INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT

OPEN ACCESS JOURNAL

Vol 9, Issue 1, (2020) E-ISSN: 2226-6348

A Mixed Methods Study on Maintaining Problem Solving through Directed Thinking: Implementation and Outcome

Dr. Maroua Rogti

Department of English, Higher College of Teachers, Laghouat, Algeria

To Link this Article: http://dx.doi.org/10.6007/IJARPED/v9-i1/7163 DOI:10.6007/IJARPED/v9-i1/7163

Published Online: 30 April 2020

Abstract

The development and growth of human life may require the individual's ability to solve real life problems. This ability may be ambiguous when it comes to solving difficult and complex problems due to its neglection by traditional problem-solving research in educational psychology. Thinking skills and problem solving ability are very helpful to instruct learners how to solve complex problems and make decisions in the classroom. This study aimed to describe how learners can solve problems through directed thinking in understanding a literary text. Using a quasi-experiment, this study adapts a sample which consists of twenty subjects at Higher College of Teachers of Laghouat who are assigned into two groups for giving one group more treatment than the other. The results revealed that thinking skills of students are effective as they serve as part of the pedagogical interest of most of the subjects who received the treatment methodology in class; also, they pursued more enthusiasm and positive attitudes towards improving their high order thinking skills to solve problems.

Keywords: Thinking and Cognition, Human Consciousness, Problem Solving Skills, EFL Learners, Educational Psychology

Introduction

In cognitive psychology, researchers have identified problem solving models and types of thinking in how to solve problems and make decisions. These are referred to as interrelated mental capacities in which individuals tempt to assess data or evaluate a particular situation. In teaching and learning, addressing and solving problems can be associated with thinking skills and ability to solve problems from the perspective of educational psychology. This sub-field of psychology studies human behavior in educational and learning settings and tempts to assess issues which are related to human behavior through mental processes. For, teaching and learning require high level of thinking skills for helping learners be aware of addressing problems through creative and critical thinking skills regarding learning in the classroom. Teachers and learners may need a potential for addressing problems in teaching and learning, these problems may be associated with thinking skills and problem solving skills which refer to the ability to interpret and evaluate a certain input, information, or argument.

Thinking skills refer to the ability to think and reason reflectively through a self-conscious process using a judgment based on particular criteria to address problems and interpret and assess knowledge. In teaching and learning, learners need to be provided with the necessary

skills to understand what is going in the world such as engaging in critical dialogues and philosophical inquiry by thinking critically in class. In effect, problems in the ELT context require the learner's involvement and their cognitive efforts to address them. In order to achieve a particular goal in learning, learners can pursue adequate understanding through using their cognitive and meta-cognitive skills and strategies. Indeed, solving problems in ELT learning are demanding because of the continuous development and change of human nature. In order to achieve efficient learning, learners should be able to solve problems in education which are related to implementing educational psychology in learning how to understand and address obstacles and difficult issues in class.

Review of Literature

In the English language teaching context, learners can address problems through finding the appropriate strategies and skills. Therefore, they should develop their cognitive skills including creative and critical thinking, and inductive reasoning, in addition to their meta-cognitive competences such self- reflection, self-monitoring, self-judgments, self-assessment, and problem-based learning for solving problems of language learning. These cognitive strategies can be enhanced and promoted through problem solving tasks, planning activities, and decision making through the learning process. According to Waters (2006) thinking refers to a set of mental operations used by learners in the language learning process by related the current knowledge with their prior knowledge through their mind during the learning progress, as it is deeply associated with learning and task-based methodology in which the cognitive process of the learner is developed for meaningful learning.

Cognitive Development of Learning

In teaching English language, we need to develop thinking skills for the sake of solving learning obstacles such as lack of interest, demotivation, lack of meta-cognitive abilities, and anxiety in the classroom. This is typically because learning English as a second language may cause anxiety among learners in class Yim (2014); Darwish, Abdo, & AlShuwaiee (2018) this may require using cognitive and meta-cognitive skills in learning such the learning strategies used in language learning speaking and academic writing tasks including outlining, guessing, self-assessing, and recognizing information. These learning strategies can open the door for thinking skills in learning English language in class. The Strategy-based Instruction and Task-based Instruction in teaching English can relate the learner's learning experience with their own learning strategies and learning style through instructional strategies and basic skills in order to assume responsibility for achieving self-guided learning through solving language learning problems. Cameron (2001), therefore, it is an appropriate example to contribute to achieving self-directed learning through increasing the ability to solve problems in light of conscious knowledge and the in the learner's practical life and experience.

The thinking process of the learner can be highly fostered by English language teaching tasks which require the learners' cognitive and meta-cognitive strategies to complete tasks. As Ruggiero (1988) views thinking as a mental activity which contributes to solving problems, looking for answers, constructing meaning, and making decisions. Indeed, thinking is the center of all cognitive processes; as it refers to analyzing information transmitted through the learning environment and creating meaning by relating it to prior and existing knowledge.

According to Dewey (1916), thinking is a tool for intelligent learning as he claims that "thinking originates in situations where the course of thinking is an actual part of the course of events and is designed to influence the result….the object of thinking is to help reach a

conclusion, to project a possible termination on the basis of what is already given" (p.154) thinking is therefore is a process of inquiry, of searching for everything which goes into our minds. In learning any material in class, teachers may offer learners something to do, not something to learn for the aim of learning by doing which is seen by Dewey (2001) as:

Such a nature as to demand thinking or the intentional noting of connections; learning naturally results. That the situation should be of such a nature as to arouse thinking means of course that it should suggest something to do which is not either routine or capricious—something, in other words, presenting what is new (and hence uncertain or problematic) and yet sufficiently connected with existing habits to call out an effective response. An effective response means one which accomplishes a perceptible result, in distinction from a purely haphazard activity, where the consequences cannot be mentally connected with what is done. The most significant question which can be asked, accordingly, about any situation or experience proposed to induce learning is what quality of problem it involves (p.160-161)

Thinking skills involve creative and critical skills, as Dewey (1933) believes that thinking can be promoted through attitudes and believes: "there should be harmonious relation among belief, attitude, and responsibility with thinking. The ability to think is very important in the life of human beings which distinguishes them from animals. Thinking enables us to solve any critical problems and to achieve future plans" (cited in Kadel, 2014, p.59) Indeed, creative and critical skills are viewed as higher order skills which are generated in sciences, mathematics and technology, as they are also developed in the language courses to ensure the extent to which learners hold basic skills of learning, particularly creative and critical thinking skills. As Dewey (2001) contends that:

A pupil has a problem, but it is the problem of meeting the peculiar requirements set by the teacher. His problem becomes that of finding out what the teacher wants, what will satisfy the teacher in recitation and examination and outward deportment. Relationship to subject matter is no longer direct. The occasions and material of thought are not found in the arithmetic or the history or geography itself, but in skillfully adapting that material to the teacher's requirements. The pupil studies, but unconsciously to himself the objects of his study are the conventions and standards of the school system and school authority, not the nominal "studies. " The thinking thus evoked is artificially one-sided at the best. (p.162)

Higher order thinking skills are essential in English teaching and learning as they contribute to helping learners improve their performance, actions, and reactions in dealing with real life situations. As Bruce (2002) claims that "successful learning programs should not merely focus on teaching information skills, but they should also focus on designing learning experiences that require the use of information skills" (cited in Jaganathan & Subramaniam, 2016, p.276) For, the pedagogical impact of incorporating thinking activities in language teaching is a challenge for learners to generate higher order thinking skills in their learning tasks. For example, the theory taxonomy of Bloom concerning cognitive thinking skills in the teaching and learning approach refers to the levels of thinking such as knowledge, comprehension, application, analysis, synthesis, and evaluation. Crawford (2005) asserts that: "there is a need to teach students to utilize and manage their academic resources scholarly. The implementation of higher order thinking skills therefore needs to be taught from the beginning of executing of assignment so that the students acquire good skills to be able to retrieve relevant information, critically evaluate it and use it in an ethical manner in both assignments and their professional life" (p.24) These activities are required nowadays as learners look for acquiring knowledge to complete language tasks.

As Bloom believes that activities of thought can help learners manipulate and apply knowledge in a creative manner to solve problems, look for solutions and face challenges. Bloom (1956) In addition, learners need to exercise further manipulation to incorporate higher order thinking skills in learning tasks including feedback and questioning the class, cooperative learning, peer assessment... etc. Kings et al (1998) considering language learning as a tool and learning a subject as a goal for achievement develops thinking skills. Thinking incorporates many thinking activities such as creative and critical skills. Creative thinking, for instance is a tool for helping learners solve problems through recognizing some techniques and ideas by developing the learners' cognition intuitively and analytically. Learners can create creativity through motivation and self-confidence for cognitive development and therefore they can be self-directed learners.

Creative thinking can be generated through various strategies and tools. As Kadel (2014) asserts: "there are some strategies to enhance creative thinking, such as forcing uncommon responses, using free association, using analogy, looking for unusual combination, visualizing the solutions, constructing the pros and cons of arguments, and constructing relevant scenarios" (p.59) creative thinking skills can be developed through teaching materials and involvement in the syllabus as learners' creativity can be affected by their learning styles and strategies, self-confidence and self-esteem. Rao (1990) suggests how learners' creativity is developed and promoted in class through tolerance, sensitivity to environmental stimuli, developing criticism, and encouraging language acquisition and self-expression. (p.270)

Critical thinking, on the other hand tempts to monitor a creative work and socialize learners through cognitive development. It helps learners develop their meta-cognitive skills by making them think about their learning themselves. Foster & Pikkert (1996) refer to critical thinking as "a higher order thinking skill which is required to evaluate, reflect, judge, criticize, and analyze in course of learning and problem solving activities" (cited in Kadel, 2014, p. 60) Bailin (2002) views critical thinking as "a series of discrete steps or skills, and that this misconception stems from the behaviorist's need to define constructs in ways that are directly observable. According to this argument, because the actual process of thought is unobservable, cognitive psychologists have tended to focus on the products of such thought—behaviors or overt skills" (p.290)

Learning should be active as it should be centered on judgment which is referred to as reflective thinking by Dewey (1910) therefore "judgment allows the critical thinker to analyze all of the facts, determining whether they are facts or not, relevant or not, and synthesize the appropriate factual information into a whole. To fully exercise a judgment, it is necessary to maintain an open mind along with a healthy skepticism" (Sanders & Moulenbelt, 2011, p.40) In addition, critical thinking in education is identified by Ennis (1962) as "the correct assessing of statements" as he suggests three dimensions of critical thinking "logical, criteria, and pragmatic" (p.84) As McPeck (1981) claims that critical thinking is a skill which should always be about something: "critical thinking neither refers to nor denotes any particular skill. It follows from this that it makes no sense to talk about critical thinking as a distinct subject and that it therefore cannot be profitably be taught as such" (p.05)

In his definition, McPeck refers to criticizing the subject knowledge and also the desire to solve problems which may be encountered. As Cotton (1991) indicates "if students are to function successfully in a highly technical society, then they must be equipped with lifelong learning and thinking skills necessary to acquire and process information in an ever changing world" (cited in Karakoc, 2016, p.82) For, in order for teachers to be able to generate critical

thinking skills into their classes, they must first be directed to critical thinking and its philosophy.

In the late 1980's, learners' cognitive process including problem solving activities and thought have been used in the language teaching class to stimulate active thinking and develop communication skills and knowledge; as Waters (2006) claims that: "being familiarized with a problematic in class can raise a set of questions and assigning of tasks is an efficient part of education for the sake of conveying instruction in class. For, problem solving is introduced as a main issue of thinking skills in the literature of thinking skills in the English language teaching context. (p.46)

Problem solving activities require the learner's involvement in cognitive processes in which they resolve a gap between a situation and a particular goal, with the way to the goal blocked by known or unknown obstacles. Problem solving process involves an Input in which a problem is addressed and making an attempt to understand the situation or problem; also a processing stage in which alternatives are evaluated and a solution is chosen. After that, an output is created which includes planning for the solution and implementing it. Finally, the solution is verified and evaluated. (Dewey, 1933; Polya, 1971)

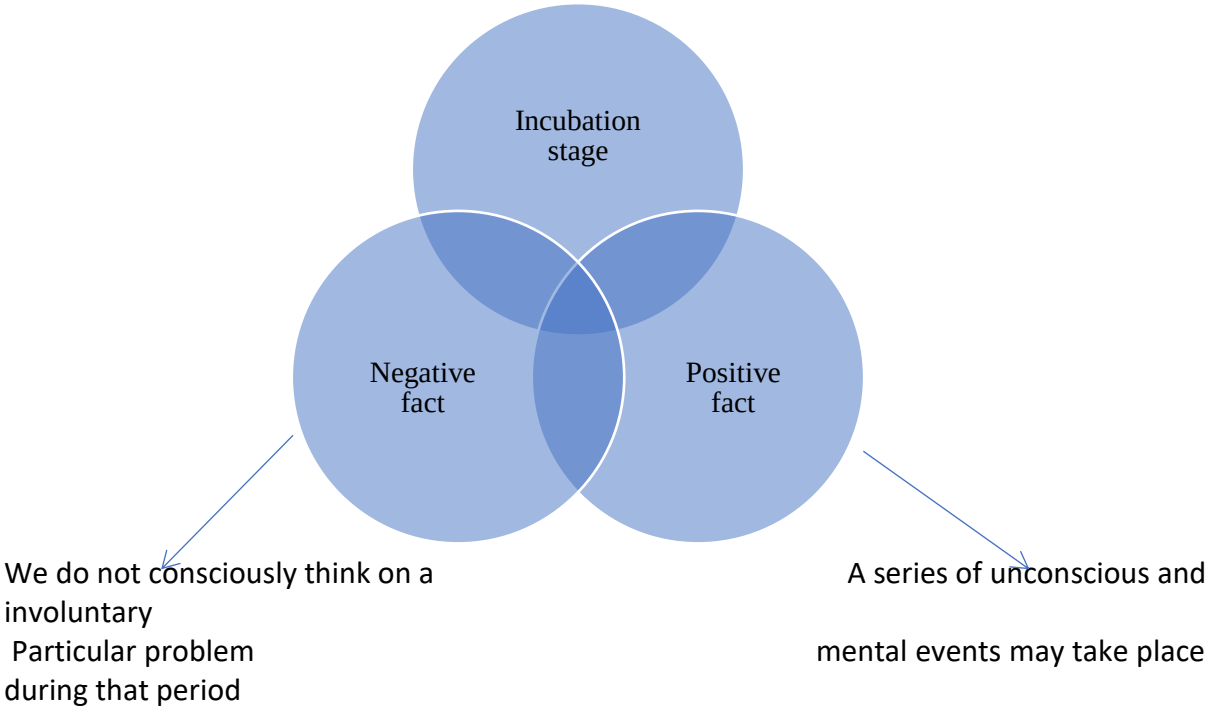
The Learning Creative Process: A Proximity to Consciousness

This research relates a model of the problem-solving process to Wallas' theory of Proximity to Consciousness and creative process. He suggested the role of human unconscious and conscious mental processes in mathematical creation, and the creative process of solving problems through directed thinking in learning. He suggested the levels of proximity to consciousness which are non- conscious, conscious, focal conscious, less conscious and fore-conscious states as "being associated with increased occurrence of visual images, whilst in conscious mental work verbal processes are to the fore" (Wallas, 1926, p.72) The involvement of thinking and enhancing creative thinking can be generated through mental and physical ability and experience, as Dunn et al (2010) claims that "distraction, mental relaxation, and physical exercise help to control Incubation and facilitate Illumination. Becoming more aware phenomenological of sensibilities and creative intuitions as they arise focuses attention on Intimations" (p.1842)

Thought and thinking are activities which refer to recognizing and changing information or stimuli which are stored in memory to create new information. The units of thought can be visual images and mental representation of thought, as they can be symbols such as sounds, meanings, and concepts. In fact, directed thinking is a systematic approach which refers to fulfilling a particular goal while solving problems is based on symbols and rules for achieving that goal. Indeed, solving problems through directed thinking can occur through a set of stages which require conscious thought and cognitive efforts. According to Wallas (1926) the first stage of the creative process in learning is the preparation stage in which the learner or thinker acquires declarative or procedural stimuli in the area of the problem.

This preparation demands awareness that there is a problem to be solved and needs problem-solving attitudes and appropriate analysis of the problem itself. The thinker then moves to the verification stage if he can produce a correct solution. He tempts to confirm tentative solution or recognize that is incorrect. The thinker then moves to the incubation stage in which a problem solving activity is interrupted. The thinker may shift his attention to some other problems, or take a break by not thinking of any problem at all.

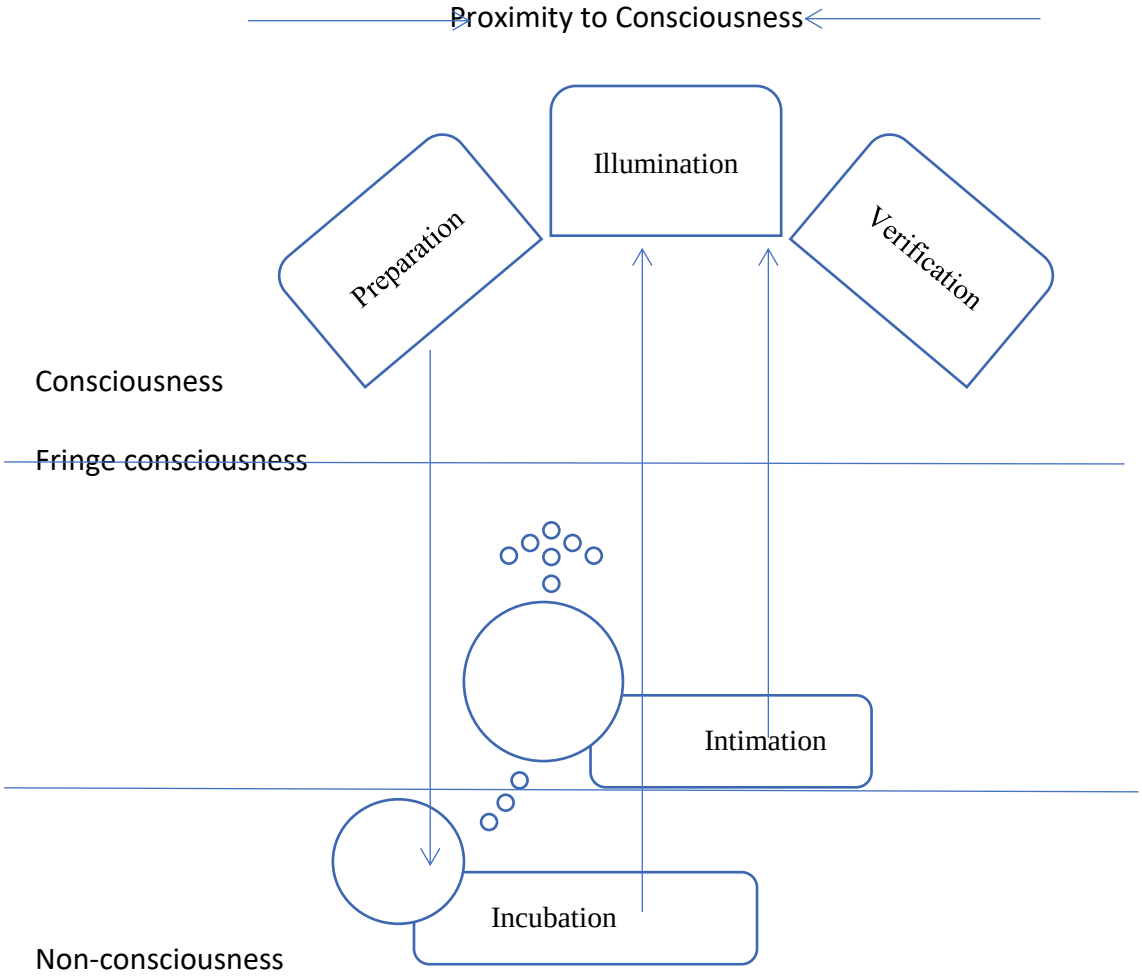
Figure 01 Incubation (Adapted from Wallas, 1926, p. 28)



The solution of the problem suddenly appears in the consciousness of the thinker during the incubation stage. The intimation stage comes after the incubation stage in which the thinker is recognizes that there is a solution, although he doesn't know what that solution is. Bowers (1994) the word intimation refers to intuitions which are a form of meta-cognition which they reflect the learners knowledge about their cognitive processes. In the context of problem solving, meta- cognitions or intuitions are represented by feelings of warmth and thinker believes they are close to a solution even if they are not sure about the solution they have. While in the context of remembering, they are revealed through feelings of recognizing where one believes that he remembers something even he is not aware of what he knows.

Wallas' psychology draws on the process of association which goes back to Aristotle's philosophy. The aim of this process is to portray the dynamic processes which operate between consciousness, non-consciousness, and fringe consciousness which holds awareness of a train of association in a situation of rising consciousness which portrays that the flash of consciousness will be reached. Finally, the verification stage in which requires conscious efforts by validating and evaluating ideas.

Figure 02 The Creative Process in terms of Levels of Consciousness (Wallas, 1926, p. 46)



Indeed, creative thought requires preparation by creating the conditions for Incubation to proceed, allowing Intimations to arise as naturally and freely as possible, capturing their essence without interfering with their progress towards the final Illuminative moment, and the objective and aesthetic Verification of the creative value of final outcome. Wallas tempted to reveal the interplay of consciousness, fringe consciousness, and non-consciousness in the creative process, the dynamics of which constitute a modern interpretation of the art of thought. Finally, integrating problem-solving with creative and critical thinking refers to the ability of using knowledge, and eliciting data to effectively solve problems. This does not mean someone needs to have an immediate solution, it means they have to be able to think on their feet and find solutions. Matthews and Lally (2010)

Aim of the Study

When EFL learners are engaged passively by being receivers of knowledge through drills, memorization and recalling knowledge, it may be difficult to direct them in active learning settings which require the role of the learner more that the teacher, meta-cognitive skills, and critical thinking ability Brown & Kelley (1986). For that, teachers should be aware of learners' responsibility for learning and allow them to achieve self-guided learning by creating their own learning atmosphere and think through answering questions and solving problems. For example, assessment techniques, problem-based methods, creative discussion, and graded assignments can help learners engage in active learning and critical thinking opportunities by motivating them in class. Ladyshewsky (2006) the aim of the study is to diagnose the effect

of implementing thinking skills on students so that they can be able to solve problems and find answers to problematic issues in the language class. This study indeed, seeks answer to the question of the extent to which directed thinking skills contribute to increasing EFL learners' ability to deal with problems and answer difficult questions in class.

Methodology

The study adapts a mixed methods design which integrates both qualitative and quantitative data collection and analysis for the sake of answering confirmatory questions. Besides, it uses a quasi-experiment for achieving the aim of the study and views the differences between two comparable groups who receive different treatments. The study was carried out with the effect of directed thinking on EFL learners' ability to solve certain problems in class through thinking strategies and skills or higher order thinking skills. The sample of the study was third year students of higher College of Laghouat during the academic year 2019/2020, the subjects of this study amounted to 20 students who are all female students. By dividing the sample into two groups, each receiving a different teaching methodology and treatment which lasted for two sessions for each group, one group EG is accustomed to direct thinking skills while the other group CG is directed to memorizing and recalling information.

For problem solving, the researcher tempts to use Bobkina & Stefanova (2016) and Facione (2007) aspects of thinking through which the EG work through a task by responding to a set of questions asked by the teacher by identifying, analyzing, interpreting, reasoning, critical awareness, inter-culturality, and self-correcting for the sake of answering the problematic. The aim of EFL teachers is to uphold critical thinking skills in their classrooms to make their students percipients of knowledge, but as users of information. This Learning atmosphere will actively engage them in using that information and applying knowledge will promote their critical thinking abilities. However, critical thinking requires cooperative work, training, and practice. Students may initially resist these techniques if they previously have had the habit to remember information and not think about what they know, however, their critical thinking abilities can improve and they can critically think for themselves and solve real life problems.

The thinking skills were measured using analytical questions to be answered after reading the contemporary short story entitled *Finishing Touch* (2014) by Claire-Louise Bennett with notions of critical and creative skills adapted from Facione theory (2007) through analyzing, interpreting, evaluating, identifying, explaining, and listing measure and from self-reflection, intercultural awareness, critical awareness, reasoning and problem-solving and from Bobkina & Stefanova (2016) model of self-reflection, intercultural awareness, critical awareness, reasoning and problem solving skills. The students read the opening chapter of the story and were accustomed with answering questions through critical analysis.

The instrument for measuring and testing those thinking skills is a classroom observation with a range of scores from 1-5. Using 10 criteria of thinking skills conducted for answering the analytical questions on the text during the experiment to complete the observation sheet, each statement was scored on a tape of 1 (low, not very involved) to 5 (intermediate, very involved, and excellent). Thus, the highest possible score was 20 on any one statement during the treatment. One each statement, the researcher circled one number (from 1 to 5) with the average mark of 3 on any statement.

Analysis and Discussion

After collecting data in a descriptive way, the researcher comes to analyze it quantitatively in order to classify the research variables: thinking skills and problem solving activity and measure them through ordinal scale measurement. The study consisted of the students' perception of their own critical thinking skills and how they helped them solve problems, as we tempted to analyze their perceived improvement of their critical thinking skills. Both groups have been administered through treatment in studying the literary text with CG dealing with analysis through listening to the teacher and analyzing the themes together and through content-based assessment whereas EG students dealt with critical analysis through questioning techniques while seeking for answers to the questions.

Table 01 shows the variation between the CG students' perceived problem solving ability after having carried out the suggested methodology of teaching.

Table 01

CG students' Average scores of their Problem solving ability

Criteria	Week 01	Week 02
Analyzing	1	2
Reasoning and Problem solving	2	3
Interpreting	2	3
Cultural awareness	2	2
Self-assessing	1	2
Average group score	1.6	2.4
Total group Average score	1.6+ 2.4= 4 (out of the highest score) 4/2=2	**2<3**

The results show that all the CG students didn't show high involvement in perceiving their problem solving competence between the levels 1 (low), 2 (not very involved) and level 3 (intermediate) after dealing with the literary text. It is clear in session one that the whole group considered their level of self-assessment, reasoning and problem solving, interpreting, and cultural awareness as below intermediate all scoring from 1 to 2, while in the second session, they scored between 2 (not very involved) and 3 (intermediate) resulting in the final score of 2.4. Reasoning and problem solving and interpreting skills scores increased affirming that most of the participants have the ability to interpret and solve problems through questioning techniques. Besides, the total percentage of the overall students' motivation and performance in CG was estimated with an overall average session score of 2 <3 as the lowest score Based on the above data and information elicited from the observation sheet obtained by the researcher, we can claim that the level of the students' ability of solving problems is not highly developed when they are familiarized with questioning techniques by relying on the teacher's impressions in teaching methodology.

The EG students results are revealed in Table 02 where the variation between students in perceiving problem solving competence after having working with the literary text.

Table 02

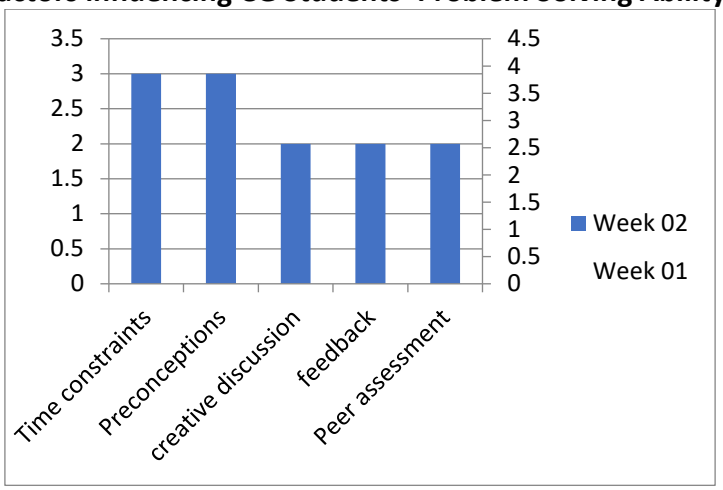
EG students' Average scores of their Problem solving ability

Criteria	Week 1	Week 2
Problem solving	3	5
Interactive feedback	2	4
Heuristic techniques	2	4
Self-reflection	3	5
Team work	2	4
Average group score	2.4	4.4
Total group average score	2.4+4.4= 6.8 (out of the highest score) 6.8/2= **3.4** > **3**	

The EG results highly increased from session 1 to session 2 because all the CG students were highly involved and developed their problem solving competence through directed thinking. Between levels 3 (intermediate), 4 (very involved), and level 5 (excellent) and after dealing with the literary text. It is clear in session two that the whole group considered their level of problem solving and self-reflection as above intermediate all scoring from 4 to 5, resulting in the final score of 4.4. Problem solving and self- reflection scores increased because they serve as part of the abilities of most of the participants. The total percentage of the overall students' competence in EG was estimated with an overall average session score of 3.4>3 as the lowest score Based on the above data and information elicited from the observation sheet obtained by the researcher, we can state that the level of the students' ability of solving problems is highly developed when they are familiarized with heuristic techniques and higher order thinking skills by thinking creatively and critically to solve significant problems.

Graph 01 shows the level of factors which can influence, impact, or keeps CG students from increasing or showing their competence and ability in dealing with the literary text through analysis, interpretation, and self-assessment. The factors are time constraints, pre-conceptions, creative discussion, feedback, and peer assessment which can help in either increasing the students' problem solving ability in dealing with Bennett's literary text *Finishing Touch* (2014), the results of the observation sheet are stated as follow.

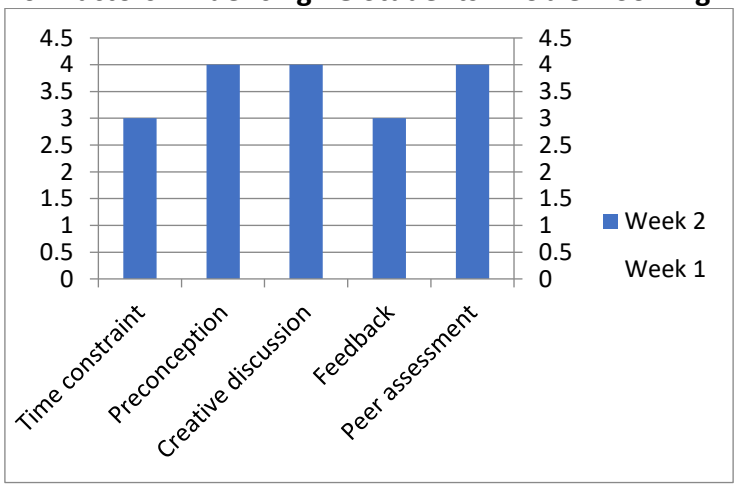
Graph 01 Factors influencing CG Students' Problem Solving Ability



The level of influence of each factor is referred to as numbers from 1 (low) 2 (intermediate), 3 (high), to 4 (excellent). The results show that time constraints and feedback were high and impacted the ability of students' problem solving, wish 4 (excellent) and 3.5 (between high and excellent) as they increased in the second week when most of the participants' competence increased in analyzing and interpreting the themes of the story. For EG students, the level of influence of the above factors increased more than those of the CG because they pursued high level of interest and involvement due to the use of high order thinking skills.

Graph 02 below reveals the level of influence of time constraint, preconceptions, creative discussion, feedback, and peer assessment on EG competence in using high order thinking skills.

Graph 02 Factors influencing EG Students' Problem Solving Ability



According to the results shown in the graph, we can see that most of the factors highly impacted the level of the EG ability to solve problems through high order thinking, as all the factors' level scored between 3 (high) and 4 (excellent) while time constraint scored as 3 (high) in both sessions due to lack of time management in class. Finally, we can say that most of the participants of the EG hold positive attitudes towards learning a literary text and dealing with critical analysis and interpretation by increasing the ability of solving problems through directed thinking.

Conclusion

This study tempted to investigate the effect of solving problems through directed thinking in an EFL classroom in Algeria. It has provided valuable data about the benefits and challenges in implementing a particular teaching methodology on which the investigation is. The analysis of the data revealed that the great potential of dealing with the literary text in the classroom to foster problem solving opens up the possibility for implementing a long-term project in order to increase the impact of the suggested methodology of teaching and develop successful tools for teachers to use on a continuous basis. Considering the research question of the extent to which directed thinking skills contribute to increasing EFL learners' ability to solve problems in class, the findings demonstrated that EG students who have been directed to high order thinking skills pursued high level of understanding of the story which appeared in their observation sheet average scores. The study concluded that creative thinking, critical thinking, and self-reflection serve as an integral part of the suggested method of teaching. This result seems to be deeply persistent with other research findings that confirm the benefits of problem-based learning at the higher educational level, which proves to increase the learners' ability to solve a variety of problems during the accomplishment of tasks, notably in literacy classes. There are various techniques, strategies and teaching approaches which the literature suggests to improve teaching English language and literature. These strategies and techniques can contribute to stimulating language skills and thinking abilities such as analyzing, synthesizing, interpretation and self-reflection. Therefore, the integration of thinking skills and teaching English to young learners is an important effort in English as a second language education, as it serves to be a highly consistent issue in directing EFL learners in active learning situations through developing their meta-cognitive competences in class.

Author Information

Maroua Rogti, BA, MA, PhD. Lecturer, Department of English Language, Teachers Higher College of Laghouat, Street of Martyrs, Station Post: PO Box: 4430 Laghouat, Algeria.
Email: m.rogti@ens-lagh.dz

References

Bailin, S. (2002) Critical Thinking and Science Education, *Science & Education*, *11*(04), pp. 361-375

Bobkina, J., Stefanova, S. (2016). Literature and Critical Literacy Pedagogy in the EFL Classroom: Towards a Model of Teaching Critical Thinking Skills, *Studies in Second Language Learning and Teaching*, *06* (04), pp. 67

Bowers. (1994) *Tracing Symbol Naming Speed's Unique Contribution to Reading Disabilities over Time,* no publisher, paper submitted for Publication

Brown, M., & Kelley, S. M. (1986) *Asking the Right Questions: A Guide to Critical Thinking*, 7th ed. Englewood Cliffs, NJ: Prentice Hall

Cameron, L. (2001). *Teaching languages to young learners*, Cambridge: Cambridge University Press.

Darwish, S., Abdo, H., & AlShuwaiee, W. M. (2018). Opportunities, challenges and risks of transition into renewable energy: the case of the Arab Gulf Cooperation Council. *International Energy Journal*, *18*(4).

Dewey, J. (1916) *Democracy and Education*, New York: Macmillan

Dewey, J. (2001) *Democracy and Education, Pennsylvania*: The Pennsylvania State University

Dewey, J. (1933) *How we Think: A Restatement of the Relation of Reflective Thinking to the Educative Process.* Chicago: Henry Regnery

Ennis, R. H. (1962) A Concept of Critical Thinking: A Proposed basis for Research in the Teaching and evaluation of critical thinking ability, *Harvard Educational Review*, *32*, pp. 81-111

Ennis, R. H. (1987) *A Taxonomy of Critical Thinking Dispositions and Abilities,* In *J. B. Baron & R. J, Sternberg* (Eds), *Series of Books in Psychology, Teaching Thinking Skills: Theory and Practice*, pp. 09-26, New York, US: W H Freeman

Facione, P. A. (2007). *Critical thinking: What it is and Why it Counts*. Milbrae, CA: The California Academic Press

Jaganathan, P., & Subramaniam, I. (2016) Language Courses, Transversal Skills and Trans-disciplinary Education: A Case Study in the Malaysian University, *International Journal of Education and Research, 02* (2) pp. 83-92

Kadel, P. (2014) Role of Thinking in Learning, *Journal of NELTA*, *04*, pp.57-63

Karakoc, M. (2016) The Significance of Critical Thinking Ability in Terms of Education, *International Journal of Humanities and Social Science*, *06* (07), pp. 81-84

Khomenko. (2008) The Development of Inventive Thinking Skills in the Upper Secondary Language Classroom, *Think Skills Great, 03*(01), pp. 34-46

Ladyshewsky, R. K. (2006). Peer coaching: A Constructivist Methodology for Enhancing Critical Thinking in Postgraduate Business Education. *Higher Education Research and Development, 25* (01), pp. 67-84

Matthews, R., & Lally, J. (2010) *The Thinking Teacher's Toolkit: Critical Thinking, Thinking Skills and Global Perspectives*. London: Continuum International Publishing Group

McPeck, J. (1981) *Critical Thinking and Education*, Toronto, Ontario, Canada: Oxford University Press

Peter, A., Frensch, J. F. (2002) *Thinking and Problem Solving, in Psychology, from Encyclopedia of Life Support Systems*, Oxford: Eolss Publishers

Rao, S. (1990) *Educational Psychology*, New Delhi: Wiley Eastern Limited

Roggiero, R. (1988) *Teaching Thinking across the Curriculum*, New York: Harper & Row Publisher, Inc

Sanders, M. (1966) *Classroom Questions-What Kinds?* New York: Harper & Row

Tehrani, H. T., & Razali, A. B. (2018) Developing Thinking Skills in Teaching English as a Second/Foreign Language at Primary School, *International Journal of Academic Research in Progressive Education and Development*, *07*(4), pp. 13-29

Waters, A. (2006). Thinking and language learning, *ELT Journal, 60* (04), pp. 319-327

Yim, S. Y. (2014). *An Anxiety Model for EFL Young Learners: A path Analysis System, 42* (01), pp. 344-354.