		Agree	14	87.5	87.5	100.0
		Total	16	100.0	100.0	
Secretary	Valid	Disagree	4	36.4	36.4	36.4
		Agree	7	63.6	63.6	100.0
		Total	11	100.0	100.0	
Education	Valid	Disagree	4	44.4	44.4	44.4
		Agree	5	55.6	55.6	100.0
		Total	9	100.0	100.0	

Appendix H: Instructors' Written Responses to Three Open-ended Questions

Q1. To me, critical thinking is
1. Problem-solving processes, reflections, and evaluation.
2. to be able to analyze an issue and make a judgment about it.
3. helping students 'think for themselves' by questioning the established views of others, especially those in power (government, family, teachers), as well as their own established views. In this way, students are constantly reevaluating their own views/beliefs by never just accepting what they are told but by questioning why/how they feel a certain way.
4. consideration and evaluation of argumentative practices
5. All of above
6. For humans who have minimum knowledge about the world around so as to establish for critical thinkers.
7. problem-solving, making wise decisions, reaching to correct conclusions, and spotting bad reasoning.
8. Making inferences/ understanding biases/ objectively looking at something to make a judgment
9. important for each college student
10. Using one's knowledge to evaluate things, think outside the box, and make more informed decisions
11. empowering students to assess a belief from an unbiased position and examine an issue from multiple perspectives.
12. It is the freedom to question and accept nontraditional answers. It is the bravery of the thinker to challenge traditions and norms of their society.
13. ability to analyze, evaluate and problem solve in various contexts with flexibility
14. The ability to solve real world problems and find effective solutions
15. absolutely essential to being a good human
16. The ability to analyze, regret on, synthesize, and evaluate pieces is evidence and components of knowledge.
17. judging an issue

Q2. List other effective techniques you usually use for teaching critical thinking skills in writing courses.
1. All listed in your questions
2. Analyzing commercials and YouTube videos.
3. (1) I have students apply the 5 Ws to all of their readings, writing, and classroom discussions. For example, I have students question WHY they agree/disagree with another student, their teacher, or an author. They can never just provide a yes/no answer. (2) I spend a lot of time having students practice how to analyze the views of others: we start out looking at key words in an author's text and the students have to apply the 5 Ws in order to provide a 'new' insight to why they agree/disagree with the author. (3) Overall, I try to break down critical thinking to the bare essentials by constantly having students ask: WHY they agree/disagree; HOW a certain view/belief makes them feel; WHAT influences in their lives made them have this certain view/belief, etc. (4) I always have students choose their own essay topics so that I'm not telling them what to write about. (5) I always have students provide their own suggestion/solution for how to address the issue they are writing about in their research papers. (6) I have students deconstruct student sample essays so that they can discuss the strengths/weaknesses of critical analysis.
4. All of above
5. Creating class-works and tasks for the development and application of critical thinking skills.
6. I use reading texts that are flawed or have biases to see how the students respond to them versus accepting it at face value
7. real life/ former's students work to discuss effectiveness depth, and feasibility of ideas.
8. Reading texts with embedded messages. Debates and English Clubs
9. meta cognitive strategies
10. Wonder wall (questions and students answer it)
11. textual analysis/ reasoning problems/ lateral thinking situations
12. Responding to images, discussing online quotes and relating them to real life.

Q3. List other effective techniques you usually use for measuring students' critical thinking skills in writing courses.

1.	All mentioned above
2.	How students argue for or against a topic in their writing.
3.	Regarding 'measuring' critical thinking, I use rubrics that focus on specific analytical skills in their writing assignments. I use rubrics to grade how they synthesize the views of others and can find relevant sources to back up their views. Other than that, I do not assess their critical thinking skills by grading them. I just encourage them throughout the entire semester to question, question, question and never blindly accept the views of others.
4.	All of above
5.	Providing well-structured questions and carefully selected themes to write about.
6.	in-class low stake assignment/ high-stake summative assignment, Grading Rubrics
7.	Cause and effect assignments.
8.	self reflective essays
9.	Success criteria
10.	Project- based learning/ digital literary analysis

Appendix I: Students' Written Responses to Three Open-ended Questions

Q1. To me critical thinking is
1. important to improve yourself
2. Researching a topic deeply and doing a brainstorming
3. Taking issues seriously and thinking of solving them like world-class issues
4. A way we use to a lyze and evaluate issues in everyday life activities or events to create a suitable judgement
5. is putting two ideas to create a new third idea and being able to a lyze and solve a problem
6. Thinking out of the box in a creative way
7. Analyzing a specific topic and coming up with different ways to understand it and solve it
8. To think from different point of views and a different way
9. the way to help you be more creative and think out of the box
10. deep thinking and thinking out of the box
11. Critical thinking is a unique way to think outside the box. Also, it can be a way of thinking that can be used to solve any problem or situation.
12. focusing on information
13. to think in paranormal way and fast
14. hard
15. Creating outside the box and think with my way and skills
16. very important
17. important
18. thinking before doing something / it helps you to take a better decision
19. thinking in your own way in a creative way and to understand everything about it.
20. your opinion
21. Reading a piece of information once and getting an overall idea about it then reading it again to point the major statements in it then read it a third time and try to understand the information and connect it to the origi l topic and see if it,Äôs consis
22. a lysing a situation
23. To think about an issue in order to give a judgement or a solution
24. a lysing the information through which possible relationships with in the information is identified.After identifying all the links, a possible conclusion is drawn.
25. It,Äôs looking deep into a certain topic in order to analyze it or to gain new perspectives. It,Äôs also the ability to look at things objectively and assess the information gained in an objective manner.
26. To make right decisions and solve solutions creatively
27. a lysing and evaluating the text

28. Finding connections between things and arriving at a conclusion
29. A lyzing
30. A thing that should be the new way of teaching
31. Looking at an issue or topic from a different angle.
32. a lyzing and evaluating the work I have done
33. Important
34. thinking outside the box
35. argumentation
36. a lyzing deeply the information
37. Not necessarily to have objections for ech topic but in same cases we have to use critical thinking to a lyze and to understand and evaluate the case then we judge on the case
38. very useful and helps the students in knowing more information and discovering it
39. a lyzing an issue in a variety of different ways to fully understand it
40. Critical thinking is the way that you think in different things or to gather the information to create new ideas that help the society or myself
41. viewing understanding and a lyzing information from different points of views
42. it is when you have facts that end up with judgement that will end up with a negotiation
43. something that improves the way of thinking and giving ideas
44. a way of thinking in which I do notsimply accept all the arguments
45. giving students experience to write perfect essays
46. New and i am still learning
47. Putting your ideas into work
48. unreaso ble unbiased ratio l a lysis, or evaluation of evidence and facts
49. The best way of solving problems and helps in improving the work.
50. Important
51. Creativity
52. is important
53. Beyond explaining
54. Brainstorming
55. using all your skills to a lyze the problem and try to solve it.
56. i do notknow
57. very important
58. to understand the information

59.	important
60.	is thinking in a deeper way
61.	Think out of the box.
62.	not very important
63.	beiang able to read what is between the sentence and what the author or speaking is trying to deliver
64.	to think critically
65.	important
66.	a lysis and thinking skills
67.	thinking deeply
68.	important and thinking in a creative way
69.	to think critically
70.	something help me to understant the information better, and makes me able to think out of the box and solveing problems.
71.	being able to think outside the box, and correctly
72.	thinking of the same topic from different prespectives and in a creative way
73.	a lyzing information and finding their hidden meaning.
74.	a lyzing and infering from text to reach a conclusion
75.	thinking by creative way
76.	is the ability to understand the information and solve any problems.
77.	To think out of the box
78.	to think about what i dont understand or something i dont know what is it
79.	digging for answers deeper
80.	think out of the box
81.	to find a new way in solving any problem
82.	what excite me to think and answer
83.	thinking clearly
84.	to think in a deep way,brain storming
85.	thinking outside the box
86.	A lysing and problem solving
87.	thinkig in different way and try to fit with the satuation
88.	squeezing the mind
89.	to think out of the box
90.	Ability to a lyze information
91.	Ability to a lyze information

92. To think out of the box
93. to think out of the box
94. the ability to think through problems
95. a way of thinking and a lyzing that helps the person to understand, think, write, and solve things in life in better way.
96. Thinking in different point of views and asking yourself questions on the thing you are thinking, reading, or doing.
97. The ability to think clearly about what to do in a certain situation
98. a way to solve problems and improve the viewpoint of certain situations
99. a lyzing ideas.
100. a way to improve your skills and knowladge
101. A lyzing and evaluating certain subjects, concluding with evidence and theories.
102. Being able to comprehend and react quickly in a situation.
103. judgments that are logical
104. The objective a lysis and evaluation of an issue in order to form a judgment.
105. A quality, where in the person can act/judge in a situation/problem, based on their a lysis, evaluation, and to which they believe to be what is moraly correct in a s p.
106. thinking out of the box
107. A lysis of situations and thinking logically.
108. crucial for daily tasks
109. the ability to a lyze a situation before making a judgement
110. a lyzing a topic and trying finding solution, which needs to be unbiased.
111. the objective a lysis and evaluation of an issue in order to form a judgement.
112. to evaluate and think deeper in matters
113. thinking ratio lly and precisely about the given info
114. the way each people think to solve their problem
115. observation of an issue studying it, breaking it down, evaluate thoughts, then agree or disagree
116. How a person should think in any situation and how he should deal with it
117. thinking outside the box/ evaluating and reflecting as well, seeing things from different perspectives
118. The ability to brainstorm and think deeply about the question
119. The ability to gather effective information and reasoning them for their validity
120. a higher-order thinking skills that not everyone has. Not everyone can obtain it.
121. it is the thing that help our skills
122. to understand what you have around us and think of solution for any problem

123. The ability to think outside the box
124. It is to be able to a lyze and provide reasoning to situations and contests. It helps me to better understand the information
125. exploring ideas, keep options, open, and imagine
126. to get out of the box
127. thinking critically of all possible options or aspects of a problem and figuring out a solution
128. research
129. more thinking than usual
130. Focusing on a topic and finding the best solution for it/ giving the best opinion or recommendation to it
131. understand and focus when teacher is explaining
132. understanding the whole case/ wider perspective
133. very important and teachers should stress on it
134. helpful for us to think clearly and focus on the ideas
135. thinking correctly and fully a lyze the situation
136. criticize a question/ thinking about it in a different way/
137. thinking out of the box
138. a lyzing and evaluating of a certain matter in order to reach an opinion or a judgement
139. understanding life
140. discussing opinions
141. understanding
142. good thinking, it means that a person so smart
143. very important to improve my grades
144. think out of the box and a lyze information
145. understanding information and sharing it with the teachers
146. good way to learn English
147. finding the best idea
148. Thinking outside the box
149. Thinking about new reasons and examples
150. Class discussion with teachers and students
151. important and can change my mind
152. Writing about daily life every day
153. criticizing others' work in a certain way
154. focusing on information

155. a good idea to help students improve their writing
156. skill need to improve
157. thinking outside the box
158. The use of evidence and logic to solve problems and create ideas
159. a lyzing information with open-minded / gain extra information regarding the topics
160. about comprehending information and finding evidence to improve the problem-solving solution
161. Knowing how to approach a situation differently/ more creativity
162. Approaching the problem with all the possible ways to approach with peers to come up with a solution
163. The process of a lyzing and evaluating different viewpoints
164. Thinking about solving a problem or trying to find a solution in minimal time
165. Thinking outside the box
166. thinking outside the box
167. focusing and understanding something
168. A lyzing given information by observing facts and gathering information and discussing it with someone
169. A very crucial mentality to have since it is beneficial academically in real life
170. Mostly based on reasoning / making a claim without giving a reason to believe is not enough. Also not being convinced with points without seeing reasons/ evidence
171. Deeply thinking about specific topics and knowing the causes and the causes and what exactly it is about
172. the ability to think outside the box and randomly
173. A lysis and figuring out how true the information is
174. important
175. being able to evaluate the information from all angles, think outside the box and come up with well-rounded and thoughtful answers and solutions
176. opening mind to see both sides of a discussion
177. To be able to keep an open-mind as you make sense of the real world around you.
178. the ability to a lyze situation and being able to come to a logical conclusion on your own without being told what to think
179. the ability to a lyze situation and being able to come to a logical conclusion on your own without being told what to think
180. Having all options open to my self.
181. a lyzing, planning, brainstorming and then answering
182. very important to be learnt

Q2.List.other.effective.techniques.you.feel.it.helps.students.to.improve.their.critical.thinking. skills.in.writing. courses.
1. Researching skills Familiarity with technology
2. explaining with examples
3. Debates to help students realize the voices of their opinions
4. a-reflection b-make inferences
5. improving skills
6. open discussions
7. To give a topic and tell students to talk about it
8. re-writing many times
9. English games, speaking lessons will improve the student in his way of thinking in a critical way
10. Examples
11. I do notknow
12. Study
13. Making projects which require critical thinking and letting the students to choose a topic
14. Always should we do writing group
15. essay writing
16. Asking for others' thoughts and opinions
17. Help then develop this skill then giving them small paragraphs then go to bigger articles
18. Summary writing, critique essay and the research essay have been useful to me.
19. I think small and short exercises could help students improve their critical thinking skills.
20. Puzzles or riddles
21. Games and examples of critically a lysed texts
22. Problem-solution papers, or papers that are about cause and effect
23. Having more critical thinking assignments activities
24. Sample writing examples and ,expla tions
25. research/ asking questions/ be aware of mental processes
26. Research more to gain more evidence
27. Posters with a balance between visual and words
28. Reading articles
29. No idea sorry
30. Thesis statement/ choose an argument
31. informative essays/ brainstorming

32. field trips
33. Reading articles
34. having an open discussion, helping them into being more open minded in order for them to do a lot of problem solving issues
35. Not much can be used in my day to day life
36. Discussions on issues around the world
37. to become a self critic , a lyzing information
38. Brainstorming
39. Writing essay
40. Practice more
41. Listening to music, drawing, and sketching out the essays
42. sharing ideas
43. give the student a riddle everyday
44. i do notknow
45. listining to others
46. writing about perso l opinion
47. listen to each other
48. thinking out of the box questions
49. solve more q.s as you can , try to play tricky games
50. lesson to others
51. reading comprehension
52. Reading
53. Reading
54. disscuss in group
55. think outside the box
56. evaluating , summurizing , understanding
57. just regualar discussions
58. brain-storming
59. debates and disussions
60. let them ask rhetorical questions while reading
61. imagine- think out side the box
62. give them sitautions to solve it
63. READING
64. disscus more things with others and learn a new thinks
65. give them cources about critical thinking and practices
66. try to solve more question as you can
67. IDK
68. reading many books that benefits you

69. work with groups and stranger-participate in many games that include question
70. elimi ting obvious ideas.
71. a lysing and comparing texts
72. writing a essay that you do notagree with the statement
73. Read
74. read more
75. use youtube
76. problem solving activities
77. let them write daily jour ls.
78. Talking about topics that are happing nowadays
79. comparing and contrasting different viewpoints
80. correct their pairs work.
81. make a time for it in a class
82. Having debate class sessions
83. Using logic, you can evaluate ideas or claims people make, make good decisions, and form sound beliefs about the world.
84. By giving exercises to students where they can adapt and adjust to make writing more efficient and effective.
85. group discussions
86. A lysis of poems or prose. Along with debates.
87. Reading formal essays, learning new techniques and styles, practicing writing essays
88. providing instructions throughout the writing process
89. researching and reading about anything theyre interested in
90. working in groups with classmate could help
91. give examples
92. story-essay writing
93. debate classes/ open-discussions
94. real-life situation
95. field trips to observe things in reality instead of just reading and then writing about them.
96. opinion-ended questions
97. more oral courses
98. practice in an environment that helps the students in accessing the full mental ability
99. problem-solving situations
100. Group discussion
101. always discussions can help
102. update topics and interesting for students
103. Discussions
104. practical situations

105. a lyzing poems/ repetition
106. learning from mistakes/ reading graphs / essay writing
107. argumentative because you can underside both sides and a lyze it
108. create a conversation between instructors and students to get deeper and help students criticize the questions themselves
109. Asking challenging questions
110. self-evaluation
111. dis cussing issues with doctors
112. using videos related to our lessons and then have a discussion on.
113. class discussions
114. Practical work
115. hard working
116. making groups and asking them about their opinion.
117. online homework
118. group work/ sharing information
119. Groups/ Games/ communicating with others
120. having mini goals at the end of class
121. writing about feelings
122. Mystery problems and writing reviews about things
123. seeing examples on critical thinking
124. trying to use real information
125. imagi tion
126. writing weekly
127. jour ls
128. Rogerian Essays
129. They should be given the opportunity to share their ideas where everyone can benefit in the class.
130. Reading articles and answering questions/ allowing students to use critical thinking skills by working in groups and allowing them to solve a problem
131. Guidance from instructor
132. Steps on how to approach a common problem and good ways to form opinions
133. Giving students hypothetical situations they could be in and making them think how they would get out or react.
134. writing about a passio te topic
135. Some people do notknow how to do critical thinking, so teachers should demonstrate it to students.
136. Do research
137. Always ask why
138. Quiz/ riddles
139. Problem-solving exercises and opinion-based assignment

140. Discussion in groups as you will be open to new ideas and expand your view on the topic
141. peer evaluation/ debates
142. reading more senior papers
143. By doing research and finding credible resources To be given the freedom to voice their own ideas and opinions while writing
144. open -discussion debates
145. open -discussion debates
146. To read a lot of books and articles.
147. brainstorming, having in-class discussions, learning about negotiation helps in critical thinking as well
148. Watching video to add more information to the students

Q.3List.other.effective.techniques.you.feel.teachers.should.use.for.measuring. students.critical.thinking.skills.in. writing. courses.
1. By talking to them and asking them questions and having an effective argument
2. One on One discussions with the professor if the student has trouble facing anxiety in the classroom
3. The degree to which the students' paper standsout as an extraordi ry one may be measured.
4. Group assignments
5. In class assignments
6. Instructor highlights an article or a situation which is related to class topic, split the class with in 2 disagree and agree, and either make them work in groups and write it down in a piece of paper and one represent each group and present before end o
7. Case studies and apply critical thinking answers
8. Asking broad questions and see how detailed the students answer.
9. No idea sorry
10. bringing creativity into place instead of just the traditio l normal way of doing things, i think teachers could make students think out side of the box and be creative in order for them to do problem solving and bringing the creative part of the student
11. Letting students communicate within eachother
12. active listening
13. Give critical thinkkng questions.
14. By using two methods that can be mojor
15. Help them while the projects
16. Showing videos
17. asking questions
18. i dont know
19. i do notknow
20. more practice
21. solving problems
22. feedback
23. indirect questions
24. Using the rubrics for the essay's

25.	feed back
26.	crtitical thinking quizzes
27.	discussion
28.	showing videos
29.	more assigment
30.	understand what the students are trying to say
31.	solve critical thinking questions
32.	evaluating
33.	i dont know
34.	to ask students to share ideas with the whole class so other students can get inspired and have other creative ideas
35.	Asking questions, discussions
36.	have a rubric
37.	try to understant anything the student write
38.	Activities
39.	using more examples and alot of techniques just to dont get bored also
40.	let them write
41.	make some exams for the student
42.	IDK
43.	giving something about our real life to think and talk about
44.	give them an exit card for 2 lessons in week
45.	play question game
46.	Using the plagiarism counter.
47.	give quastion that need to use critical thinking skill
48.	read again
49.	playing some diffrent critical thinking game
50.	Diccusion
51.	I do notknow
52.	ask them for their opinions.
53.	Argumentative essays help
54.	discussions about different interesting topics and opinions
55.	discussing ideas freely in groups and write them down individually.
56.	open class for it
57.	See from their point of view
58.	The teacher should give or ask simple questions that can help start/lead the students in identifying and solving simple/basic questions that can open a lot of ideas and options.
59.	giving feedback/ understanding
60.	Debates which are graded
61.	self-study assignments like extracting collocations and new words
62.	acknowledging the students' different learning styles
63.	try to question the students thinking process
64.	always get a feedback from the student about there opinion
65.	discuss and review with students
66.	Quizzes
67.	To have a question at the end of the class and see how each student will answer it.
68.	a lyzing, summarizing and brainstorming
69.	Understand what is the student opinion

Appendix J: Worksheets from Class Observations

Observation #1

Format 1: **Viewpoints are different but their reason WHY is the same.**

Format 2: **Viewpoints are different *and* their reasons WHY are also different.**

After choosing your format, write your two viewpoints below:

Viewpoint 1:
Viewpoint 2:

Group Activity: The first group member shares Viewpoint 1 and Viewpoint 2 with the other group members.

1. *Together*, other group members determine **Common Ground**.

   (If you can't determine the Common Ground, help the first group member rewrite Viewpoint 1&Viewpoint 2.)

2. *Individually*, ALL group members research **One Solution** and outside source. (Make sure to use appropriate key words when researching on Google.)

3. Vote on <u>who has the strongest solution</u>.

   (NOTE: This means it should satisfy both sides and have a reputable source to support it: newspaper/magazine/academic journal article/valid website—no blogs!).

Repeat until all group members share their viewpoints. Whoever receives the most votes for the <u>strongest solution</u> will earn **ONE EXTRA CREDIT POINT** to be applied to Essay 2.

Rogerian Essay Rubric

Introduction--

Needs Work 6 points

Barely/does not describe topic and/or source is missing. Barely describes both viewpoints' main reasons and/or the descriptions are too confusing to understand. Thesis statement does not follow the required format at all. The common ground and solution are missing.

Weak 7.5 points

Barely describes topic and/or the source does not support the topic. Barely describes both viewpoints' main reasons and/or the descriptions are too confusing to understand. Thesis statement barely follows the required format at all. The common ground and solution barely satisfy both viewpoints.

Satisfactory 8.5 points

Mostly describes topic and is supported by at least one cited source. However, the source may not be the best support. Mostly describes both viewpoints' main reasons. Thesis statement mostly follows the required format, and while it provides a common ground and solution, it is slightly unclear or does not completely satisfy both viewpoints.

Strong 10 points

Clearly describes topic and is supported by at least one cited source. Clearly describes both viewpoints' main reasons. Thesis statement follows correct format and clearly provides a common ground and solution that satisfies both viewpoints.

Viewpoint 1--

Needs Work 6 points

Viewpoint does not support thesis statement. CEWs do not support topic sentence. There are 1 or less CEWs for the first paragraph. There are 1 or less CEWs for the second paragraph. The claims do not support the viewpoint. The evidence does not support the claims. The warrants do not explain why/how when referring to the evidence--and does not explain MORE.

Weak 7.5 points

Viewpoint barely supports thesis statement. CEWs barely support topic sentence. There are less than 2 CEWs for the first paragraph. There are less than 2 CEWs for the second paragraph. The claims barely support the viewpoint. The evidence barely supports the claims. The warrants barely explain why/how when referring to the evidence--and barely explains MORE but instead repeats the evidence.

Satisfactory 8.5 points

Viewpoint mostly supports thesis statement. CEWs mostly support topic sentence. There are 2 CEWs for the first paragraph. There are 2 CEWs for the second paragraph. However, the claims mostly support the viewpoint. The evidence mostly supports the claims. The warrants mostly explain why/how when referring to the evidence--and mostly explains MORE rather than repeating the evidence.

Strong 10 points

Overall, viewpoint clearly supports thesis statement. CEWs clearly support topic sentence. There are 2 CEWs for the first paragraph. There are 2 CEWs for the second paragraph. The claims clearly support the viewpoint. The evidence clearly supports the claims. The warrants clearly explain why/how when referring to the evidence--and clearly explains MORE rather than repeating the evidence.

Viewpoint 2--

Needs Work 6 points

Viewpoint does not support thesis statement. CEWs do not support topic sentence. There are 1 or less CEWs for the first paragraph. There are 1 or less CEWs for the second paragraph. The claims do not support the viewpoint. The evidence does not support the claims. The warrants do not explain why/how when referring to the evidence--and does not explain MORE.

Weak 7.5 points

Viewpoint barely supports thesis statement. CEWs barely support topic sentence. There are less than 2 CEWs for the first paragraph. There are less than 2 CEWs for the second paragraph. The claims barely support the viewpoint. The evidence barely supports the claims. The warrants barely explain why/how when referring to the evidence--and barely explains MORE but instead repeats the evidence.

Satisfactory 8.5 points

Viewpoint mostly supports thesis statement. CEWs mostly support topic sentence. There are 2 CEWs for the first paragraph. There are 2 CEWs for the second paragraph. However, the claims mostly support the viewpoint. The evidence mostly supports the claims. The warrants mostly explain why/how when referring to the evidence--and mostly explains MORE rather than repeating the evidence.

Strong 10 points

Overall, viewpoint clearly supports thesis statement. CEWs clearly support topic sentence. There are 2 CEWs for the first paragraph. There are 2 CEWs for the second paragraph. The claims clearly support the viewpoint. The evidence clearly supports the claims. The warrants clearly explain why/how when referring to the evidence--and clearly explains MORE rather than repeating the evidence.

Common Ground--

Needs Work 6 points

Does not discuss the same common ground provided in the thesis statement. Descriptions are very vague, unclear, and confusing. Does not follow the CGEW format. Not supported by at least 1 source.

Weak 7.5 points

Barely discusses the same common ground provided in the thesis statement and/or it is very vague, unclear, and confusing. Barely follows the CGEW format. Barely supported by at least 1 source. Barely explains why/how the common ground supports both viewpoints.

Satisfactory 8.5 points

Discusses the same common ground provided in the thesis statement but it is slightly unclear. Mostly follows the CGEW format. Supported by at least 1 source that mostly explains why/how the common ground supports both viewpoints but the description is slightly unclear.

Strong 10 points

Clearly discusses the same common ground provided in the thesis statement. Clearly follows the CGEW format. Supported by at least 1 source that clearly explains why/how the common ground supports both viewpoints.

Conclusion--

Needs Work 6 points

Does not describe "common ground solution." It does not support the thesis statement. The solution does not make sense and/or find a compromise, and is also vague and unclear. It does not address or satisfy both viewpoints. Not supported by at least 1 source.

Weak 7.5 points

Barely describes "common ground solution." It barely supports the thesis statement. The solution barely makes sense, and while it does find a compromise, it is adequate or slightly unclear. It barely satisfies both viewpoints. Supported by at least 1 source but it barely addresses the solution.

Satisfactory 8.5 points

Mostly describes "common ground solution." It mostly supports the thesis statement. The solution mostly makes sense, and while it does find a compromise, it is adequate or slightly unclear. It mostly satisfies both viewpoints. Supported by at least 1 source that mostly addresses the solution.

Strong 10 points

Thorough description of "common ground solution." It clearly supports the thesis statement. The solution makes sense and clearly finds a compromise that will satisfy both viewpoints. Supported by at least 1 source that clearly address the solution.

APA Citation--

Needs Work 6 points

5 or more APA mistakes.

Weak 7.5 points

Includes incorrect header and cover page. Incorrect in-text citations. Incorrect Annotated Bibliography. 5 or less outside sources that barely/do not support thesis statement, topic sentences, and/or warrants. 3-4 APA mistakes.

Satisfactory 8.5 points

Includes slightly correct header and cover page. Slightly correct in-text citations. Slightly correct Annotated Bibliography. 5 or less outside sources that slightly support thesis statement, topic sentences, and/or warrants. 1-2 APA mistakes.

Strong 10 points

Includes correct header and cover page. Correct in-text citations. Correct Annotated Bibliography. 5 or more academic sources that thoroughly support thesis statement, topic sentences, claims, and/or warrants. No APA mistakes.

Language and Grammar--

Needs Work 6 points

5 or more spelling/grammar mistakes.

Weak 7.5 points

Little or no use of varied sentence structure. Mostly unclear, vague, confusing, or inappropriate language for academic writing. 3-4 or more spelling/grammar mistakes.

Satisfactory 8.5 points

Some word choice and usage errors. Some use of varied sentence structure. Some use of vague or unclear language. Some language inappropriate to academic writing. 2-3 spelling/grammar mistakes.

Strong 10 points

Proper word choice and usage. Language appropriate for academic writing. Clear and concise use of language. Varied sentence structure (syntax). No spelling errors. 0-1 grammar mistakes.

In-Class Activities--

Needs Work 6points

Completed 3 or less in-class activities.

Weak 7.5 points

Completed 4 in-class activities.

Satisfactory 8.5 points

Completed 5 in-class activities.

Strong 10 points

Completed all 6 in-class activities

Observation #2

The Blue Hotel: Pages covered during the observation

One morning when a snow-covered engine dragged its long string of cars to the station, Scully performed the marvelous trick of catching three men. One was a shaky and quick-eyed **Swede**, with a great, shining, cheap bag; one was a tall, sun-browned **cowboy**, who was on his way to a job near the Dakota border; one was a little silent man from the east coast, who didn't look like it and didn't announce it.

Scully practically made them prisoners. He was so quick and merry and kindly that each probably thought it would be cruel to try to escape. So they followed the eager little man. He wore a heavy fur cap pulled tightly down on his head. It caused his two red ears to stand out stiffly, as if they were made of tin.

At last, Scully grandly conducted them through the door of the blue hotel. The room which they entered was small. It was occupied mostly by a huge stove in the center, which was burning with great force. At various points on its surface the iron had become shiny and glowed yellow from the heat. Beside the stove, Scully's son, Johnnie, was playing a game of cards with a farmer. They were quarreling.

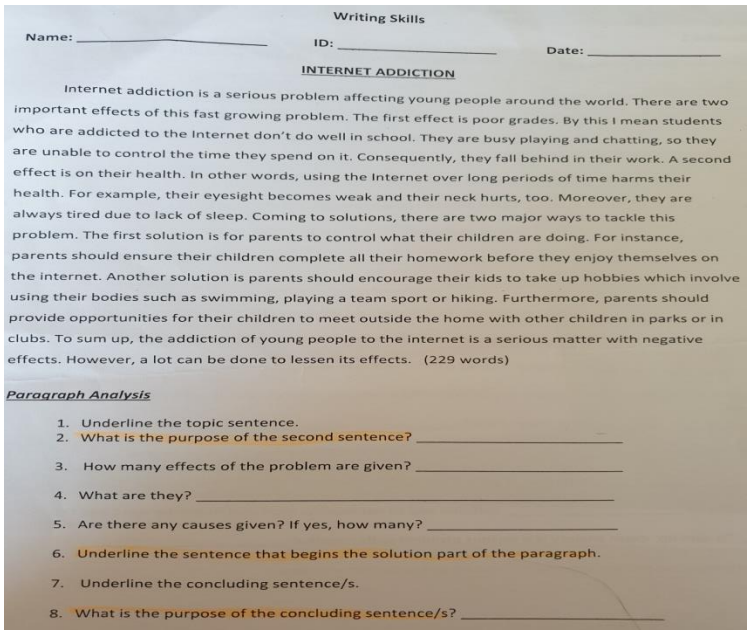
With loud words Scully stopped their play, and hurried his son upstairs with the bags of the new guests. He himself led them to three bowls of icy water. The cowboy and the Easterner washed themselves in this water until they were as red as fire. The Swede, however, merely placed his fingers in the bowl. It was noticeable throughout these proceedings that the three travelers were made to feel that Scully was very kind indeed. He was giving out great favors.

Afterward they returned to the first room. There, sitting about the stove, they listened to Scully shouting at his daughters, who were preparing the noon meal. They employed the silence of experienced men who move carefully among new people. The Swede was especially silent. He seemed to be occupied in making secret judgments of each man in the room. One might have thought that he had the sense of foolish fear which accompanies guilt. He looked like a badly frightened man.

Later, at dinner, he spoke a little, directing his conversation entirely to Scully. He said that he had come from New York, where he had worked for ten years as a suit maker. These facts seemed to interest Scully, and afterward he told that he had lived at Romper for fourteen years. The Swede asked about the crops and the price of labor. He seemed hardly to listen to Scully's lengthy replies. His eyes continued to wander from man to man.

Finally, with a laugh, he said that some of these western towns were very dangerous; and after this declaration he straightened his legs under the table, nodded his head, and laughed again, loudly. It was plain that this had no meaning to the others. They looked at him, wondering and in silence.

Observation #3



Writing Skills

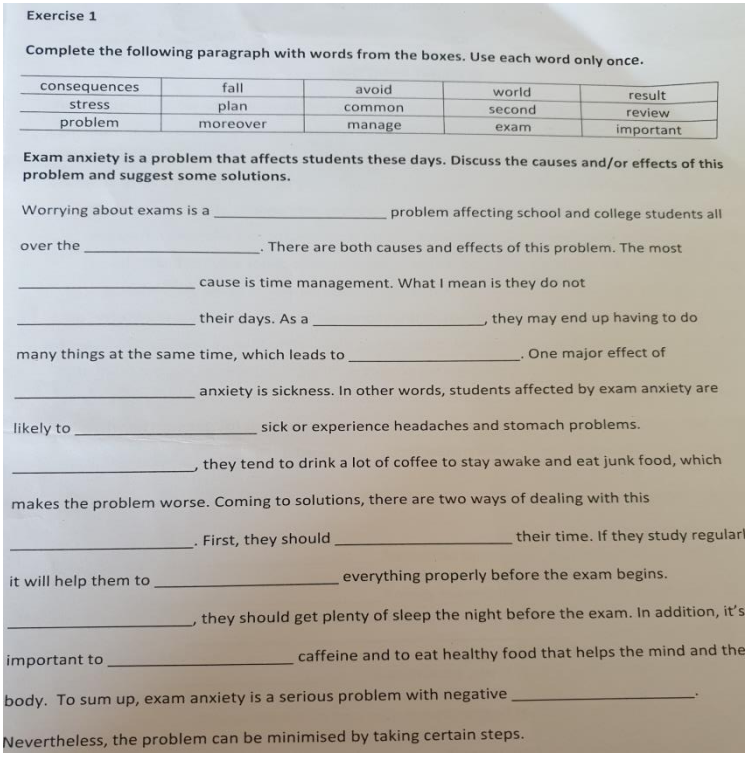
Name: _____ ID: _____ Date: _____

INTERNET ADDICTION

Internet addiction is a serious problem affecting young people around the world. There are two important effects of this fast growing problem. The first effect is poor grades. By this I mean students who are addicted to the Internet don't do well in school. They are busy playing and chatting, so they are unable to control the time they spend on it. Consequently, they fall behind in their work. A second effect is on their health. In other words, using the Internet over long periods of time harms their health. For example, their eyesight becomes weak and their neck hurts, too. Moreover, they are always tired due to lack of sleep. Coming to solutions, there are two major ways to tackle this problem. The first solution is for parents to control what their children are doing. For instance, parents should ensure their children complete all their homework before they enjoy themselves on the internet. Another solution is parents should encourage their kids to take up hobbies which involve using their bodies such as swimming, playing a team sport or hiking. Furthermore, parents should provide opportunities for their children to meet outside the home with other children in parks or in clubs. To sum up, the addiction of young people to the internet is a serious matter with negative effects. However, a lot can be done to lessen its effects. (229 words)

Paragraph Analysis

1. Underline the topic sentence.
2. What is the purpose of the second sentence? _____
3. How many effects of the problem are given? _____
4. What are they? _____
5. Are there any causes given? If yes, how many? _____
6. Underline the sentence that begins the solution part of the paragraph.
7. Underline the concluding sentence/s.
8. What is the purpose of the concluding sentence/s? _____



Exercise 1

Complete the following paragraph with words from the boxes. Use each word only once.

consequences	fall	avoid	world	result
stress	plan	common	second	review
problem	moreover	manage	exam	important

Exam anxiety is a problem that affects students these days. Discuss the causes and/or effects of this problem and suggest some solutions.

Worrying about exams is a _____ problem affecting school and college students all over the _____. There are both causes and effects of this problem. The most _____ cause is time management. What I mean is they do not _____ their days. As a _____, they may end up having to do many things at the same time, which leads to _____. One major effect of _____ anxiety is sickness. In other words, students affected by exam anxiety are likely to _____ sick or experience headaches and stomach problems. _____, they tend to drink a lot of coffee to stay awake and eat junk food, which makes the problem worse. Coming to solutions, there are two ways of dealing with this _____. First, they should _____ their time. If they study regularl it will help them to _____ everything properly before the exam begins. _____, they should get plenty of sleep the night before the exam. In addition, it's important to _____ caffeine and to eat healthy food that helps the mind and the body. To sum up, exam anxiety is a serious problem with negative _____. Nevertheless, the problem can be minimised by taking certain steps.

Observation #4

One student's sample for peer review

3- gender equality in universities

Gender issues have existed since ancient time , its not just nationality but globally . most of them are wrong with women rights , Although I agree that universities should accept all students regardless of gender .

In the first place everyone has the right to choose his or her scientific orientation , but I believe that males and females learn to participate in different ways. There are a few majors women cant handle it , just because of the biological differences between them , in other words women will not be qualified in this kind of careers . For example ; civil engineering , because this job needs a high stamina and physical fatigue . Or army pilot , and similar kind of jobs .

On the other hand , there are some careers men are not able to be great on it , for example : a nursemaid or gynecologist . In this kind of jobs I humbly think everyone will prefer women instead of men .

Must be remembered that each student have a different background , and there is no limits for human ability . Its not a rule but I agree with the university when it divide the number of students in each subject depending on the gender . And they should respect the passionate student and let them join the subject whatever the gender is.

Appendix K: Interview Transcriptions

Interviewee 1

Interviewer: Q1. To what extent do you think that teaching critical thinking skills is important for college students? Justify

Interviewee: So, to what extent do you think that's important? I think it should be promoted in all academic writing classes of course as well across the curriculum. But I think these academic writing classes here are so important to promote these skills because we are immediately getting the students. Freshman students come and take our courses and we work with students from all natures. So that's why I think it should really be pushed in these writing classes. Well, as I said to you earlier, I do not necessarily think students are getting the practice to develop these skills in high school, and then they come here, and critical thinking seems like this very unfamiliar concept. I think, as you also said, that teachers elementary, high school as well as professors at university have all these very different concepts of what critical thinking is. And I do feel that it would be great if our department, for example, could sit down and actually define it and have all of our professors, all the faculty get a sense of it.

Interviewer: Yeah, just within one community, yeah.

Interviewee: And I do not mean define it like we all have to follow it the same way, but to just get a sense of what we all think means. Question two, have you tried to ... yes. Have I tried to explicitly refer to it? Yes. At the beginning, the first day of each class I actually ask students what they think critical thinking is. And I make it a point to always bring it up, critical thinking. And this occurred after my study in 2016, and a lot of students would say, "Think outside of the box." But anyways I would get students to tell me what they thought and then I would say, "Well this is how I look at critical thinking. This is how I would like us to develop your critical thinking skills." And then what I do is use the quote by

[Elder 00:02:03] and Paul, and I highlight strong critical thinking skills versus weak.

Interviewer: Excellent, that's good.

Interviewee: Okay. When looking at the syllabus, what topics might be found useful to integrate critical thinking skills? Everything.

Interviewer: Everything?

Interviewee: Yes.

Interviewer: I feel like, is it your addition or your input, or is it the syllabus, itself?

Interviewee: The syllabus says ... I believe it says critical thinking. I wish I had one here to review it. I could pull it up if you want. Would you like me to do that after the interview?

Interviewer: I don't. Yeah, it's fine. Do you feel that it's your effort?

Interviewee: My effort. This is 100% my effort. Okay. Because let's be honest, whatever's on a syllabus has to be there. It's required. And then who knows what teachers are doing in their classroom?

Interviewer: Exactly.

Interviewee: But from the very beginning, as I told you, I have students tell me what they think it is. I tell them how we're going to use it. And then when we're reading, I call it critical reading skills, of course. And then when they're in discussion groups that give them guided questions. And why? To enhance their critical thinking. And so certainly with all of their writing assignments, specifically their formal essay assignments, I use the word critical analysis. And to me this all relates to critical thinking. You have all these subcategories. So, I incorporate

it in everything from day one in every single thing that we do in class. Okay, question. What effective methods can be used?

Interviewer: To assess?

Interviewee: Yeah, to assess. So, I believe I put this in the first questionnaire, but it's really with the rubrics that I use. Of course, I walk around, I'm listening to how students are discussing in their groups. Hold on, I have one more thing. So, I'll take it from beginning, middle, to the end regarding the assessment. So, the assessment begins with a discussion of questions, but of course it's low stakes. I'm not grading them, I'm just listening to how they are explaining their opinions, how they are using the discussion questions that I'm giving them. And then I would give suggestions. And that is actually an assessment, I think.

Interviewer: Of course, yeah.

Interviewee: Then we go on to something a little bit higher level, which is the activities that I do in class. And you saw that. So, I try to break down how they should use their critical thinking skills to be successful with the formal essay assignment. So that's another way I can assess them because I can see how they are doing the actual activities. So, you saw in my class. What were students working on common grounds, I think?

Interviewer: Exactly. It's a really nice activity, challenging, yeah.

Interviewee: So, I could see how they were using their critical thinking skills with it. And a lot of students had questions, perhaps not during that moment when you were observing, but a lot of them had questions. And then in that way I was assessing, "Ah, okay. So, this concept in which they need critical thinking is still difficult," and then I can review it with the whole class. So, these in class activities are great for the students because they're practicing the critical thinking / academic writing skills that they need to use for their essay, but also it gives me an opportunity to see where I can help them before I actually grade

them for the essay. Because to me it does not make sense to, after they get the essay grade, to say, "Oh, well you should have done this, this, this," and they could've had help. They could've had guidance before.

Interviewer: Mm-hmm (affirmative), I see.

Interviewee: Okay. So then, so again, discussion groups, but really with the classroom activities. And then finally in my rubric I divide the essay by intro, each paragraph, body, paragraph, conclusion, and always it's highlighted, did you critically analyze? For example, do you have a claim? Do you have supporting evidence? Are you analyzing that evidence? And that sort of the critical thinking comes in. So yes, I do assess them on that.

Interviewer: So, the whole experience, how successful? How challenging?

Interviewee: Yeah.

Interviewer: That prevents.

Interviewee: How successful? Oh my. Is your experience teaching critical thinking and writing courses?

Interviewer: It's half the percentages, right? Challenges versus successes, which do you think will gain?

Interviewee: I have to really think about this one, because it's so hard to gauge it. How successful is your experience teaching critical thinking?

Interviewer: I am acquiring student to do it.

Interviewee: To do it?

Interviewer: Yeah, to practice critical thinking, do you think?

Interviewee: Well, okay, in that way I feel I am successful in providing as many opportunities as possible for them to practice and develop their critical thinking skills, but on their end, how much are they acquiring these skills? Even with all the assessments I just told you for the previous question, it just really depends on the student.

Interviewer: Do you see improvements, for example?

Interviewee: I do see improvement, yes.

Interviewer: For example, from assignment do you see a ... the ideas they give, the way they think of these things?

Interviewee: Yes. Yes, I do see an improvement.

Interviewer: So, what is the main challenges, do you think? The main one?

Interviewee: Well, I feel critical thinking goes hand in hand with writing academically. And so, it's the challenges of keeping students engaged, having them believe that it is important to acquire these skills and develop them, and also have them believe that what we're doing in these academic writing courses can actually be transferred to their other courses. So, I think that's a big problem that because these courses that I teach are part of the core curriculum, they're required, they're not part of students' majors. Then the courses are not looked down a little bit.

Interviewer: I know, I know.

Interviewee: Students do notthink they're as important as their major courses, so I know you're asking about critical thinking. The challenges, I feel that I do it, okay? I would say the major ... I'm sorry, I do it. Okay? So, I always provide critical thinking opportunities. So, I do notthink that that's the challenge. But the

challenge is keeping students engaged and having them actually do the activities. So, something that-

Interviewer: To see the point for all of them doing it, yeah.

Interviewee: Yes, but something that I do, and maybe this goes back to another question, is I actually count these in-class activities towards their final essay grade. So, if you're asking me like, "Well how do you get students to practice these?" Of course, I wish every day they'd say, "Oh wow! She has an activity for me." But they have to do them, and an activity might count as one or two points, which seems minor. But if you have six activities, eight activities that students have to practice before the essay, their grade can really drop. So, I hate to say this, but the threat of a lower grade is something that works.

Interviewer: Actually, this is how things go. It's not like you can do anything for it without grading. This is students' minds about grading.

Interviewee: So, engagement, and getting them to practice it, and getting them to see the value. What else was I going to say? So, you asked me if I do see an improvement. I really always think a big improvement I see is how students are sharing their opinions in class. Because from the very beginning they'll just say, "I do notknow. I like what the author said," and then I'm constantly asking "Why? Why?" They have to finish the sentence. And then by mid semester definitely end, they're just automatically explaining why. And I'll even remind them, that's critical thinking. Just explaining why part of critical thinking is. So ...

Interviewer: I might ask you only a final question, because speaking of demographics since it's one question in my PhD thesis. Have you noticed throughout your experience, if we talk about demographics like gender, female, males, any just observation, casual observations? Not that it has to be really not sure of. And if you have a kind of feel among nationalities, just an observation? Because I

know that you probably taught one section or ... like where you have more blockers, or you have more international. So, we cannot have [inaudible 00:11:09], but just in general, how do you evaluate?

Interviewee: That's interesting because that was included in my study. So, here's an example of the fall of 2018, the student population and you can see it's mostly Arab. It's divided from which region. And so, then I talked about in my study, how I do feel that there's this misconception that Arab students do not use their practice critical thinking. That was part of the reason I wanted to do this study. And I'm just going to highlight this. So, you've probably done some research on individualists, versus collectivist societies, and I feel like it's really easy to just categorize students and say, "Oh, you were taught in a collectivist society, therefore you do notwant to challenge people's opinions, etc, etc." And then of course individualists would be from, I'm putting in quotations, "From Western countries," right?

Interviewer: Yeah.

Interviewee: And then there's this very binary view. So, then you're asking me what have I observed? I think it just really depends on what type of education the students had before coming here. But then I also believe it's still supporting the individualist collectivist idea, because I do see often when students are going to a private English school, then they have more of an understanding and practice of what I mean by strong critical thinking skills.

Interviewee: I have not done a study on that, but this is just through my observations and I do notlike that what I'm telling you is supporting this binary concept, and I do feel that that gets in the way of professors. Educators start looking at students from these particular societies, then we do notrecognize how strong their critical thinking skills might actually be. Or maybe we give too much credit to students who come from the individualist societies, because they're so used to sharing their answers in class and so on. It does not necessarily mean that

the other students have lesser skills. And I did not look at gender. I think it just ... it really depends on the confidence of the students.

Interviewer: [inaudible 00:13:30], and I think the way they analyze, right?

Interviewee: But I mean, but just talking about ... oh, I'm sorry. I did not mean to ... I was thinking about sharing ideas in class critically. I cannot actually say that more girls share their ideas than boys. It just really, again, depends on the class makeup, and so on.

Interviewer: Exactly.

Interviewee: But regarding their writing, this is something I know that's been discussed in this region, that a lot of young women, once they come to university, they take their education very, very seriously. A lot more than these boys.

Interviewer: I agree.

Interviewee: And I am going to say, it's a lot of ... again I hate stereotypes, but it's a lot of boys who attended perhaps a public school, and I think they've been coddled a lot and so on. And so, they're just not taking their education seriously. And I'll tell you this also, and students tell me this, and they write about this. It's the way they're treated in their families and society, right? Boys are pushed to go to university. It's expected of them, even if they do nottake it seriously. Whereas for a lot of young women, it seems like it's very important to them because they are going. It's not necessarily expected. Of course, with a lot of students who go to AUS, it is expected and encouraged, but I'm not saying it always necessarily is. So, once they get here, they take it very, very seriously. That's something that I've observed, which would include critical thinking of course, because they want to do well in the course.

Interviewer: Exactly. Thank you.

Interviewee: Is that that? Okay, you're welcome.

Interviewer: Thank you very much. I really thank you.

Interviewee: And honestly, you're welcome to email me with any-

Interviewee 2

Interviewee: Yes, absolutely. I think if you're not teaching critical thinking, what are you teaching them? They have to be able to, especially with a writing course or even with my literature course, the whole thing, the ability that you want them to master and to leave the course with is critical thinking. The ability to look at something, to assess a situation, be that an article, an essay title. You want people to be able to just see something but take a step back from it and assess it from a certain angle.

Interviewer: Excellent.

Interviewee: Yeah. Anyone who's in that will be scoring high, especially in a writing class that's related to let's say a literature piece, you want them to be able to write, maybe and analyze a character, their point of view, how the literature responds to history. Not a summary. We're not looking for people to summarize the story or to just say what happens because that's not what we're looking for in the course. If someone gives an answer that is basically a summary of a plot or something like that, it's probably a D+ at best is what you will get, regardless of the quality of the writing, their grammar, everything may be perfect, but they totally have not got the point of the assignment.

Interviewer: Yeah, I totally agree with you. So, have you tried explicitly to refer, or teach critical thinking in the way that courses that your teaching, or said "Yes, use your thinking.", "Try to do this.”?

Interviewee: I will absolutely.

Interviewer: That's why I say refer, not explicitly teaching, that's what I mean by refer.

Interviewee: I do notthink I would ever say we... I probably would actually say that we have to think critically about this, we have to see this now as literary critics. To be able to see two points of view. To express, okay this character sees this, this character thinks this, especially with something like, we did an essay, or no, it was an exam question on two African American activists. One was kind of looking for full equality and one is looking for a staged level of it, instead of saying one person is right and just agreeing with that, because that's very basic. You want them to be able to say, "Okay, this person says this, this person says this, and the strengths of this character was A-B-C." "The strengths of this character was A-B-C." And be able to take as much as possible an unbiased view of that piece and to be able to come to a conclusion.

Interviewer: That's great actually. If you had the chance to review your writing course service.

Interviewee: Mm-hmm (affirmative).

Interviewer: Are there units that you want to, when you come for example to a new school, you find a new school for you to integrate critical thinking. What are in the literature course or in the writing course?

Interviewee: Well even in my writing course there is... A lot of the writing course is about structure, and maintaining paragraph end doing this as well, but that will only get you again so much that you've ticked this box. Okay your paragraphs are eight to 12 lines. You have an introduction, you have a thesis statement, you have a topic sentence, you have a concluding sentence, you use transitions.

Interviewee: All that is fine, but that's kind of the structure or the tools of the essay, but the content is the most important, your work in between form and content. The

content should be to critical thinking and the form, is that okay? It's looks okay, it's built okay towards again to achieve a high mark from above a C+ I would think, you would have to have some element of critical thinking in it together above a C+, and then to get a B+ and higher. Where we would see it as exceeding expectations, your essay would have to have lots of critical thinking, at least three or four points that show an awareness of the subject or point beyond what someone would normally say.

Interviewer: Excellent. That's good. Okay. How did things... In general, how do you assess critical thinking?

Interviewee: How do I assess it? Would be looking at the ideas or the evidence people bring up. What you would give them. You would give them the material. You would probably give them the framework.

Interviewer: Okay.

Interviewee: The structure is a different thing, it's separate. I do look at structure also in my literature class, you still have to be able to produce it into correct form, but how I'm assessing it is, the viewpoint that they can take, how they can see, "Okay, this character, does this here." It'd be very easy to say, "Oh, this is wrong." If they just take one very kind of definite point, it does not show any reflective thinking and critical thinking or be able to see something or to take that step back into an objective space, where you're trying to be as unbiased as possible.

Interviewer: Okay. If we talk about the tools themselves. For example, do you use... The way you create... For example, do you put a kind of number [inaudible 00:05:20] How do you for example, asses how deep the analysis is?

Interviewee: Well, I suppose, you would look at maybe engaging with secondary criticism, would be one way. Sort of going out there looking at different viewpoints. I always provide secondary criticism as well. Mainly, because I do notwant my

students Googling things and ending up with something like SparkNotes or Wikipedia information on things, so I will give them a recognized literary critic, something that may be a little bit complex, maybe slightly challenging for them, or I'm just looking for them to be able to read. I suppose I'm integrating reading skills here as well, read and look for specific information on the author or on the subject that we're looking for, and if they can do that then that would be a play in the rubric. Then probably under... We're using value rubrics now, so we actually have, critical thinking, which is mapped to our CLO's as well. So, the ability to be able to see something, to identify key information, but also not go beyond and include information that's not needed.

Interviewer: Irrelevant thing.

Interviewee: Irrelevant, yeah, exactly.

Interviewer: Impressive actually. Okay. Now if we talk about your experience with this, how do you assess your experience? How successful it was, it did, and how challenging?

Interviewee: I think at the start of the course, what I always do in my literature courses, I give them a simple basic poem, a basic message. It's a short quiz that's worth 10 marks, and we will analyze that poem in class, so I will tell them, "This is the reference for this, this is what this metaphor means," but I always give them two or three different possibilities. I do notgive them a definite answer. Then in the quiz, I give them the same poem again, because they are... This the first time maybe studying literature and it's blank and they have to reanalyze it. Take out the ideas. This word is a reference. This is, imagine this, this could be this. I also tell them that you do notactually have to come to a definite answer on something, that different things can look different meaning at different time. You have to see it in the time that it was written, and you also have to be able to look back at it with a contemporary viewpoint. So, you're looking at movement between the traditional and contemporary.

Interviewer: Okay. Any challenges that... Sometimes some people say it has to do with the culture. The culture here is a kind of, they like to be in a kind of conformity. Can they come from the general opinion [inaudible 00:07:50]? Have you encountered such a challenge like that?

Interviewee: I kind of really push them in trying to take ideas over. If someone says something, I will maybe say look at another student. "Okay. Do you agree with that? Can you kind of expand on that? Or are there any disagreements with this?" And go and take it that way.

Interviewee: From my academic writing class it used to be like a final project and presentation, and I found that it was just people getting up and reading through slides and doing it. So, this semester what I did was I put them in four groups of six, and the topic was actually on social media and the impact of the individual, the kind of disappearance of the individual. Everyone now conforms to an ideal. So, everyone had to take a point and I would number them one to six in a group and then number one would make a statement. I would maybe make a comment, push them, and challenge them a little bit, and then pass it on to number one in the next group. And go around the room and actually the quality of their answers afterwards was excellent.

Interviewer: Wasn't it challenging? This is a new thing that they are experiencing.

Interviewee: They've responded well to it. I kind of carried that model throughout the class all the way through. I would push the model idea. I do notwant anyone to come up with something like, "The best way to exercise is to go to the gym." Well, how do you know it's the best? Where's your evidence for this? Where are you taking this from? Eliminating sweeping statements.

Interviewer: I think the choice of social media is interesting.

Interviewee: Yeah, because it's relevant to them. There's no point bringing up something like, "Is it important to send your child to preschool?" Because it's not their life experience. You have to bring them content that's relevant to themselves.

Interviewer: But from your observation, who's probably more capable of displaying critical thinking in terms of gender, culture, age? If we talk about [inaudible 00:09:56], not for example in conversations, discussions. What do you think? Any observation.

Interviewee: Well, I suppose just from looking back now I'm teaching here. I would always think that as a general rule, now do notget me wrong I've had some very strong male students as well, but it's almost like I'm feeling maybe it's kind of a cultural thing as well that females here feel more motivated as they're coming out of the shadow of a male dominant society. That would have been before, not now. Things are definitely changing now. But you can see real motivation in females.

Interviewer: I think they want to...

Interviewee: Prove themselves.

Interviewer: Prove themselves

Interviewee: Exactly. And you can really see that they're dedicated, they work hard. If you give them reading to do the majority of them will do that. Males in general can be... They will do well, and they will also score well, but they probably are not maybe working with students as well as some of them who are here, and maybe coming because they have a promotion to get or something. And it's like [hmmm] this is something I said, yeah, this is something I have to do to get to this, but it's not really about like education or really learning.

Interviewer: No.

Interviewee: The males you see lots of them are doing it. Okay. I'm just doing this to get my certificate, my degree at the end. Where the females are like, they're kind of looking for more lifelong learning, I would say.

Interviewer: Excellent. That's it. Thank you.

Interviewee: No problem.

Interviewee 3

Interview Questions

Q1. To what extent do you think that teaching critical thinking skills is important for college students? Justify

Interviewee: Okay, teaching critical thinking is very important for you as a human and to improve your thinking about things in life.

Q.2. Have you ever tried to explicitly refer or teach critical thinking in writing courses?

Interviewee: Absolutely, yes through encouraging them to think of their choices, arguments, keep asking them why? Why not you choose this not that? I also called for challenging students' thinking through bringing in controversial topics into class, yet sometimes especially in such conservative community, people are reluctant to encourage such activities.

So mainly, [yeah] the topics a teacher chooses also helps to explicitly promote students' critical thinking skills [mmm] especially topics of interest for students such as (go green.. social media…) and so on.

Q.3. Upon reviewing your writing course syllabus, in what units/sections/topics might be found useful for you to integrate critical thinking skills?

Interviewee: First, I am not the one who is responsible for writing the syllabus, so if there are things to do for this, I might say assessment of students' critical thinking. We do not have specific ways to measure students' critical thinking skills. Yet, there are specific activities where critical thinking could

be integrated. This is one [hmmm] second I use journal writing to encourage students' critical thinking skills hmmm for example one of the journals was about:

If you had given the chance for one day to change the world, what would you change and why?

So the students had the chance to freely write about things they would like to change paying no attention to grammar and language errors which usually limit their thinking.

Another one at the end was about reflection on their overall experience in this writing course. Students talked about how challenging for them to manage their time.

Such activities where less attention is paid into grammar and spelling mistakes give students the opportunity for students to fully express their opinions. More important, the use of journals helps teachers to tailor discussions into classrooms.

Second even with units that are more about descriptive writing, teachers might encourage students why you chose to describe this item not that item and so on….

Q.4. In your opinion, what effective methods can be used to assess students' critical thinking in writing courses?

Interviewee: Definitely not essay-examination nor the standardized tests, especially those that have MCQs. Critical thinking in nature is subjective, then how an MCQs-standardized test can measure such a subjective element? Formative even embedded assessment is a better option. As I told you before, critical thinking is subjective in nature and unfortunately in our syllabus, there are no criteria for measuring students' critical thinking skills, and therefore, I prefer using reflective journals as an indication of students' critical thinking.

Q.5. How successful is your experience of teaching critical thinking in writing courses?

Interviewee: How successful [mmmm]? Okay It is reflected in their writing because I can see the difference in the way they analyze thoughts and ideas becomes deeper, more examples. I also can see

it in their evaluation when they say comments like this course gave me space to think and support my thinking. In the dedication as well to produce essays well developed and supported in the final exam [ha] all this shows me that there is a benefit from what I am doing.

Q.6. How challenging is your experience of teaching critical thinking in writing courses? Explain these challenges.

Interviewee: Okay, let me think here. It is like any thing you teach.. mmm the biggest challenge is students' engagement. If it is not high, then tell what critical thinking you teach or practice? Useless

Second is time, one semester two classes a week is not enough or let me say it is not enough to tell whether students' critical thinking skills have been improved or not. Also time is mostly spent on language errors and word choice, so two classes a week are definitely not enough.

Another thing is level of motivation, to motivate students to think critically about a certain topic, so I need to revise the topics each semester and see which ones motivated students' thinking and which ones are not.

Q7. From your observation, who is probably more capable of displaying critical thinking in terms of gender, culture, age? What do you think? Any observations?

Interviewee 4

Interviewer: Hi. Nice to meet you.

Interviewee: Nice to meet you.

Interviewer: Q1. So, there are six questions, I hope you'll find them easy, inshallah. So, the first question is to what extent do you think that teaching critical thinking skills is important for college students, and why do you think so?

Interviewee: I think that critical thinking is very crucial at university, because it is where teenagers are shaping their personality. And it's this one opportunity, or the first opportunity that could give them a different perspective from what they are used to back home. Since many of them are at the tender age of 20, or 19 even, and they adopt the perspective of their parents or the friends around them. Yet critical thinking at university can be an eye opener for many students to change the way they see life and tackle issues.

Interviewer: Q.2/ Excellent actually. Good. Okay. Have you ever tried to explicitly, it's an explicit way for teaching critical thinking, or you just refer for it?

Interviewee: Now many of the topics that I teach in academic English can be very daring if you like. I have a text on religion, it talks about Buddha. And I can see that some students are not comfortable sometimes, talking about religion. And I have to sometimes embed in the way I talk that, "I have a friend from that religion," or just to ease off the situation, especially that being a covered Muslim Emirati. I am categorized most of the time of being this Muslim who only want to mix with Muslims. And when I break that mold in front of them and say, "Can we talk about religion? By the way, this is interesting that this philosophy that we have in Islam also resonate with something that happens in Hebrew." And I would have some shocking responses. And I think these shocks are very healthy, just to open the young souls and minds to issues of accepting the other. As you know, it is a very sensitive issue in our society.

Mm-hmm (affirmative).

Another thing was on arranged marriage. And I asked my students, "How many of you are here are in favor of arranged marriages?" And I had only two students and I said, "Okay, very healthy." And that that sarcasm I used is only one way to show them that it's fine to fall in love. I'm not here to judge you. Again, this is part of critical thinking.

Interviewer: Exactly. Exactly. Yeah. That's actually interesting, you know, especially the arranged marriage.

Interviewee: It is.

Interviewer: And okay, the third question is in what units of the syllabus do you think that it's useful to integrate critical thinking skills?

Interviewee: Tell you what [inaudible 00:03:45], I use it every day with students, even with artificial rain that we had last year in Dubai. I say, "Artificial rain. Do you like it? The weather field is weird. It's not raining. It's not hot. It's ... there's a shower of some sorts. What do you think of it?" And even if it's not relevant to my course, I like to shock them. I want them to think all the time, not take things for granted and say, "Oh, it's raining. Oh, it's a nice weather." No, I want them to think whether this is going to affect their breathing at some point or not. So, every time I see them. I need them ... I just want them to think all the time. Sometimes I even test them on things that are known to be healthy. I would say, "Oh, vegetarians, I hate vegetarians." And I just want to see their reactions and and see whether they ... are they in favor? And I want to also say that it's okay not to like vegetarians. You do nothave to have that lifestyle and just pretend that everything is perfect.

Interviewer: Excellent. That means that it's your touches as we can say.

Interviewee: It is. It is.

Interviewer: It's your touches. But the syllabus itself, like is it actually focusing that much?

Interviewee: It is-... that it provides opportunities but it's the person.

Yes. Yes, but I think it is responsibility to shape them. Especially first year students who think that "Oh, I cannot ..." Sometimes I would say something like, "Tell you what, I've been carrying your quiz to four cafes this weekend." In a way to tell them that it is okay to take your work and work in a public place. It is a healthy thing. It's not that daunting. So, I'm trying to build and add to their lifestyles inadvertently without telling them.

Interviewer: Oh, okay. That's good. Q4. In your opinion, question number four, what effective methods can be used to assess students' critical thinking?

Interviewee: Yeah, (thinking)

Interviewer: Do you usually use explicit methods, or is its embedded methods, formative, summative?

Interviewee: No, another course that I used to teach two years ago, was speed communication. And it deals a lot with debate. And I would do use very thorny issues of something about politics or religion or marriage or love. And I'd say, "Okay, so this house should be in favor, and this house should be the opposite." And this ... and the amount of content that I get from the daring, from the other voice that they will not have a space perhaps to express themselves, is amazing. They would say things that are untraditional, could be shocking to their parents, but it is still a very nice space for them to voice their opinion as a new generation. So yes, debating clubs. I think it's a must in every school, every university, every college, even. Debating clubs. Unfortunately, our university here does not care a lot about this. They think it could be a hobby. It could be one of the activities that could be held once a year. When I went to [inaudible 00:07:22], for example, [inaudible 00:07:22] schools, nine schools, most of them, most of the students are well spoken. They can voice their opinion. They would judge someone who, a character in a novel, and say, "He was a rapist. However, he had one, two, three reasons because he needed that thing." So, they can justify.

Interviewer: Oh goodness, yeah, that's good.

Interviewee: Yes, yes. It is. I mean the way they analyze it's so good. Yes, the bigger picture. it's very healthy. Yeah, actually, yeah. Unfortunately, because most of the students who come here are not from these schools, they find it very intimidating to share or to be judged. Even in Valentine [inaudible 00:08:02], I would come with a rose. And say happy Valentine to everyone.

Interviewer: Oh, my goodness how shocking is it.

Interviewee: It is shocking.

Interviewee: Just to say it's fine. It's nothing to do with religion for God's sake. It's just like Halloween. It's not Christmas. It's not Easter. It's just Valentines. You just want to say, I love me today I like to get this jar with lavender and say, "I love me today."Ah yes. Love yourself. And that's simple. Yeah. And so, this is part of critically thinking. Exactly.

Interviewer: I got your point. That's good actually. Before I go to the second question, if we focus on the writing part?

Interviewee: Yeah. Okay. How do you assess do you think critical thinking? Is it for example, by the number of arguments, the number of evidences? I'm just giving your hands so probably you could like ...I would normally ask them to give me two pieces of writing. One piece where they are subjective and they have their own opinion, and the second where they are objective.

Interviewer: Excellent

Interviewee: They need to give me the same justification however, with evidence, without feelings in them. And I think it's very healthy when you ... to build someone who can argue very well without emotions. And when they need their emotions, it's always there for them to use and convince.

Interviewer: Excellent. Sometimes we need the emotion and manipulation.

Interviewee: Indeed, indeed.

Interviewer: Okay. Actually, I think for the next two questions, you answered somehow, I can see some like through our talk. Because we are talking about how successful and how challenging the experience. Five and six are somehow connected. So, let's start with how successful so far, and then talk about the challenges for improving or encouraging students' critical thinking skills, yeah.

Interviewee: Now how successful it is. Now, whenever I get to the evaluation of students at the end of the course, I can see when students say, "Oh, she changed my perspective," or "I feel different," or ... I

can see one or two responses and it's so refreshing for me. Others, thank goodness till this very day, no one came with their parents and say, "Oh how dare you talk about this in class when my daughter's there?" [foreign language 00:10:32] I did not have this.

Interviewer: Okay.

Interviewee: But yeah, the disadvantage is, I have to be very cautious because it's a minefield. Many people come from very different backgrounds that they can be very prejudiced to. Yeah, it can be ... Not every teacher would dare to take initiative as I do. But for me, I do care to change. But if I did not want to really, I want to stay on the safe side, I would not; I would stick with the content most of the time. Because yeah, it can be very risky.

Interviewer: Probably this is a question was like not planned, this is my last question. Have you taught before in a different university, in a different culture, let's say? Like probably in the UAE, but for example say private one

Interviewee: No, but I can tell you from the schools I've been to.

Interviewer: Oh, okay. Yeah.

Interviewee: When people were more relaxed. For me, I went to a private school that was run by Catholic nuns. We used to celebrate Easter, Muslims and non-Muslims. Things were more relaxed. But here, the big disadvantage is that the dominance that we are Muslims. The minorities feel left out most of the time.

Interviewer: Mm. Okay. That's it. Thanks for your timing. Thank you so much.

Interviewee 5

Interviewer: Okay, good afternoon. Do you think we need to teach critical thinking at college?

Interviewee: Definitely. Especially at college level. We definitely have to teach critical thinking, especially for students who are in college [inaudible 00:00:20] why?

Because they will use it and utilize it not just for academic reasons but also professional reasons.

Interviewer: Excellent. That's good. Okay. So, in class have you for example explicitly teach it or for example referred to it or urged students to do it and in case like give me example.

Interviewee: Certain classes especially those that need critical thinking and in addition to analytical thinking, I do explicitly put it in form in the beginning of the semester that they're going to have to use these kinds of skills to go through the assessment and the coursework and activities that you've done. Especially that I do implement many differentiated activities that are not usual.

Interviewee: Maybe not very common or traditional. Maybe because I come from the background of special education and early childhood and youth development. So, I kind of incorporate all of the tactics that I used with children with early childhood and with youth of all levels, and special education, and general education together, so I incorporate that into my classrooms in the university.

Interviewer: Excellent. If I ask you what critical thinking means to you?

Interviewee: To judge an issue objectively and clearly to be able to solve an issue that, an issue, a challenge that students face and systematically solve it.

Interviewer: Yeah, that's good actually. And do you think that there are units it's in your syllabus, the syllabus of honeypots that you feel you need to, for example, you can integrate good copy into them.

Interviewee: Some of the courses do have some units that do need critical thinking. I would say in anthropology. There are many of the activities I implement in class that do need critical thinking because students need to figure out the issue, figure out how to solve it, then figure out how does that issue, maybe the [inaudible 00:03:05] impact the humankind, how can they kind of tackle it? In addition to

that, I do teach some level one or level 100 courses which are like communication skills and study skills so that especially many of the chapters or many of the units do require critical thinking.

Interviewer: Could you, Example?

Interviewee: I think [inaudible 00:03:35] The one I have done in writing, yes. The one in the writing class and the one I did in also stress management and time management class. So, in the writing class, what I did was basically give them challenges, a set of challenges in differentiated ways such as a game or a competition. The same thing I did in time management. So, what they did in writing for example is that we implemented two ways of writing, free writing and structured writing. They had to write in a set timing, nonstop, nonstop.

Interviewee: They had to just write in the free writing, just write whatever comes to their mind. So, what the challenge here are the critical thinking they have to implement here is that figure out how do they, what sense can they make out of the writing they have, and they have exchanged their writing students. So, each student get their mate the writing. So, they have to take kind of the essence of it and figure out how to make sense, not just make sense of it. Yes, definitely make sense of it. And also turn it into a meaningful piece of pride.

Interviewer: That's excellent, actually.

Interviewer: So, the third question or the fourth actually. What effective methods can be used to assess students' critical thinking?

Interviewee: There are many methods to assess. First of all, it may be implementing rubrics and following them, and assessing students in their activities, their assignments, and even in their exams. Sometimes in some questions, some types of questions. It does need the critical thinking. What I do is basically also link critical thinking to, as also reflective thinking. In some questions I incorporate both of them, both of those skills together. So, they, you have to

look at how authentic, the response from the student is, it has to be, it has to show their own reflective thinking, their own objective assessment to the question and how to answer it. To give ideas that are authentic, to give out responses. To me that shows how they analyzed the issue, how they systematically solved the question.

Interviewer: Excellent. So, the last question. How successful is your experience of teaching?

Interviewee: It is very successful with students.

Interviewer: That's good. that's impressive buddy.

Interviewee: I'm telling you it's very successful in means when I do activities, when you're involving the students into an activity that requires their thinking, their reflection. It requires their even kinesthetic activities, so all of that together, it builds up or it forms like this fear of critical thinking. They get very, very excited. But then the challenges when you get into an exam or a regular assessment in class or an activity that does not require kinesthetic learning or kinesthetic responses and does not require or does not include any incentives for them, which is basically fun for them. That's a challenge because sometimes the student is not willing to think, he's not willing to, or they're not willing to make an effort, basically.

Interviewee: I do face challenges in courses like the writing class, especially because it's a very late class. It's an evening class, so by the time of seven o'clock, eight o'clock in the evening, the student just want to get done with the class. They do not respond in the way that you want them to or the way your kind of, like. It's an exhaustive day. They get exhausted, they're not willing to move. They're not willing to.

Interviewer: So basically, it's sometimes

Interviewee: Think on a higher level. Exactly. So, their engagement is less. That's a challenge. Also, the challenge is that we have a period of one hour and 30 minutes, 90 minutes basically, when you look at the 90 minutes, there are 10 to 15 minutes wasted, let's say somehow in the beginning to just take the attendance, get them in place, all of that, and then also 10 minutes to, five to 10 minutes at the end that students are just lost and they're like, okay, time is up, we need to go,

Interviewer: It's eight at night.

Interviewee: Exactly. So, the period of time, the amount of time that we have does not allow for a gap of activity or a gap of letting them have the freedom of thinking, the freedom in time, I mean.

Interviewer: It's only twice a week.

Interviewee: It's only twice a week, definitely.

Interviewer: Final thing, a comment, or an observation, do you think that demographics such as gender, nationalities, age, culture play a role?

Interviewee: Definitely. culture places a huge impact on the way we think, the way we act, the way we even receive information, knowledge, and also issues around us. The way we solve problems, the way we think about them, the way we interact. Basically, it's a triangle of action, reaction, and interaction and that in the sense of your field, or your research is how they act and react towards critical thinking, towards thinking itself, towards how to interact with an issue and solve it and systematically or objectively respond to it.

Interviewer: Thank you, that's it!

Interviewee: Thank you very much. Done.

Interviewee 6

Q1. To what extent do you think that teaching critical thinking skills is important for college students? Justify

Interviewee: In a world heading towards STEM, AI, and technological advancements, I expect that soft skills will serve as the differentiation factor that will make individuals stand out. Critical thinking, being one soft skill, is therefore quite important for college students - who are the future generation. By learning how to think critically, college students will be able to analyze information faster than others and provide new insights and interpretations.

Q.2. Have you ever tried to explicitly refer or teach critical thinking in writing courses? NA

Q.3. Upon reviewing your writing course syllabus, in what units/sections/topics might be found useful for you to integrate critical thinking skills?

Interviewee: Critical thinking may be integrated easily in reading assignments and essay writing. After reading different articles, my students and I discuss the different positive and negative elements in each text ranging from simple concepts like word choice to more complex ideas like evidence used, examples provided, logical fallacies, organization and development, appropriateness of appeals with respect to target audience.

The aforementioned discussion is applied to each reading assignment. When they need to work on their essays, I ask them to think about the aforementioned to apply the critical reading to their own writing; they must consider the strength of their ideas, their development and organization, the validity and relevance. Whether they are writing a paragraph, an essay, or a research paper, they will integrate critical thinking.

Q.4. In your opinion, what effective methods can be used to assess students' critical thinking in writing courses?

A critique essay may be the most direct and effective method to assess students' critical thinking as it is the essay that directly asks students to evaluate someone else's work and critique it by reflecting on the writing process. Before the critique essay, however, students should be familiarized by the concept of jargon and discipline to learn how same ideas and concepts will be dealt with differently in different situations and contexts.

Another more creative and indirect way of teaching them critical thinking is to share a social media post (from instagram, twitter or facebook) and ask students to reflect on the content provided. This will spark a debate with students agreeing, disagreeing, showing content or disrespect. Then students are asked to note down not only their reactions but reflect on why they had such reactions to this post. With a more centered and focused discussion, the students are guided away from their reactions/ emotions to think about and consider the ideas presented by the post and evaluate them more objectively.

Q.5. How successful is your experience of teaching critical thinking in writing courses?

Interviewee: At the beginning of the term, most of my students tend to take things for granted and accept things presented to them without attending to the details presented or without disagreeing or being more critical of the information presented to them. Halfway through the term, most of them realize how important critical thinking is as they learn how to question, evaluate objectively, and consider the different ideas before making a judgement. Even though this is not quickly translated into better writing, their critical thinking skills are definitely much better than it were when they had first taken the course. That slow transfer of information goes back to the nature of writing as a process that takes more time. Nonetheless, taking the aforementioned into consideration, I would say that my experience of teaching critical thinking in writing courses is definitely quite successful.

Q.6. How challenging is your experience of teaching critical thinking in writing courses? Explain these challenges.

Interviewee I truly believe that adding the element of critical thinking in writing courses is what makes the writing experience more relevant to students (especially those specializing in STEM courses). Also, teaching critical thinking lends itself to a variety of activities and discussions that make the class discussion more interesting, vibrant, and `practical. Therefore, I would not consider teaching critical writing challenging; I find it rather entertaining. The main challenge is to choose the appropriate material and have enough background information to provide a proper evaluation. This, however, is our job as instructors.