Teachers' critical thinking dispositions through their engagement in action research projects: An example of best practice

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Abstract—**Critical Thinking is considered an essential component of education given its potential to enhance students' development at an academic, value-related and moral level. Teachers' critical thinking dispositions may be utilized in school settings in order for them to design teaching practices that are focused on the cultivation of students' critical reasoning. The current qualitative study aims to explore teachers' Critical Thinking dispositions as they emerged through an action research project carried out in Macedonia, Greece involving semi-structured interviews and a focus group. Three major subject areas were explored including resilience, peer mediation and citizenship education. Ten teachers of primary education and three teachers of secondary education (Lyceum) participated in the study. Qualitative data findings have suggested that teachers exhibit certain Critical Thinking dispositions which will inform teaching interventions to be designed and applied during this specific project.**

Key words—Critical Thinking, resilience, peer mediation, citizenship education, action research.

I. INTRODUCTION

Today's world is characterised by ongoing change at socio-economic, scientific, technological, political and cultural levels. In order for students to better cope with the instability resulting from a dynamic and fluid environment, they require enhanced skills in developing positive self-esteem, inner security, harmonious communication and awareness of their rights and obligations. On the other hand, schools usually prioritize academic performance and strive for the development of cognitive skills –mainly of linguistic and logical-mathematical intelligence– while underestimating the future need for skills with moral, emotional and communicative dimensions. Nevertheless, apart from knowledge related to various subject matters, the mission of school is to provide value education for learners, thus contributing to their moral and democratic education. This attainment is aligned with the so-called 'double assignment of schools' [1,2, pp. 154-156], which entails that 'teachers need to teach not only the subject matter itself; they need to teach in a way that complies with a set of overarching value-related goals as well' [2, p. 155]. Among these values, moral personality as well as responsible and democratic attitude to life is of major importance both outside and inside school settings.

Students starting from primary education until Lyceum should have an opportunity to develop their identity and learn how to 'get involved' in society [3]; to give meaning to life and develop a sense of agency; to consider conflicting values, participate in value-oriented discourses and be involved in establishing and even altering normative moral rule systems; to examine their perceptions, beliefs, attitudes and values concerning the problems they are opposed to; and to contribute to evolving democracy and sustainability in a global world. These compelling necessities aim at the emancipation of the new generation, the acquaintance of valid knowledge and the preparation for life.

The challenge of responding to these necessities presupposes, among other things, the development of higher-order thinking skills on the part of future citizens. Deriving from Aristotle' s philosophy and examined within a variety of fields, the ability of Critical Thinking (CT) has been continuously expanded to encompass more and more areas of thought in our times.

II. BACKGROUND

Although CT is unfairly portrayed as cold and unemotional, it often entails the skill to "see" issues from the perspective of other individuals, thus including empathy, value setting, communication and understanding as a way to alter emotional responses [4]. In this regard, the Delphi Report –the culmination of work by experts from the American Philosophical Association (APA)– argues that educating strong critical thinkers requires a combination of "developing CT skills with nurturing those dispositions which consistently yield useful insights and which are the basis of a rational and democratic society." [5, p.3]. CT dispositions are represented

as equally significant to the ability to perform CT skills, whilst the majority of research in CT field focuses only on skills [6]. Furthermore, disposition towards CT may be explored when teaching and using CT skills [7].

In the APA Delphi Report seven dispositions are conceptualized: inquisitiveness, open-mindedness, systematicity, analyticity, truth-seeking, CT self-confidence and maturity. **Inquisitiveness** refers to one's will to learn even when application of knowledge is not readily seen. **Open-mindedness** correlates with tolerance to divergent views and concern over the possibility of personal bias while **systematicity** with organization as well as attentive and persistent inquiry. **Analyticity** is associated with the importance of reasoning and the use of evidence in problem solving, by being aware of the difficulties while simultaneously recognizing the need to intervene. **Truth seeking** concerns willingness to search for the best knowledge, courage when asking questions and honesty in inquiry. **CT self-confidence** represents one's trust to their reasoned judgments and inclination to rationally lead others to problem resolution. Finally, **maturity** can be attributed as one's awareness of problematic situations in decision making and problem solving, the possibility of more than one option and the cognizance that judgments should sometimes be made on bases that exclude certainty [7, p.4].

When CT dispositions are related to cognitive developmental moral psychology, they can create a morally educative social climate within the school context. This dimension focuses on the development of moral reasoning and action that is philosophically autonomous, far from techno-bureaucratic strategies of problem solving. It also encourages students to democratically express personal opinions, supportive or divergent viewpoints, as well as to share and debate points of reasoning challenged by a difficult-to-resolve conflict [8].

Recognizing the need for CT applies not only to students but also to teachers, especially when they deliver initiatives which make the complexities of their profession visible and build their capacity around an enhanced understanding of their own teaching. It is a teachers' responsibility that students develop their willingness to engage in the effortful work of developing and applying CT skills. This entails the capacity on the part of students to recognize which skills are likely to be useful, to have at their disposal a repertoire of skills to select amongst, as well as self-knowledge to monitor any progress on the task. Students should be able to develop capacity for sound understanding and judgment through deliberation. Teachers should be competent to sharpen, as Aristotle maintains, both understanding and practical wisdom [9, pp. 62-63].

While discussing topics relevant to critical reasoning in classroom, it is considered conducive for teachers to encourage a disposition for investigation into the topic at hand, using critical questioning to elicit assumptions rather than information, and also to promote arguments, evidence, counter-evidence and other components of CT; in a word, to make the connection between developmental epistemology and critical thinking [10, pp. 101-121]. Furthermore, in addition to teachers being specific, working deductively and being conversational, they could use techniques for imagining alternatives, such as brainstorming, envisioning futures, developing scenarios, inventing futures and esthetic triggers (poetry, fantasy, art, songwriting or drama) which would contribute to the objective of teaching for CT [11].

The endeavor, and more importantly the awareness of the endeavor, to promote students' higher order thinking development is an element of teachers' professionalism which can be described through Schön' s term "reflection-in-action" [12, p.62]. This orientation demands highly professional knowledge and performance on the part of the teacher, which is called 'the epistemology of practice' [12, pp. xi, 33]. This concept includes 'school knowledge', as well as a kind of artistry that characterizes teachers in their everyday work, while they are attaining reflective and critical processes.

III. DESCRIPTION OF THE PROJECT

Based on the above rationale, a collaborative research project in primary and secondary schools entitled *"Development of resilience, peer counseling and citizenship awareness among students. The implementation of an intervention project"* is currently in progress at the University of Western Macedonia, Greece. The project aims to offer new perspectives in exploring the school curriculum and enriching educational objectives so that concepts related to students' moral development and democratic pedagogy can be integrated. The expected result is evidence-based valid scientific knowledge and the potential for constructing substantial, innovative and scientifically valid procedural knowledge on part of teachers.

Based on the principles of participatory teaching methods, the project involves students and teachers under the guidance of three researchers who are also teachers in three inter-related components: (a) personal empowerment of pupils focused on their resilience (RSL), (b) peer counseling with emphasis on peer mediation (PMD) and (c) citizenship education (CZE). More specifically, teachers cooperating with the researchers will be encouraged to design and apply cross-curricular activities through a series of teaching interventions for their students to become aware and gradually immerse in the concepts of RSL, PMD and CZE. Regarding PMD students' parents will also participate in the study as they will be asked to trace potential behavioral change in their children after the completion of the project, thus contributing to its assessment. At the end of the project, teachers are expected to be able to apply effective practices for their students; students are expected to potentially be empowered to create personal positive attitudes and friendly bonds under the construction of a secure framework for the more vulnerable ones (regarding RSL and PMD, respectively) as well as to develop socio-cultural and political ethos (regarding CZE).

The three subject areas of the project seem to be interrelated in the limelight of values and democratic education, as they focus on students' self-*knowledge* and empowerment (RSL), their harmonious social interaction with

peers and groups (PMD) and simultaneously their future role as active citizens through earnest contribution to their civic community (CZE).Values may stand as references in decision making and students' beliefs while they are related to their identity and character [13]. That way, values education may be encouraging to the development of CT for students, while simultaneously the existence of CT dispositions and skills in teachers can safeguard the continuation of this project with coherence. This concept recapitulates the rationale of the project as it is depicted schematically in Figure 1.
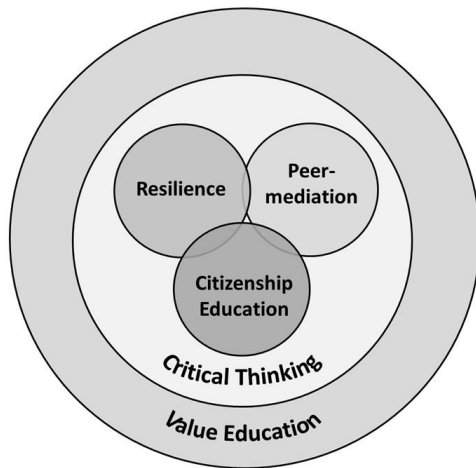

Fig. 1.   The rationale of the project.

In detail, regarding the three subject areas of the project, RSL correlates with human ability to deal with and hopefully overcome any perilous life conditions [14]. RSL can be cultivated through various activities in school settings and contribute to the promotion of academic performance, moral empowerment, empathy and emotional intelligence of the students while utilizing intrinsic motivation [15]. For PMD, it is considered that through conflict resolution education, with peer mediation being a major element of it, students can be taught to turn their conflicts into new ideas and respect their peers' different perspectives. This way, violence in school settings tends to be significantly reduced [16] and school climate potentially becomes more creative [17]. Concerning CZE, the concept of cultivating students' citizenship is not only narrowly restricted to the understanding of political institutions and democratic processes but rather expands to moral and emotional development through active, social, cooperative and critical learning. Methods promoting students' participation in their community, peaceful and cross-cultural education as well as critical literacy especially towards media are of paramount importance in CZE field [18].

During the design of the project, special emphasis was placed on applied research relevant to education practice, whereas research methodology was dictated by the theoretical principles of action research [19]. Researchers cooperated with the school principals and teachers of each school and since they held the role of "critical friends", they offered advice for the optimum implementation of the project, stimulated teachers for further reflection and consulted them on teaching and activities design [20]. The project was initiated by tracing the existing needs in order for teachers and researchers to later develop a series of teaching interventions in classes of 8 primary schools of Western Macedonia for RSL and PMD, and of 3 Lyceums of Thessaloniki (Central Macedonia) for CZE.

The whole process was expected to have a positive impact on teachers' professional development, evoking them to build a "know how" in implementing school practices for the improvement of students' moral courage, the development of their skills in negotiating conflicts, and the enhancement of their citizenship awareness. The teachers' engagement in action research efforts as members of a teaching community was expected to strengthen their competencies as decision makers and self-regulated professionals and enhance their reflection and their metacognition [21, 22]. In other words, through teachers participation in research process their professional role will be developed [23] since they will be asked to construct new teaching processes and therefore approach already acquired pedagogical theories afresh [24]. That way, teachers are expected to thoroughly understand their capabilities and/or limits, make decisions and contribute to the development of the teaching process in a new direction while combining reflection and self-assessment, being continuously supported by the researchers [25].

The purpose of this paper is to examine the extent to which teachers participating in the project were ready to hold an active and participatory role cooperating with the researchers and applying new teaching processes in their classroom settings, thus responding to this particular project objectives. This readiness is explored in the light of teachers' CT dispositions through their answers regarding the three components of the project, thereby determining both their willingness and ability to hold the role of "educational agent" and promote not only knowledge but also values in school settings. The evidence drawn from the study may be an *invaluable tool* in designing flexible teaching interventions and may also hopefully stand as a validity claim for the successful continuation of the project. Therefore, the paper seeks to address the following questions:

- To what extent do teachers' CT dispositions include characteristics that can contribute to the promotion of students' moral, emotional and social empowerment?
- Which particular aspects of teachers' CT dispositions can be correlated with their ability to support resilience, peer mediation and citizenship education among their students?
- Which educational initiatives can be delivered through this project, so that teachers' CT dispositions can be utilized in the direction of the attainments of the project?

IV. METHODOLOGY

The current qualitative study concerns the initial phase of the aforementioned project and focuses only on the teachers participating in it. For the optimum implementation of the project, the researchers carried out interviews with the teachers concerning their readiness to support students' RSL and CZE, as well as a focus group for teachers of PMD. The criteria for the teachers' participation in the project were based on the identification of students' profiles of low resilience skills, uncontrolled conflicts among students in their schools and teachers' willingness to apply innovative educational strategies in classes of diverse student populations in order to promote democratic citizenship education.

A. Participants

Thirteen teachers aged 39-55 (8 women and 5 men) with a teaching experience ranging between 10 and 28 years, participated in the study. Among these, ten teachers work in the primary school and three of them in Lyceum, coming from three different types of senior high school (general, intercultural and experimental senior high school). One of them teaches Greek Language and Literature and the other two Civic Education. For the subject areas of RSL and PMD, the participants were students of fourth, fifth and sixth grade (three last classes of primary school), while for CZE, they attend the 1st class of Lyceum. The reason for this variation lies in the fact that for RSL and PMD, emphasis was put on self and social learning, hence the selection of younger student participants, since emotional development is in the limelight at this age. For CZE, political learning was prioritized [18, p.8]; thus adolescent students were selected, since they were at the point of entering society as adults with rights and obligations. It is worth mentioning that the student participants of RSL and PMD were at the early stages of preadolescence and those of CZE at the culmination of adolescence. The participants of the project are described in Table I.

TABLE I.

Participants					
The axes of the project	*Teachers' number*	*Teachers' age*	*Teachers' gender*	*Teachers' working experience*	*Students' Age*
RSL	5	47-55	4 women 1 man	15-27	9-12
PMD	5	48-55	3 women 2 men	25-28	9-11
CZE	3	39-55	1 woman 2 men	10-25	15-16

B. Data collection

A set of different research tools for each area of research interest were designed and implemented with teacher participants: a) a semi-structured interview for RSL and CZE and b) a focus group for PMD. The questions of both the semi-structures interviews and the focus group were constructed in the light of modern qualitative methods and after thorough research of current literature. They were all carried out by the three researchers independently, in school settings at the first stage of the project that is after the teachers agreed with their participation in it. For RSL, the semi-structured interviews lasted for 40-50 minutes and the teachers were asked to answer 9 questions regarding their routine in primary school (e.g. *Have you noticed any changes in your students over the last years? Can you describe the reasons for these changes?*), 11 questions for their routine in classroom settings (e.g. *In what way do you believe that students' academic performance is influenced because their families are experiencing problems due to the financial crisis?*), 12 questions referring to their professional profile (e.g. *Do you ever take the initiative to help in problems caused in your classroom due to the financial crisis? What do you do exactly?*) and 15 questions for their personal profile (e.g. *Describe your general concern because of the financial crisis at a personal level*). Regarding PMD, the focus group lasted for approximately 1 hour and the teachers were asked to discuss on 7 questions relating to students' conflicts, the existing reasons for them, the frequency, the potential gender differences in conflicting situations and their own intervention (e.g. *"What are the most common reasons for students' conflicts?", "How do you tackle conflicts between students in school settings?"*); 3 questions for the conflicts consequences (e.g. *"Do you believe that conflicts may have consequences for students' academic performance? Why?*) and 2 questions about parental intervention (e.g. *"What are the possible results of parental intervention in students' conflicts? Why?"*). For CZE, the semi-structured interviews lasted for 30-40 minutes and included 10 questions focusing on teachers' perceptions of the role of school and themselves (e.g. *In your opinion, what are the targets that school and teachers should serve? Do you believe that these targets are accomplished? If yes, how? If no, why?*) as well as the development of democracy and citizenship education in school settings (e.g. *In your opinion how do you define a democratic citizen? How important is the role of school in the development of citizenship?*)

Qualitative research methodology was selected given that in-depth analysis and interpretation of the teachers' perceptions were considered as essential for the implementation of the project. It was assumed that through semi-structured interviews, the researchers could be actively engaged in critically analyzing the teachers' ideas [26] and perceptions, literally learning from their experience and thoroughly delving into their classrooms' culture. The utilisation of focus group settings enabled interaction among participants and encouraged them to ask questions and reflect on each other's answers. This allowed the researchers the opportunity to collect qualitative data that might otherwise have not been taken into consideration regarding teachers' perceptions [27]. A combination of these two qualitative methods was selected since it was considered as a productive approach to the detailed description of teachers' dispositions aiming at enhanced understanding and data richness [28].

C. Data assessment

Collected data were assessed with the method of content analysis, on the basis of Facione's research tool for CT dispositions [5], which recognizes seven dispositions (see Background). The researchers assessed the teachers' answers in the light of their CT dispositions, attempting to extract elements that exhibit teachers' dispositions while they were commenting on the fields related to the project. Teachers' answers were analyzed qualitatively. Seven categories were used, one for every disposition. Before the final coding, two trained research assistants classified 20% of participants' answers into the seven categories. Cohen's kappa was run to determine the level of agreement between the two researchers. The inter-rater agreement was excellent ($\kappa = .91$ (95% CI, .89 to 0.93), $p < .001$,) and was increased to 100% after discussion with the authors.

V. RESULTS

After the qualitative analysis of the data, teachers seem to exhibit a number of CT dispositions while dealing with school routine, conflicts and their perspectives of citizenship education.

Eleven out of thirteen teachers reveal their truth-seeking disposition by being willing to seek the best knowledge in terms of teaching methodology and behavior reflecting on their actions (RSL). They also appear to be willing to seek the necessary evidence as far as it concerns the reasons for students' conflicts (PMD). When they are being asked about school and teachers' role in modern world, they seem to be aware of their significant role in developing future citizens and societies (CZE).

Open-mindedness and tolerance to divergent views is exhibited by twelve out of thirteen teachers. For example they seem to comprehend students' negative attitude to learning as a result of their experiencing problematic situations (RSL); understand the diversity of opinions as a main reason for conflicts and disagreements (PMD) and anticipate a school open to the world with open-minded teachers, accepting diversity, cultivating art and "developing students' moral education" (CZE).

They all seem to be analytically disposed, using application of the reasoning and evidence to resolve problems or potentially anticipating conceptual or practical difficulties while being ready to intervene. Specifically, they recognize that cooperation between teachers positively affects students (RSL). They continuously evaluate a conflict's extent and they are ready to intervene when needed, recognizing that conflicts may oblige them to reschedule their planning (PMD). They also work with their students on political articles, trying to identify their application in real-life conditions and applying reasoning to resolve problems (CZE).

They all seem to be systematic. They are trying to be organized, orderly and focused when they orchestrate actions with the available materials considering the restricted financial resources (RSL). They thoroughly collect information from the disputants regarding their conflict and try to apply a common set of rules in the direction of conflict resolution

(PMD). They are presented with precise ideas on the development of CT in school settings claiming that experiential learning can contribute to this aim (CZE).

Most teachers trust their own reasoned judgments regarding overcoming financial difficulties that negatively affect their own and their students' psychology while trying to invest and ameliorate their students' mood (RSL). They also hold a responsible role leading their students to conflict resolution by activating various practices of problem solving (PMD). The concept of responsibility towards students also arises in terms of their preparation for the future (CZE). These elements seem to highlight their disposition of self-confidence revealed by eleven out of thirteen teachers.

All teachers exhibit the disposition of inquisitiveness as they are willing to learn, to be further trained in new learning methods and tools, as well as to be specialized (both at a personal and cooperative level) utilizing scientific guidance (RSL and CZE). They are also eager to learn and be supported by the anti-bullying programs their schools participate in (PMD).

All teachers' cognitive maturity is exhibited as they approach problems and make decisions recognizing the existing difficulties such as mandatorily extensive teaching material and students' problematic behavior even though they admit to making mistakes (RSL). According to their opinion, these mistakes are due to limited teaching time while they are trying to act in their students' best interest (RSL). Teachers seem to approach conflicts in an explanatory way, presenting and highlighting factors such as parental intervention that may inhibit their own work (PMD). Finally, they exhibit cognitive maturity through approaches based on concrete contexts, mentioning that students should also participate in school operation for them to delve into the concept of democracy (CZE). Teachers' dispositions with explanatory quotes are presented in Table II.

TABLE II.

DISPOSITION	QUOTATIONS/CODES
1. Truth-seeking	"How many times do I leave school and reflect", "Did I do this well?" or "Didn't I do the other thing well?", "How could I do better?", "Didn't I behave well?"" (RSLT5_24/11/2016) "Something else may be hidden and we have to look into it" (PMDT4_29/9/2017) "It is likely to achieve these goals to some extent, but fragmentarily and not as an institutional shell" (CZET3_30/7/2017)
2.Open-mindedness	"When parents are sad, or they (the students) face difficulties, can they be willing to learn?" (RSLT3_24/11/2016) "And I think that where there are people and different opinions and some try to impose their point of view to others...conflicts are

	expected" (PMDT3_29/9/2017) "I believe that teachers should be open-minded regardless their age" (CZE1_28/6/2017)
3. Analyticity	"When there is cooperation between us (the teachers), the children themselves learn to cooperate, otherwise the opposite happens" (RSLT3_24/11/2016) "Sometimes you start your day differently and this (a conflict) changes your plans and your programming" (PMDT4_29/9/2017) "I read a piece of news in classroom and students start decoding it and learning this kind of language" (CZET2_27/7/2017)
4. Systematicity	"I was very thrifty with the materials they had in their bag and with what they had to buy ... too. I did not have a list ...very few things. I adapt my lesson to my students' needs" (RSLT5_24/11/2016) "We usually call both parties (of a conflict) and we listen to both parties" (PMDT3_29/9/2017) "I would put much more project-based teaching methods that would potentially replace the typical lesson with the various school subjects with mainly experiential methods, art in the foreground… all these" (CZET1_28/6/2017)
5.Self- confidence	"I believe we will be able to cope, because I believe that people are very strong and can fight ... we have faced difficulties over the last years but we will overcome them. We will surely overcome them." (RSLT2_18/5/2016) "I believe that tackling with problems in the classroom is what teachers are there for…"(PMDT3_29/9/2017) "They have a huge responsibility for tomorrow's citizens ... and tomorrow's societies. So their role should be particularly well taken care of" (CZET1_28/6/2017)
6.Inquisitiveness	"Some teachers are not appropriately trained…further training, yes." (RSLT2_18/5/2016) "We, the teachers, will probably have to be further educated in practices that stimulate students' interest" (CZET2_27/7/2017) "These programs about bullying have really helped us face some things, both us and the students" (PMDT2_29/9/2017)
7.Cognitive maturity	"I think that children are used to

having everything they want, are not used to 'no' as an answer, they do not follow rules at home, so it is very difficult for them to keep the rules at school"(RSLT2_18/5/2016)

"Dealing with time is a really pressing issue …and this is the reason why we behave in a certain way, it is because we have to…" (RSLT5_24/11/2016)

"We need parents' cooperation; they love their children but they should also trust teachers and not underestimate them" (PMDT3_29/9/2017)

"Students should be responsible for the operation of the school, they have to fully understand what democracy means" (CZET3_30/7/2017)

VI. DISCUSSION

Based on the evidence of the current qualitative study, it is possible to conclude that teachers exhibited dispositions that may significantly contribute to their students' moral, emotional and social development –a fact that is evidently conducive to school's double assignment. Teachers' dispositions reveal their readiness to adopt a responsible role in school settings and actively participate in this particular project. It is assumed that they may contribute to the effective implementation of the project, thus setting the stage for the enhancement of students' skills in terms of socialization and school performance. More specifically, their dispositions that showcase approaches to life and living in general [5] can be instilled into teaching processes facilitating self-confidence, positive relationships and citizenship awareness of students. Moreover, teachers' CT dispositions will be potentially extended beyond the limits of classroom leading students to the cultivation of global sensitivity [29]. On the other hand, having fortified their inner selves, students are expected to be capable of virtually experiencing democracy. This process may potentially equip them with mechanisms for moral growth and development through adulthood and lead to the acquisition of successful problem-solving and decision-making techniques that apply to a variety of life situations in the future.

Every aspect of teachers' CT dispositions can be correlated with their ability to support students' resilience, peer mediation and citizenship education. More specifically for RSL, teachers' CT dispositions correlate with elements of resilience, by being role models for their students, so that they can dynamically foster resilience development in the classroom settings [18, 30]. Teachers appeared to demonstrate highly organised qualities, to strive for life-long learning and to recognize the teaching processes that lead to personality development of students. Through their effort, students' self-confidence, social skills and readiness to challenge life difficulties may be promoted. Teachers may provide their

students with academically effective agency, self-determination and self-control. Regarding social interaction and classroom atmosphere, positive relationships between teachers, students and their families may also successfully promote resilience [31].

As for the issue of PMD, teachers exhibiting CT dispositions may courageously hold a responsible role in understanding the causes of students' conflict. Simultaneously they may give their students the opportunity to be flexible, work out solutions, become experienced in problem solving and alleviate disagreements. Even when parental intervention is possibly obstructive towards their work and the school curriculum does not provide them with the essentials for conflict resolution education, teachers with such dispositions can diligently support their students to the best of their knowledge, in order to protect a favourable school climate and safeguard values such as respect and the ideal of cooperation in human relationships.

As far as student CZE is concerned, teachers' CT dispositions are expected to contribute to their students' developing democratic personalities. In any other case, teachers would have been restricted to their traditional role and cognitive goals, contradicting the principles and practices of democratic education. Thus, every CT disposition may be required for teachers' empowerment so that they can integrate theory into practice through reflective processes that lead to their emancipation and autonomy [32]. In this way, teachers are expected to be capable of overcoming existing difficulties and instilling their CT spirit in teaching processes for democracy and citizenship to safeguard their students and school's best interest for active, social, collaborative and critical learning. Such teachers can seek new methods for practical, ethical, socially oriented, responsible self-management of pupils and their participation in the society they belong to. At the same time, they can contribute to the demand for peace education and moral culture, for intercultural and environmental education, as well as critical literacy, especially with regard to mass media influences [18]. A holistic approach to human thought and behavior indicates that all of the above areas of interest are aspects of democracy education and citizenship. The establishment of such a framework for all students by the school promotes their moral development in the sense of moral reasoning and acting in a philosophically autonomous way [5, 33]; in this sense, it is anthropocentric, sustainable, ethical and optimistic for the future.

As suggested in the findings of this project, teachers' dispositions may play a significant role in school settings provided that educational material and strategies are developed to support the promotion and cultivation of these dispositions bilaterally; for teachers to apply these dispositions during teaching processes and for students to develop them. The cultivation of these dispositions is important to assure the utilization of CT skills even outside the process of formal education [5]. Taking this into account, initiatives should be taken so that students can be taught to respect and understand different opinions, thoroughly search for facts, use the power

of reasoning and reflect on various situations. For this purpose, school should provide the foundation for entering a society that embraces new ideas whilst creating subject knowledge in different scientific fields. Teachers' dispositions may be assessed and later transformed into curricula aiming at the promotion of team work, problem-solving and/or decision-making techniques and moral dilemmas. This way, students may be encouraged to develop confidence in their CT skills while cultivating them, actualizing the double assignment of school as this is delineated in the introduction of the paper.

VII. RESEARCH LIMITATIONS

Although this specific study has achieved its aims, there were limitations given its scope. Firstly the study was conducted only on a small number of participants. Therefore to generalize the results across a broader context, a larger number of participants would need to be involved. Additionally, even though teachers' CT dispositions reveal their readiness for action and eager participation in the project, there are no conclusive results from the teaching interventions, as yet. Consequently, the data of the study cannot be correlated with the results of the whole project at this time.

VIII. SUGGESTIONS FOR FURTHER RESEARCH

The results of the current study may be capitalized when designing further research relevant to CT dispositions and skills in the field of education. Teachers who are familiarized with the idea of thinking critically and who apply CT skills in classroom settings can be inspired to promote and adapt a school curriculum with a new orientation. CT may be instilled in every school subject through cross-curricular practices ("infusion approach") [34, p.1106] that will recede from behaviouristic patterns. Therefore, further research may possibly examine the ways that CT skills and dispositions can be taught to teachers through life-long learning, so that they can apply them in the teaching processes. Additionally, further questions can be posed regarding school curriculum, educational consultants and even the role of the Ministry of Education towards the empowerment of teachers' CT in school through their collaboration and engagement in action research projects.

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