CHALLENGES ON THE COMPETENCY-BASED APPROACH IMPLEMENTATION, CASE OF ALGERIA

*Selma Ghezir
Zahra Naimie
Chin Hai Leng
Faculty of Education
Universiti Malaya
selma.ghezir@gmail.com

Abstract: This study explored the challenges faced by Algerian teachers during the implementation of the Competency-Based Approach (CBA) in secondary schools. The research employed a qualitative method, and the data were collected through interviews with a sample of 41 teachers. The findings revealed that most challenges are often classified into three categories: curriculum, time, classrooms size, and resources. Also, poor training leads teachers to shift to the traditional approaches which do not match with the CBA principles. And to improve the teaching process, teachers desire to participate in designing the curriculum, as well as contribute to the second generation of the reform process and be involved in an effective training program that focuses on the challenges of real work in the classrooms. The research recommended that the government through the Ministry of Education should effort to strengthen regular in-service training and continuous professional development seminars for teachers to make the CBA more understood and reach its expected outcomes.

Keywords: *Competency-Based, challenges, Teachers' perceptions, Secondary School*

INTRODUCTION

Nowadays, the challenge of any educational system is the awareness of the objective of a productive instructive educational program, and the ability to develop an effective and powerful curriculum to meet the necessities current requests of culture and society as well as the desires of the populace (Bowers, 2016). In this sense, in 2000, the Algerian Ministry of Education introduced an independent commission called "National Commission for the Reform of Education" (NCRE), the mission of the group was to give a detailed report about what is happening in the schools, and how to improve the educational system based on this evaluation. One year later, the report of NCRE has confirmed the urgent need to reform the educational system, (Adjeroud & Belouahem, 2020; Tawil, 2006; Bellalem, 2014) the report has described the education system with the term "deterioration" (Tawil, 2006). Which appeared in the increase in the proportion of students who: a) did not pass their national final examinations (BAC), b) retake their levels (especially in middle and secondary school), c) dropout from the school before the age of 16. In addition, the quality of teachers raised concerns of the national commission. NCRE criticized them because they are not having the necessary teaching qualifications to undertake their jobs in an efficient way (Adjeroud & Belouahem, 2020; Tawil, 2006). In 2002, the new educational reforms were adopted based on the recommendations of NCRE to solve the problems of the previous system, this time with the Competency-Based Approach (CBA).

The Competency-Based Approach (CBA) is an approach which interested in measurable and useable knowledge, skills and abilities, to keep education in equilibrium with the needs of the labor market (Butova, 2015). And it seeks to give students the necessary basic skills which they need to prepare themselves for situations they ordinarily face in everyday life. (Kabita & Ji, 2017) And to give them the opportunities to put into practice the skills that they have learned in real situations which are beyond the limits of the classroom (Byrne, Downey & Souza, 2013).

Competency-Based Approach provides learners with the opportunity to imagine, learn and apply what they have learned (Adjeroud & Belouahem, 2020), as it replaces the importance of time with the importance of competencies acquired, i.e., it emphasizes the specific knowledge or skills to be learned rather than how they are learned or how long it will take to be learned. (Parnell, 1978) Which mean that CBA tends to consider the different needs of students and provides them with enough time, employing different instructional means that suit the students' differences in order to make sure that all students can reach the same level of learning (Semerci & Elaldı, 2015; Bloom, 1982), as well as encourages learners to identify what they learned and apply it, (Adjeroud & Belouahem, 2020; Getha-Taylor, et. al., 2013) in new and different situations and make connections between all learned subjects (Byrne, Downey & Souza, 2013).

[17]

Since CBA is learner-centered, the role of the teacher changes from transferring the information and knowledge to that of being a supervisor (Sturgis & Patrick, 2010). This does not mean that teachers will stop giving information, but they will do that in many ways compatible with several types of this information. As is practical, it requires teachers to provide the materials and the activities, and they rely on their professional skills, and they provide the practice opportunities to their students (Paul, 2008) to enable each one to be achievements.

When the Teachers plan the courses, they must think about it as a central part of the teaching process. They must identify each subdivided into the relevant skills competency. And they must develop the modules to allow students the opportunity to learn and practice those skills (Griffith & Lim, 2014). In short, the teachers need to help learners feel responsible for their learning.

LITERATURE REVIEW

Teaching and learning require responsibility, which has been taken by both teacher and student (Hassel & Lourey, 2005). Misunderstanding the objectives and the key elements to implement CBA from the teachers, students, and parents are considered as one of the barriers that reduce the CBA effectiveness on better education. Since the aim of implementing CBA should be to make education attainable to everyone. Thus, there is necessary to make it understandable to all participants in the education process (Diegelman-Parente, 2011). Chacko (2014) also, noted that the lack of awareness about the need as well as the assessment was one of the main obstacles to effective implementation and institutionalization of CBA. Tambwe (2017) and Makunja (2016) indicated some challenges which teachers face in implementing CBA in the teaching and learning process in Tanzania, the findings underscored that the biggest challenge teachers faced was a lack of knowledge and understanding about CBA, although teachers were eager to implement this approach.

The ability of teachers to implement CBA, include all essential elements of curriculum design starting from identifying the needed competencies, measurement criteria in all relevant domains including communication and analytical skills to design of the learning experiences for deliberate practice, design and use of performance assessment tools and giving feedback to the learner besides benchmarking the exit are challenges may lead to the tendency of teachers slipping back to "teach as we were taught" (Sullivan & McIntosh, 1996). The teachers felt that the traditional role of the teacher as an imparter of knowledge and controller of activities was being challenged (Hannafin & Savenye, 1993). So, many schools continue to emphasize the same instructional strategy (lecture) and technique (whiteboard) as schools of 1920 (Soska, 1994).

Oyugi (2015), discussed the challenges of CBA from three perspectives: the first one was measuring competencies; the bad measuring can be traced back to the complexity of education, academic competencies, and the outcome is hard to define and even harder to measure. The second one was the question of suitable criteria (for example, future workplace requirements) that will help to evaluate the acquisition of competence (Hartig, Klieme & Leutner, 2008), and it arises from environmental, social, and economic dimensions which are even more complex. The last one was the "wicked problem" which involves behavioral change and/ or gaining the commitment of individual citizens.

In addition, a study done by Bresciani (2011), claimed that the barriers are often classified into three categories: time, resources, and understanding of assessment (Banta, 2002; Bresciani, 2006). The time and the opportunities to plan the CBA effectively seem to be a challenge for teachers who are otherwise preoccupied with teaching within the strongly classified curriculum of the rest of the school (Bernstein, 1999). In some schools, this resulted in the curriculum leader taking responsibility for, and ownership of, the planning which they disseminated to the other teachers on the CBA team. Thus, they negated some of the principles of a democratic curriculum by disenfranchising teachers in making planning decisions (Freire, 1972).

The resources and infrastructure for processes needed for the CBA are different from the ones traditionally needed. CBA also needs teachers with capabilities to function as facilitators of mastery of skills and assessors of attainment of skills. The obstacles can be overcome mainly through observation of performance and change in teacher and student/learner ethos (Chacko, 2014). Also, the teachers indicated that insufficient teaching and learning resources and the available textbooks and reference books too did not reflect the current syllabus. Moreover, the textbook content lacked clarity on how to teach students as per CBA requirements. Teachers also reported the absence of laboratories and libraries in some schools as factors hindering effective learning through practical and experiments, so students just cram theories and principles for the exams. In addition, the researchers noted that classrooms are overcrowded in

such a way that the teacher cannot move around even if he/she wants to help students with learning difficulties. It is very hard to implement learner-centered approaches in a situation like this (Tambwe, 2017; Makunja, 2016).

Mokoro (2020a), have sought to explore the effect of one resource (the laboratory facilities) on the implementation of CBA in public secondary schools in Tanzania, he found that there is only a small number of science and computer laboratories in the secondary schools that he included in his research, while there are no laboratories for Geography or Languages in the same schools. and because of that, the implementation of CBA in the secondary schools in Tanzania was inefficient due to the shortage of laboratory facilities which forced teachers to shift the practical parts of units to be just theoretical classes and this was negatively affected the development of the competencies by students as well as their performance in the exams.

In addition, the findings revealed that students joining secondary education with low ability posed a challenge to teachers in implementing CBA, it is difficult to implement CBA in the teaching and learning process, particularly when most of the students have the low academic ability. For example, what does a teacher do with students who can hardly write even their names at the secondary school level? Such students tend to depend entirely on their teachers to provide knowledge, which is contrary to the spirit of CBA (Tambwe, 2017; Makunja, 2016).

Research Problem

The implementation of CBA in education faced many challenges that make many barriers that reduce the CBA effectiveness on teaching and learning at the secondary school level. In 2009, the Algerian Ministry of Education determined the barriers to implementing the CBA in Algeria, the research was based on the decisions of teachers and inspectors about the curriculum and the application of CBA in schools. Most of these barriers revolved around the textbook, curriculum, training the trainers, using the educational instrument, and the teaching methods.

Since 2012, the Algerian Ministry of Education has planned several organizational, pedagogical, and social measures. Such as developing and modernizing the information system, ensuring equal access to education for children from vulnerable groups, ensuring an equal distribution of schooling conditions to avoid regional disparities, and improving teachers' working conditions, infrastructure, and facilities (UNICEF, 2014). Despite this, the educational sector in Algeria still faces many challenges, and the Ministry of Education keeps working on the development and improvement of the curriculum through changing, reducing, or deleting some courses in various subjects at the beginning of each academic year. The teachers from their side requested the Ministry of Education to take their views and opinions seriously before embarking on any kind of reform procedure.

Therefore, this research aims to answer two questions:
1.   What are the challenges faced by secondary school teachers while implementing CBA?
2.   What are the teachers' suggestions for improving the implementation of CBA?

Research Method

An interview (face-to-face and focus group discussion) was conducted with 41 secondary school teachers. Data collections have been frequently scrutinized to understand and construct the meanings of the perceptions shared by the participants regarding their experience with using CBA in their classrooms. The methods that used in this research to collect and analyze the data have been guided by two research questions already mentioned above.

FINDINGS

Barriers on implement CBA

The research revealed that all teachers had believed that the CBA was very ambitious, very challenging, and beyond students' abilities. They believed that it is difficult to implement it in Algerian secondary schools because of the amount and condition of resources in their schools for teaching science, the number of students in the classroom, and the density of the curriculum with insufficient time allocated to cover this curriculum.

Curriculum and timing:

The respondents indicated that the number of scheduled lessons annually does not match the allocated time size, which means that the time is not sufficient to complete all the lessons scheduled within the educational program. In addition,

[19]

the intensity of the educational program causes teacher stress during the teaching process, which can also affect the teacher's style during the teaching process, the most of participants felt that their performance retreated as a result of their fear of not completing the science program.

Third of the participants said that this is also reflected on the students when the teachers rely on the method of strictness in the classroom and not having fun with the students. Therefore, some teachers believed that this is a good way to control the students and the classroom, thus, they can finish the curriculum on the time.

Classroom size:

All participants emphasized that teaching in overcrowded classrooms is a very cumbersome process. They believed that while teaching a classroom with large numbers of students, the teacher finds himself obliged to deal in a way that contradicts the basics of the competency-based approach, like giving a lesson without any dialogue or discussion.

From the teachers' views, the negative effect of overcrowding classes appeared in the failure to consider the individual differences among students, as it reduced the opportunity for the student to participate in learning progress and became a receiver of knowledge. While the classes that include from 20 to 25 students give them a real opportunity to participate in constructivist learning.

Resources:

All the interviewees said that their schools had poor laboratory facilities, a poor state of repair of the school laboratory facilities, inadequate supply of chemical reagents, poor amount of equipment for experiments, and poor state of repair of laboratory equipment.

It seems to be a very challenging curriculum especially on lack of materials which they need for doing experiments, chemical reagents are not available, or it is expired which put teachers in a bad situation, sometimes there is not enough of the amount equipment for experiments due to lack of funds for the school.

Government support:

At least, five teachers mentioned a different factor inhibiting effective teaching and learning of science under CBA, including negative students' attitude to science, lack of support from school administrators, poor remuneration of salary, not giving teachers the freedom to choose the way to give the lesson, and poor teachers' training.

Improving teaching environment

The reform:

The effectiveness of the new approach (CBA) implementation was an important issue for the teachers; especially when the Ministry of Education is determined to succeed in using it in Algerian schools as a face of reform and innovation in the educational system. All teachers had shared a list of suggestions for improving teaching and learning under CBA. They believed that the Algerian education system is not ready yet to adopt that approach, it was very ambitious and beyond Algerian schools' abilities. They believed that this approach cannot be implemented as it should, and hence it cannot add anything to teaching and learning in the classroom.

Moreover, a few participants claimed that returning to the old approach could be a solution. They admitted that they are applying the old approaches most of the time in their classroom. They believed that what they are doing is correct and appropriate for their students given the difficulty of applying CBA.

Resources:

In terms of resources, all teachers believed that resources are very important for efficient teaching and learning to take place. They all believed that there is a need for more and better curriculum resources, a regular supply of chemical reagents, improved classroom maintenance, and additional funds to build new laboratories. They believed also that there is a need to reduce the curriculum contents, and [or] increase the duration of classes time, especially the practical lessons in the laboratory, and schedule it all in the morning period.

[20]

Nearly all participants said that there is a need to reduce the class size through the building, and opening new secondary schools, employing more qualified and dedicated science teachers.

The training:

In terms of training and professional development, all the participants, except those who did not benefit from formal training, believed that their pre-service training courses were too theoretical and lacked a solid practical component. They believed that there needed to be more practical teaching scheduled in the training programs to have a balance between theory and practice. The classes are overcrowded but also added that teachers had not been trained to deal with large classes, teachers needed to be trained to use specific techniques appropriate to large classes.

Finally, all the participants noted that continuous professional development is important for them. They claimed that they wanted to progress in their careers, and therefore, training would help them achieve their teaching aims.

DISCUSSION

Challenges facing teachers during CBA implementation

The findings of this research mentioned many challenges which faced both teachers and students in the implementation of CBA in secondary classrooms; the intensity of the educational program, overcrowded classrooms, shortage of laboratory facilities, the poor state of repair of the school laboratory facilities, inadequate supply of chemical reagents, poor amount of equipment for experiments, and poor state of repair of laboratory equipment, negative students' attitude toward learning science, and poor teachers' training.

The infrastructure and resources of teaching and learning are very crucial in any educational approach implementation. They are needed from both teachers and students for effective teaching and learning. Thus, when they are insufficient or lacking, this may lead to ineffective education. In supporting these results, Adjeroud and Belouahem, (2020), Chacko (2014), Tambwe, (2017) and Makunja, (2016) indicated that insufficient teaching and learning resources reduced the effectiveness of implementing CBA by teachers and students.

From the findings of this study, teachers have focused on the laboratory facilities as a serious challenge on the implementation of CBA in secondary school. Therefore, the teachers shift the practical parts of units to be just a theoretical class, which may lead students to poor performance in the exams. Mokoro (2020a) has supported this finding in his research, when he sought to explore the effect of the laboratory facilities on the implementation of CBA in public secondary schools in Tanzania, he found that the shortage of laboratory facilities caused an inefficient implementation of CBA in the subject of Science, Computer, Geography, and Languages.

Teachers have also mentioned that they do not get enough time to complete their plans. Evans and DeMitchell, (2018) have supported this result, they have claimed that time is a necessary facilitator item to implement CBA, teachers need sufficient time to discuss their students about their work to make sure that everyone has understand the competency very well after that teacher will analyze student work too. In short, it can lead to a flexible assessment of student learning (Evans & DeMitchell, 2018). Evans, Graham, and Lefebvre (2019) have added that, within the school day, if teachers have sufficient time, they will be able to discuss how they can support students who are not able to master the competency and how to advance students who are faster in mastering the competencies.

With the overcrowding of classrooms in Algerian schools, it is difficult for the teacher to consider the individual differences between students, which are required mainly by the CBA, the results coincide with the results finding by Adjeroud and Belouahem, (2020), Zaaboub (2018. pp. 279-280) and Benadla (2013). In Tanzanian schools, Tambwe (2017) and Makunja (2016) noted that classrooms are overcrowded in such a way that the teacher cannot move around even if he/she wants to help students with learning difficulties. It is very hard to implement learner-centered approaches in a situation like this.

In addition, the findings revealed that students joining secondary education with low ability posed a challenge to teachers in implementing CBA, it is difficult to implement CBA in the teaching and learning process, particularly when most of the students have the low academic ability. Which are supported by the studies of Adjeroud and Belouahem, (2020), when they claimed that (37.1%) of Algerian secondary school teachers stated that the difficulties mostly related to the students' low level of ability. Tambwe, (2017) also wondered; what does a teacher do with

[21]

students who can hardly write even their names at the secondary school level? Such students tend to depend entirely on their teachers to provide knowledge, which is contrary to the spirit of CBA.

Teachers' suggestions for better CBA implementation

Improving teaching and learning required a shift from a teacher-centered approach to a learner-centered approach where students can work through concepts themselves. In this research, teachers were looking to involve in the second generation of reform, provide all resources that they need for to teaching process, and make in-service training more practical and effective.

The literature reviews have shared teachers' perceptions to improve teaching under CBA. For example, Makulova et al (2015), discovered that the approach is being developed in different countries in diverse ways, and recommended that it is useful to use and integrate the experience of other countries, the studying of competency, the unity of participants–employers, representatives of the academic community, professionals, and graduates to define, organize and form the necessary competences in high schools in the future specialists. Tiana, Moya, and Luengo (2011) supported the result in their study when they suggested that the teachers and students must get opportunities for a variety of fora for discussion; these include teachers and leaders, teachers and teachers, teachers and students, and Students and students. Kabombwe & Mulenga, (2019) and Komba & Mwandaji (2015), have recommended that the governments through their Ministries of Education should effort to strengthen regular in-service training and continuous professional development seminars for teachers to make CBA more understood and effectively implemented by equipping teachers with necessary knowledge and skills. In addition, the Ministry of Education, Science, and Technology must establish a required laboratory facility because it is very necessary for helping CBA to reach its expected outcomes (Mokoro, 2020a).

Adjeroud and Belouahem (2020), also noted that Algerian teachers need to know the different approaches to teaching, and they can only reach that through a good program training courses, seminars, and workshops. While, Chacko (2014), found that the obstacles can be overcome mainly through observation of performance and change in teacher and student/learner ethos. According to Mokoro (2020b), the effective training of all teachers (new and experienced) is crucial before adopting any educational reform. The poor training leads teachers to use their knowledge and skills which may not match with the CBA principles.

RECOMMENDATIONS

The economic, social, and political environment of the countries impacts negatively or positively the implementation of CBA in the educational systems. the countries that reduce the education sector budgetary allocation or use most of the budgetary for teachers' salaries, must expect the failure in the implementation of CBA in their educational reforms because the implementation of CBA costs the governments more than the content-based approach do. The implementation of CBA needs a special infrastructure, equipment, and teaching and learning resources, and the shortage of these facilities may lead the teachers to return to the learner-centered approach

REFERENCES

Adjeroud, S., & Belouahem, R. (2020). Writing instructions within the competency-based approach in Algerian secondary schools have traditions of reality and viewpoints. *Journal of the Human Sciences,* 31 (1), 515-530.

Banta, T. W. (2002). Student competence as the basis for designing curricula, instruction, and assessment. *Assessment Update*, *14*(1), 3. https://doi.org/10.1002/au.141

Bellalem, F. (2014). Foreign Language Teachers' Beliefs about School in Algeria within a Context of Curriculum Reforms. *International Journal of innovation and Scientific Research*, *7*(2), 102-110.

Bowers, J. S. (2016). Psychology, not educational neuroscience, is the way forward for improving educational outcomes for all children: Reply to Gabrieli (2016) and Howard-Jones et al. (2016). *Psychological Review, 123*(5), 628–635. https://doi.org/10.1037/rev0000043

Bresciani, M. J. (2011). Challenges in the implementation of outcomes-based assessment program review in a California community college district. *Community College Journal of Research and Practice*, *35*(11), 855-876. https://doi.org/10.1080/10668920802289877

Butova, Y. (2015). The history of development of Competency-Based Education. *European Scientific Journal*, ESJ, 11(10).

Byrne, J., Downey, C., & Souza, A. (2013). Planning a competence-based curriculum: the case of four secondary schools in England. *The curriculum journal*, *24*(3), 335-350. https://doi.org/10.1080/09585176.2012.731007

Chacko, T. V. (2014). Moving toward competency-based education: Challenges and the way forward. *Archives of Medicine and Health Sciences*, *2*(2), 247. https://www.amhsjournal.org/text.asp?2014/2/2/247/144365

Diegelman-Parente, A. (2011). The use of mastery learning with competency-based grading in an organic chemistry course. *Journal of College Science Teaching*, *40*(5).

Evans, C. M., & DeMitchell, T. A. (2018). Mapping out the terrain: Northeast principals' perceptions of the barriers and facilitators to implementing K-12 competency-based education. *Durham: University of New Hampshire, Education Department, Division of Educational Studies*.

Evans, C. M., Graham, S. E., & Lefebvre, M. L. (2019). Exploring K-12 competency-based education implementation in the Northeast States. *NASSP Bulletin*, *103*(4), 300-329. https://doi.org/10.1177/0192636519877456

Evans, C. M., Landl, E., & Thompson, J. (2020). Making sense of K‑12 competency‑based education: A systematic literature review of implementation and outcomes research from 2000 to 2019. *The Journal of Competency‑Based Education*, *5*(4), e01228.   https://doi.org/10.1002/cbe2.1228

Freire, P. (1972). Education: domestication or liberation? *Prospects*, *2*(2), 173-181.

Getha-Taylor, H., Hummert, R., Nalbandian, J., & Silvia, C. (2013). Competency model design and assessment: Findings and future directions. *Journal of Public Affairs Education*, *19*(1), 141-171. https://doi.org/10.1080/15236803.2013.12001724

Griffith, W. I., & Lim, H. Y. (2014). Introduction to competency-based language teaching. *MEXTESOL journal*, *38*(2), 1-8.

Hannafin, R. D., & Savenye, W. C. (1993). Technology in the classroom: The teacher's new role and resistance to it. *Educational Technology*, *33*(6), 26-31.

Hartig, J., Klieme, E., & Leutner, D. (Eds.). (2008). *Assessment of competencies in educational contexts*. Hogrefe Publishing.

Hassel, H., & Lourey, J. (2005). The dea (r) th of student responsibility. *College Teaching*, *53*(1), 2-13. https://doi.org/10.3200/CTCH.53.1.2-13

Kabita, D. N., & Ji, L. (2017). The why, what and how of competency-based curriculum reforms: The Kenyan experience. *Current and Critical Issues in Curriculum, Learning, and Assessment*, *11*.

Kabombwe, Y. M., & Mulenga, I. M. (2019). Implementation of the competency-based curriculum by teachers of History in selected Secondary Schools in Lusaka district, Zambia. *Yesterday and today*. (22), 19-41. http://dx.doi.org/10.17159/2223-0386/2019/n22a2

Komba, S. C., & Mwandaji, M (2015). Reflections on the implementation of competence-based curriculum in Tanzanian secondary schools. *Journal of Education and Learning, 4(2), 73.* http://www.suaire.sua.ac.tz/handle/123456789/1148

Makulova, A. T., Alimzhanova, G. M., Bekturganova, Z. M., Umirzakova, Z. A., Makulova, L. T., & Karymbayeva, K. M. (2015). Theory and practice of competency-based approach in education. *International Education Studies*, *8*(8), 183-192. http://dx.doi.org/10.5539/ies.v8n8p183

Makunja, G. (2016). Challenges facing teachers in implementing competence-based curriculum in Tanzania: the case of community secondary schools in Morogoro municipality. *International Journal of Education and Social Science*, *3*(5), 30-37.

Mokoro, D. K. (2020a). Adequacy of Laboratory Facilities for Effective Implementation of Competence-Based Curriculum in Public Secondary Schools in Arumeru District, Tanzania. *East African Journal of Education and Social Sciences (EAJESS), 1(2), 141-149.* doi: https://doi.org/10.46606/eajess2020v01i02.0029

Mokoro, D. K. (2020b). Perception of Teachers on their Preparedness for Implementation of the Competence-based Curriculum among Secondary Schools in Arumeru District, Tanzania. *East African Journal of Education and Social Sciences (EAJESS), 1(2), 109-117.* doi: https://doi.org/10.46606/eajess2020v01i02.0026

Oyugi, J. L. (2015). Rational and challenges of competency-based education and training: the" wickedness" of the problem. *Journal of Education and Practice*, *6*(14), 74-78.

Parnell, D (1978). *The Case for Competency-Based Education*. Fastback 118.

Paul, G (2008, December 16). Competency-Based Language Teaching Report. [Web log comment]. Retrieved. 05march2018. from: http://glendapaul62.blogspot.com/2008/12/competency-based-language-teaching.html.

Semerci, Ç. & Elaldı, Ş (2015). The Effect of Mastery Learning Model Supported with Reflective Thinking Activities on Medical Students' Critical Thinking Skills. *Journal of Theory and Practice in Education,*11(3), 1004-1020. http://acikerisim.lib.comu.edu.tr:8080/xmlui/handle/COMU/1041

Soska, M. (1994). An Introduction to Educational Technology. *Directions in Language and Education*, *1*(1), n1.

Sturgis, C., & Patrick, S. (2010). When success is the only option: Designing competency-based pathways for next generation learning. International Association for K-12 Online Learning. *Accedido el*, *30*, 2018.

Sullivan, R., & McIntosh, N. (1996). The competency-based approach to training. *Medical Journal of Indonesia*, *5*(2), 95-8. https://doi.org/10.13181/mji.v5i2.853

Tambwe, M (2017), Challenges facing implementation of Competency-Based Education and Training (CBET) system in Tanzanian Technical Institutions. *Education Research Journal Vol. 7(11): 277 – 283.*

Tawil, S. (2006). *Le défi de la qualité de l'éducation en Algérie. Réforme de l'éducation et innovation pédagogique en Algérie, 27.*

Tiana, A., Moya, J., & Luengo, F. (2011). Implementing Key Competences in Basic Education: reflections on curriculum design and development in Spain. *European Journal of Education*, *46*(3), 307-322. https://doi.org/10.1111/j.1465-3435.2011.01482.x

Zaaboub, S. (2018). *Training secondary education teachers in the light of teaching with competency-based approach:* تكوين أساتذة التعليم الثانوي في ظل التدريس بالمقاربة بالكفاءات: مادة الاجتمعايات نموذجا *Sociological course as an example. PhD thesis in sociology. Published. Registration number 012/02/12.*