



Research Papers in Language Teaching and Learning

Vol. 11, No. 1, February 2021, 150-158

ISSN: 1792-1244

Available online at <http://rpltl.eap.gr>

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Young learners, Maths, EFL and Chess: With CLIL they all progress

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Although the benefits of CLIL methodology (Coyle, Hood, & Marsh, 2010; Mehisto, Marsh & Frigols, 2008) as well as chess instruction in general (Aciego, Garcia, & Betancort, 2012) are well acknowledged and widely documented in the literature, only a few countries widely use CLIL in most of their schools and even fewer have included chess in their main curriculum. To this end, this paper enriches the current literature with reference to CLIL and chess by describing the innovative incorporation of chess in the mainstream syllabus of a primary school with a double focus in mind. On the one hand, this article aims at underlining the multiple benefits of chess on young learners and, on the other hand, it attempts to promote the idea of teaching chess in a foreign language in accordance to the CLIL methodology.

Key words: CLIL, chess, young learners, EFL

1. Introduction: Why chess?

The role of games in the cognitive development of children is well documented (Alexiou, 2005). According to Fissler, Kolassa and Schrader (2015), cognitively demanding games (e.g., digital, board or card games) develop cognitive abilities, including among others “lower-order abilities such as visual perception and higher-order abilities such as selective visual attention, switching ability, sustained attention, short-term and working memory, executive control, reasoning, and spatial abilities” (pp.2-3) (see also Karasimos in this volume). In this light, the use of games in educational settings is more than welcome and chess is but one such example.

Chess is, by all means, a cognitively demanding game. It involves a number of cognitive skills such as attention, concentration, perception, information processing, logical reasoning, memory, problem solving, strategic decision making (Jankovic & Novak, 2019; Jerrim, et al., 2018; Rosholm, Mikkelsen & Gumede, 2017) and non-cognitive skills such as patience, discipline, self-control and social skills (Rosholm, Mikkelsen & Gumede, 2017). Indeed, evidence shows that “chess masters and professional musicians—possess, on average, superior overall cognitive ability” (Sala & Gobet 2017a, p.515). It should be noted, though, that the hypothesis that chess “makes kids smarter” (Meyers,

2016, p.3) is not widely accepted. Some researchers (Gobet & Campitelli, 2006) have critically questioned the impact of chess on cognitive and general academic ability. Still, the benefits of chess from a cognitive, at least, point of view should be viewed from the *transfer of learning* viewpoint.

Transfer of learning, initially conceived as transfer of practice (Woodworth & Thorndike, 1901), is a broad term that reflects “the ability to extend what has been learned in one context to new contexts” (Bransford, Brown & Cocking, 1999, p.51). Although there is a wider classification of transfer of learning types that include (among others terms) positive/negative transfer, low/far road transfer, forward/backward reaching transfer and so on, the most commonly used one is far/near transfer (Alexander & Murphy, 1999; Bransford, Brown & Cocking, 1999; Mestre, 2005; Perkins & Salomon, 1992; Sala & Gobet, 2017a). According to Sala and Gobet (2017a, p.515) far transfer “occurs when a set of skills generalizes across two (or more) domains that are only loosely related to each other” while the near transfer refers to “the transfer of skills between strictly related domains” (Sala & Gobet, 2017b, p.671).

In this light, while some of the cognitive benefits of chess might not explicitly lead to general academic achievement (Gobet & Campitelli, 2006) by virtue of far transfer, chess may still have academic impact in fields that are more closely related to chess (near transfer). A good example are mathematics. A number of studies (Barrett & Fish, 2011; Berkman, 2014; Ho, 2006; Ho & Buky, 2008; Scholz et al., 2008; Subia et al., 2019-just to mention a few) have underscored the contribution of chess to increased performance in mathematics. More specifically, chess may facilitate the learning of a number of mathematical notions such as adding and subtracting, division, multiplication, introduction to numbers, counting, categorizing as well as algebraic concepts and pre-concepts such as spatial orientation/directions and graph reading and coordinates (Jankovic & Novak, 2019, p.431). Still, hardly any of the available research refers to longitudinal studies with very young learners in mind as most of them aim at ages 9 and above which is unfortunate considering that during childhood “cognitive training is more likely to be effective than in adulthood” (Sala & Gobet 2017a, p.515).

What is more, it may be argued that chess is not only beneficial to mathematics but to other subjects of the educational curriculum. One such example is the language subject in general and the reading ability in particular. Research in the correlation of reading and chess (Ferguson 2000; Liptrap 1998; Margulies 1993) is limited compared to that of chess and mathematics. Still, one cannot ignore the fact that chess players use sub skills used in reading. Indeed, reading is a complex process of decoding that involves the use of working memory, visual processing, speed of procession, short time memory, and attention (Sheppard, 2017). If chess exercises memory, practises and enhances the visual processing of combinations of moves on the chessboard, promotes fast procession (due to time limitation) and requires from players increased attention and concentration levels, then one might assume that learners who play chess are better equipped compared to other learners who do not. What is more, if faster and more efficient reading is associated with eye fixation, then learners who play chess should be more competent given that chess players’ eye movements have been associated with rapid recognition of complex visual patterns (Sheridan & Reingold, 2017).

Furthermore, chess instruction may also prove beneficial in the field of foreign language learning. Memory components (whether in terms of general vocabulary or larger chunks of language) that influence foreign language learning include short-term immediate memory for pictures and associative short-term memory (Alexiou, 2009). In the same light, analytic skills such as inductive learning, visual perception, reasoning ability, spatial ability are also involved in the learning of the foreign vocabulary (ibid). As a result, young learners who are already initiated in chess, should be more competent compared to those who have not played chess, as a game of chess: (a) uses mental

images as pictures of chess positions, (b) involves constant reasoning and deductive thinking, (c) exercises visual spatial abilities.

Besides its cognitive value, chess is also pedagogically valuable (Aciego, Garcia & Betancort, 2012) as it may develop social competencies (e.g. socializing, patience, perseverance, respect of the opponent, self-control). Some of these competences are presented in more detail in Table 1.

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|--|
| <i>Social competencies (the ability to respect and apply socio-cultural and educational values)</i> |
| <ul style="list-style-type: none"> - ability to create good relationships with peers, understanding the situation and opinions of other students - ability to accept and respect set of values, beliefs and personality of other people - ability to create environment in which they feel accepted and successful - ability to effectively handle emotions - self-confidence and trust in personal abilities - organizational capability: planning and setting goals, managing and solving problems - ability to collaborate in learning and communication, solving problems through discussion and conversation - ability to be responsible and independent in decision-making - ability to responsibly carry out undertaken tasks - ability to recognize the consequences of their own and other views and actions - skills for solidarity and polite behavior, mutual help and acceptance of diversity - ability to perform in public and speak to others. |
| <i>Work competencies</i> |
| <ul style="list-style-type: none"> - ability to define the project and set goals - skills to perform complex tasks requiring careful planning, realization, analysis and evaluation of work results - ability to determine priority objectives and their development - ability to use the resources needed to achieve multiple goals - ability to steadily and patiently fulfill undertaken tasks - ability to monitor and evaluate project progress and adaptation to new circumstances during work - ability to consistently carry out their own ideas |
| <i>Competencies for communicating, learning and solving problems</i> |
| <ul style="list-style-type: none"> - ability to interactively use languages, symbols and technology - ability to interactively use knowledge and information - ability to understand spatial relationships, correct perception and clear idea of object position in the space, and predicting changes of position - developed mathematical skills (identify and define unknown, organize knowledge and information) |

*Table 1. Competencies which students can acquire through chess training
(Adapted from (Jankovic & Novak, 2019, p.436)*

The inclusion of so many skills and competencies in a single board game renders chess an excellent choice for educational settings. Given a number of studies (Glukhova, 2017; Meyers, 2016; Stefurak, 2013) that support such a statement, the instruction of chess was willingly adopted in the educational context described below as an innovative integration in the existing educational curriculum.

2. Educational setting and chess in CLIL attire

The broader educational context in which chess instruction took place was the 3rd experimental primary school of Evosmos, which is situated in the western part of Thessaloniki, Greece and is a unique school for a number of reasons.

First, because, compared to the rest of the public schools, it possesses highly qualified personnel. The selection of the personnel for experimental schools is dictated by a different law that prioritizes high qualifications and all the staff undergoes a number of evaluations before it is selected. Therefore, the personnel are well experienced and hold at least an MA while a considerable number of English and Greek teachers in these schools hold a PhD.

Furthermore, this experimental school is supervised by the School of English of the Aristotle University of Thessaloniki. This privilege entails creative and productive monitoring of the educational curriculum by the department's academic staff in cooperation with the school's administration and quality teaching of English as a foreign language. The University also benefits from this cooperation as it sends students to observe experienced teachers who become their mentors.

What is more, due to its experimental nature, the school implements a number of innovative and different trends, compared to the other public schools, in early foreign language learning and teaching. In this light, the teaching of English to young learners follows an experiential and grammar free instruction. Young learners are exposed to extensive and qualitative English language input as the teachers there use the English language exclusively focusing their language on lexical chunks and teach for 5 hours per week in grades 1 and 2 compared to 1 hour per week in the rest of the public schools. The results of this innovative English language curriculum are impressive taking into consideration that learners at this school have consistently participated in the KPG exams earning a B2 level of certification in the English language by the age of 12 (grade 6) without any private tuition outside school (a rare phenomenon in Greece).

Finally, the 3rd experimental primary school of Evosmos is unique because it is the only school in Greece that implements the Content and Language Integrated Learning (CLIL) method in the teaching of other subjects. CLIL has long been established as a valuable method (Coyle, Hood & Marsh, 2010; Mehisto, Marsh & Frigols, 2008) and proven to aid in a number of areas such as language (Loranc-Paszylk, 2009; Merino, & Lasagabaster, 2018) and vocabulary (Heras, & Lasagabaster, 2015; Pérez-Cañado, 2018; Xanthou, 2011). The four language skills are also affected as in speaking (Gallardo del Puerto & Gómez-Lacabex, 2013), writing (Gené-Gil, Juan-Garau, & Salazar-Noguera, 2015; Ruiz de Zarobe, 2010), reading (Varkuti 2010), and listening (Aguilar & Rodriguez, 2012; Dallinger, Jonkmann, Hollm, & Fiege, 2016). Finally, CLIL was also found to include motivational outcomes (Dalton-Puffer, 2011; Pérez-Cañado, 2012). Given the beneficial results of the CLIL method, the school has initially implemented it in subjects such as Geography, Science, Environmental Studies, and History with the exclusive use of the English language instead of Greek. Since 2014, the CLIL method has been extended periodically (depending on the school's schedule) to subjects such as Physical Education and last but not least Chess.

Under the CLIL mantle, chess has increased its contribution to the school's innovative approaches and maintained the tradition of good trends in the teaching of foreign languages to young learners. It was no longer just a board game of so many cognitive and non-cognitive benefits but became a dual focused approach unfolding its true power to young learners. In this light, it contributed to the school in two ways. First, it covered a gap, as up to that point CLIL was only offered to grades 3 to 6, leaving the very young learners of grades 1 and 2 CLILless. Second, it further increased the exposure

of young learners to the English language for one extra hour per week and did so in a playful way, for, after all, chess is a game.

3. Implementation of chess

Having defined the setting and the further enhancement of chess with the dual focused approach of CLIL, we now proceed to the implementation of chess in the CLIL of the 3rd Experimental primary school of Evosmos. In particular, the content of the lessons and the tools used in unfolding its true potential will be accounted for in the following paragraphs.

As far as the content of chess is concerned, it fully complies with the school's priorities that, among others, aims at using diverse and motivating material that is delivered via experiential learning, is context-based and assisted by Information Computer Technology (henceforth ICT).

As Kolb (1984, p.41) mentions “knowledge is created through the transformation of experience”. In this light, children generally learn better by doing things rather than being told what to do and learn (Moore, 2010). Therefore, in chess learners implicitly (via entertaining and motivating activities) acquire the terminology associated with the game. Taking their young age into consideration, these activities might include guessing (e.g., what chess piece is in my hand), miming (e.g., the moves of the chess piece on a big chessboard), drawing/colouring (e.g., the black and white squares of the chessboard), bingo or memory games (naming chess pieces) and so on. Their young age also necessitates activities that include physical movement and therefore chess playing on a big chessboard, frequent getting up and pointing at the target piece, showing the solution of a chess puzzle and so on, are also used and encouraged. Young learners also like to create things, which are then displayed not only to boost their sense of personal involvement in the teaching process but also in order to provide further visual-haptic stimuli that may aid learning (Broadbent, Osborne, Kirkham & Mareschal, 2019). Therefore, learners also use black and white plaster for the creation of self-made chessboards, they create pictures or posters with their favourite chess pieces, chessboard, or even an imaginary chess picture story. Learners are also engaged in building Lego chessboards and chess pieces. All crafts and creations are then displayed in a specially reserved ‘chess area’ in the classroom. As their vocabulary increases with time, we also encourage spoken production so we organize chess puppet playing sessions which encourage recycling of chess vocabulary and English chunks (e.g. *Hello, What is your name? I am a bishop, What's the weather like bishop? etc*).

All the daily topics (e.g., chessboard, chess pieces and their movement, chess values, basic strategy and tactics, chess openings and endings, and so on), writing and the associated vocabulary (e.g., squares, horizontal, vertical, diagonal, move, take, castle, bishop, rook, knight etc) are context-based given that young learners have not yet fully mastered abstract thinking and their short term memory as well as concentration skills are limited. Thus, we use YouTube cartoons (Petit Nicola learning chess) or other videos (Geri's game, available at <https://www.youtube.com/watch?v=dMnUuKr88XU>), fairy tales (Chessboard fugitives by Evgenios Trivizas, Once upon a time there was chess by Giouvantsoudis Kostas and Mousiadou Irini), and even comic character based chess course books (Karvin in the chess forest by Barsky and Kasatina) that aid young learners grasp chess theory and tactics in a playful and child-friendly way. The translated version of the mentioned course book is accompanied by an activity book and is the result of the cooperation of the Kasparov Chess Foundation in Europe with the Association of Chess Players of Thessaloniki.

Eventually, ICT assumes a significant role in our chess lessons. The unique ability of computer technology to combine visual with audio elements renders it a valuable tool for learning the chess terminology (by seeing and listening to its English pronunciation) as well as for demonstrating complex chess notions. However, ICT is not only used for demonstration purposes but also for its interactive ability. Young learners love to interact with the computer, and, to this end, it is used for a

number of chess games (digital memory games, digital colouring, 3d puzzles, and other flash or HTML based material). Finally yet importantly, a special chess software (Chessmaster) is used for practising chess movements on funny and entertaining cartoon like chessboards as well as in organizing challenging chess tournaments. The chess software is also used for evaluative purposes. First, it is used in formative evaluation as the teacher records each learner's choices (chess moves), and this way it keeps a detailed record of the learners' comprehension of the content of chess. What is more, the chess software may also serve the purpose of a summative evaluation, as it depicts the level of each learner in terms of ELO points (chess rating points awarded based on the players' opponent level).

All the content of chess was delivered via the CLIL methodology. Still, given the young age of the learners and the fact that this was their first exposure to both English and CLIL as a method, it was considered proper to start with a light form of CLIL. Therefore, in grade 1 chess was introduced in the form of CLIL showers while from grade 2 and onwards, chess was offered in its full form with the English language being the dominant and unique (at least on the part of the teacher) form of delivery.

4. Conclusion

This paper has described the pioneering attempt of teaching chess to young learners in the English language and provided its readers with a number of reasons that explain why chess should be incorporated in the general curriculum of schools. Apart from its general cognitive benefits, chess is a pedagogical tool in the hands of educators that may contribute positively to a number of areas such as the learners': (a) social skills (learners exposed to chess improved their behaviour), (b) emotional-motivational skills (chess is viewed as a game by the learners and this, compared to other school subjects makes them feel more relaxed and motivated), (c) better performance in mathematics (learners exposed to chess demonstrate better results in mathematics because of the near transfer of learning that chess skills have in relation to mathematics), (d) better performance in English (when chess is delivered via the CLIL method). Unfortunately, chess has not yet been included in the main curriculum in many countries but hopefully the usefulness and necessity of such an educational intervention will be made clearer with the necessary research within school premises through well-focused empirical studies. For chess may not be a solution to all educators' problems, as there are a number of other variables that affect teaching and learning and much is also dependent on the way of the delivery, but it is still a magic wand that educators should value. All that is left then is the right spell!

References

- Aciego R., Garcia L., & Betancort, M. (2012). The benefits of chess for the intellectual and social-emotional enrichment in schoolchildren. *Span. J. Psychol.* 15, pp.551–559.
- Aguilar, M., & Rodríguez, R. (2012). Lecturer and student perceptions on CLIL at a Spanish university. *International Journal of Bilingual Education and Bilingualism*, 15(2), pp.183-197.
- Alexander P.A., & Murphy P.K. (1999). Nurturing the seeds of transfer: A domain-specific perspective. *International journal of educational research*, 31(7), pp.561–576.
- Alexiou, T. (2009). Young learners' cognitive skills and their role in foreign language vocabulary learning. In M. Nikolov (Ed.) *Second Language Acquisition: Early learning of Modern Foreign Languages*. Processes and Outcomes (pp. 46-61). Bristol: Multilingual Matters

- Alexiou, T. (2005) *Cognitive development, aptitude and language learning in Greek young learners*. Unpublished PhD thesis, Swansea.
- Barrett D., & Fish W. (2011). Our move: using chess to improve math achievement for students who receive special education services. *Int. J. Spec. Educ.* 26, pp.181–193.
- Berkman R. M. (2004). The Chess and Mathematics Connection: More than Just a Game. *Mathematics Teaching in the Middle School*, 9, pp.246–250.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (1999). *How people learn: Brain, mind, experience, and school*. National Academy Press.
- Broadbent, H., Osborne, T., Kirkham, N., Mareschal, D. (2019). Touch and look: The role of visual-haptic cues for categorical learning in primary school children. *Infant and Child Development*. 10.1002/icd.2168.
- Coyle, D., Hood, P., & Marsh, D. (2010). *CLIL: Content and Language Integrated Learning*. Cambridge: Cambridge University Press.
- Dallinger, S., Jonkmann, K., Hollm, J, & Fiege, C. (2016). The effect of content and language integrated learning on students' English and history competences: Killing two birds with one stone? *Learning and Instruction* 41, pp. 23–31.
- Dalton-Puffer, C. (2011). Content-and-language integrated learning: From practice to principles? *Annual Review of Applied Linguistics* 31, pp.182–204.
- Ferguson, R. (2000). *The Use and Impact of CHESS*. Section B, USA Junior Chess Olympics Curriculum. 53.
- Fissler P, Kolassa I-T, & Schrader C (2015). Educational games for brain health: revealing their unexplored potential through a neurocognitive approach. *Front. Psychol.* 6, p.1056. doi: 10.3389/fpsyg.2015.01056.
- Gallardo del Puerto, F., & Gómez-Lacabex, E. (2013). The impact of additional CLIL exposure on oral English production. *Journal of English Studies* 11, pp.113-131.
- Gené-Gil, M, Juan-Garau, M., & Salazar-Noguera, J. (2015). Development of EFL writing over three years in secondary education: CLIL and non-CLIL settings. *Language Learning Journal* 43(3), pp. 1–18.
- Glukhova, O.V.(2017). The Need for Chess in School and Its Role in the Dynamics of Child Development *Revue Internationale du CRIRES: innover dans la tradition de Vygotsky*, 4(1), pp.161-168.
- Gobet, F., & Campitelli, G.(2006). Educational benefits of chess instruction. A critical review. In T.Redman (Ed.), *Chess and Education. Selected essays from Koltanowski Conference* (pp. 124-143). Dallas, TX: University of Texas at Dallas.
- Heras, A., & Lasagabaster, D. (2015). The impact of CLIL on affective factors and vocabulary learning. *Language Teaching Research*, 19(1), pp.70–88.
- Ho, F. (2006). Enriching math using chess. *Journal of the British Columbia Association of Mathematics Teachers*, 47(2), pp.44-60.
- Ho, F., & Buky, J. (2008). *The Effect of Math and Chess Integrated Instruction on Math Scores*. Chicago: The Chess Academy.
- Jankovic, A., & Novak, I. (2019). Chess as a Powerful Educational Tool for Successful People, In Tipurić, Darko Hruška, Domagoj (Ed.): *7th International OFEL Conference on Governance, Management and Entrepreneurship: Embracing Diversity in Organisations*. April 5th - 6th, 2019, Dubrovnik, Croatia, Governance Research and Development Centre (CIRU), Zagreb, pp. 425-441
- Jerrim, J.P., Macmillan, L., Micklewright, J., Sawtell, M., & Wiggins, M. (2018). Does teaching children how to play cognitively demanding games improve their educational attainment? Evidence from a Randomised Controlled Trial of chess instruction in England. *Journal of Human Resources*, 53 (4), pp. 993-1021.
- Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.

- Liptrap, J. (1998). *Chess and Standard Test Scores*, Chess Life 1998, pp.41-43. Retrieved from <http://web.ebscohost.com.ezproxy.liberty.edu>
- Loranc-Paszylk, B. (2009). Integrating Reading and Writing into the Context of CLIL Classroom: Some Practical Solutions. *International CLIL Research Journal* 1 (2), pp. 47-53.
- Margulies, S. (1993). *The effect of chess on reading scores: District nine chess program, second year report*. New York: The American Chess Foundation.
- Mehisto, P., Marsh, D., & Frigols, M.-J. (2008). *Uncovering CLIL*. Oxford: Macmillan.
- Merino, J.A., & Lasagabaster, D. (2018). The effect of content and language integrated learning programmes' intensity on English proficiency: A longitudinal study. *International Journal of Applied Linguistics* 28(1), pp. 18–30.
- Mestre, J. P. (ed.) (2005). *Transfer of Learning From a Modern Multidisciplinary Perspective*. Greenwich, CT: Information Age.
- Meyers, J. (2016). Why offer chess in schools? In Kasparov Chess Foundation Europe, *The Benefits of Chess in Education: Examples of Research and Papers on Chess and Education*, pp. 3-5. Available from www.academiadesah.ro/wp-content/uploads/2016/08/research_kcfe.pdf
- Moore, D. T. (2010). Forms and issues in experiential learning. In D. M. Qualters (Ed.) *New Directions for Teaching and Learning* (pp. 3-13). New York City, NY: Wiley.
- Pérez Cañado, M. (2018). CLIL and Educational Level: A Longitudinal Study on the Impact of CLIL on Language Outcomes. *Porta Linguarum*, 29, pp.51-70.
- Perkins, D.N., & Salomon, G. (1992). *Transfer of learning*. *International Encyclopedia of Education*, Second Edition. Oxford, England: Pergamon Press.
- Rosholm, M., Mikkelsen, M.B., & Gumedé, K. (2017). Your move: The effect of chess on mathematics test scores. *PLoS ONE* 12(5), e0177257.
- Ruiz de Zarobe, Y. (2010). Written production and CLIL: An empirical study. In C. Dalton Puffer, T. Nikula & U. Smit (Eds.) *Language Use in CLIL*. Berlin: John Benjamins
- Sala, G., & Gobet, E. (2017a). Does far transfer exist? Negative evidence from chess, music, and working memory training. *Current Directions in Psychological Science* 26(6), pp.512-520.
- Sala, G., & Gobet, F. (2017b). Working memory training in typically developing children: A meta-analysis of the available evidence. *Developmental Psychology*, 53(4), pp.671–685.
- Scholz, M., Niesch, H., Steffen, O., Ernst, B., Loeffler, M., Witruk, E., & Schwarz, H. (2008). Impact of chess training on mathematics performance and concentration ability of children with learning disabilities. *International Journal of Special Education*, 23(3), pp.131-141.
- Sheppard, S.M. (2017). *Making Learning Personal for All: Supporting research-based personalization for reading success*. Washington, DC: Digital Promise Global.
- Sheridan H, & Reingold E.M. (2017). Chess players' eye movements reveal rapid recognition of complex visual patterns: Evidence from a chess-related visual search task. *Journal of Vision*. 17(4).
- Stefurak, L. (2003). *Why chess in elementary school education?* Retrieved from <http://www.misd.wednet.edu/IPWebPage/IPChess//why.html>.
- Subia, G., Amaranto, J., Amaranto, J., Bustamante, J., & Damaso, I. (2019). Chess and Mathematics Performance of College Players: An Exploratory Analysis. *Open Access Library Journal*, 6, pp.1-7.
- Woodworth, R. S., & Thorndike, E. L. (1901). The influence of improvement in one mental function upon the efficiency of other functions.(I). *Psychological review*, 8(3), pp. 247–261.
- Várkuti, A. (2010). Linguistic Benefits of the CLIL Approach: Measuring Linguistic Competences. *International CLIL Research Journal*, 1(3), pp.67-79.
- Xanthou, M. (2011). The impact of CLIL on L2 vocabulary development and content knowledge. *English Teaching: Practice and Critique* 10(4), pp.116-126.

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