Research Article

DEVELOPMENT OF LANGUAGE, THINKING AND ADAPTATION IN EDUCATIONAL SETTINGS

Isabel Núñez Vázquez* and Rafael Crismán-Pérez

Abstract

In the educational scenario, Project-Based Learning appears as the main teaching method addressed to develop active learners by developing symbolic learning and critical thinking by adapting students to the current challenges of society. This adaptation supposes to develop many cognitive processes that influence on the development of language and thinking which are considering 21st century skills. PBL is a methodology which its main characteristics turn around the use of quite demanding social topics prompting active symbolic processes. In order to engage and motivate students from a PBL, it is necessary to take students as the centre of learning through their active participation.

Key Words: adaptation, language, learner and thinking.

INTRODUCTION

The present society demands the acquisition of 21st century skills (OECD, 2006) like Key Competences in order to make students active citizens. This requires the development of teaching-learning methods that answers to an active approach of students in order to prompt lifelong learning. Students which receive a Project-Based Learning (PBL) methodology improve lifelong skills like responsibility, problem solving, self-direction, communication, and creativity at statistically significant level (Wurdinger and Qureshi, 2014). Then, PBL answers to this requirement by boosting symbolic learning and critical thinking, so it becomes the teaching-learning process that better answers to the needs that educational systems demands to get a good adaptation to the present challenges.

Literature Review

Project-Based Learning (PBL) is an approach based on learning from the active participation of students to develop critical awareness towards a topic of social significance (Bransford and Stein) taking as main resource Information Communication Technologies and Learning and Knowledge Technologies (Lozano, 2011). On the one hand, PBL is defined like "a learning model that utilizes project problems and hands-on practices to enable the learning process" (Mohamed, et al., 2012). On the other hand, PBL is conceptualized like "a teaching method where teachers guide students through a problem-solving process which includes identifying a problem, developing a plan, testing the plan against reality, and reflecting on the plan while in the process of designing and completing a project" (Wurdinger, et al., 2007:151).

Wolff (2002) establishes a set of categories that define PBL such as critical thinking, problem solving, teamwork, negotiation skills, reaching consensus, using technology, and taking responsibility for one's own learning. This prompts motivation and engagement from pupils who are the main agents. For that reason, goals must be clear in order to get pupils' participation (Christoph, et al., 2015). Thus, Ruggiero and Boehm (2017) state PBL is related to learner-centred, problem solving and open-ended environments. Likewise, steps inside the PBL must be established previously in order to make an open driving question that guides the process of learning and being students are aware of the corresponding teaching-learning goals. Then, the process of education becomes transparent, and students know what is required from them being evaluation continuous and formative. The corresponding driving-question that guides any PBL is an adaptation of the current educational systems to the demands of the society with topics that must be developed through a process of investigating. Han (2017) conducted a research about different components of PBL such as technology based learning, self-regulated learning, and hands-on activities. He found students were positive to the use of this methodology in subjects like Science, Mathematics and Technology. Thus, many cognitive processes and thinking routines are developed (Puchta and Williams, 2011) namely Critical Thinking. This supposes the development of functional language and learning that promotes engagement and motivation towards the teaching-learning process. This implies the development of intrinsic motivation thatmakes learning effective. Finally, the results of a teaching-learning process from PBL develop not only a final product (wall charts, friezes, virtual walls, presentations, etc.)

Department of Psychology, Developmental and Educational Psychology Area

Correspondence and Reprint Requests: Isabel Núñez Vázquez

which is exhibited outside the classroom but the commitment and participation of all the Educational Community (Linse, 2005).

When pupils are the main characters of teaching-learning process, pupils learn meaningfully. PBL provides meaningful learning being communication and critical thinking main keys competencies of this approach (Shernoff, *et al.*, 2017). Also, different groupings are planned during the activities and exercises in order to developed interaction and, especially, cooperative work (Vygotsky, 1983). Thus, collaborative digital tools influence on the development of PBL (Baser, *et al.*, 2017). Students put into practice skills of solving conflicts in group which demands a detailed process of development of language such as coding, decoding, providing feedbacks, writing from different discursive patterns and establishing different syntagmatic and paradigmatic relationships (Dell *et al.*, 2008). Therefore, a symbolic learning is prompted as well as critical thinking due to the nature of topics. Interesting themes like environmental education, human conflicts, and healthy habits...imply an active teaching-learning method by students. So, they develop a set of future behaviours of adaptation to the needs of our world.

This active teaching-learning process implies different roles from teachers like a guide, facilitator and manager of resources (Nunan, 2004), especially during the phase of inquiry in order to feel students confident and motivated. In this sense, Basilotta Gómez-Pablos *et al.*, (2017) constructed a questionnaire to measure teachers' attitudes towards PBL. Results revealed a positive evaluation of PBL by 310 teachers in Spain, however, they stated many difficulties that teachers have when they carry out this approach. They pointed out lack of support by the School Management Team and the lack of access to digital tools and new technologies.

DISCUSSION

Project-Based Learning prompts motivation and engagement of pupils due to the fact their participation is the basis of the teaching-learning process. Students became the main agents, and they develop autonomy to monitor their works progressively. Therefore, PBL promotes several cognitive processes and models of thinking (Anderson and Krathwohl, 2001; and Perkins and Ritchhart, 2004) such as Understanding the importance of topics of social significance; Applying knowledge of vocabulary and grammar to produce a specific discursive patterns like a final product; and Creating a final task that prompts critical thinking. The development of these cognitive processes boosts motivation and positive attitudes towards the lesson. Regarding Models of Thinking, some are promoted such as Critical thinking by the use of topics of social significance in order to prompt critical awareness and

active citizens; Reflexive thinking, so pupils get to be aware of their own ideas and provide new ones; and Deliberative thinking by making some decisions during the teaching-learning process which foster autonomy and motivation.

These cognitive processes and models of thinking allows developing a set of lifelong learning like Key Competences such as Linguistic and Communicative Competence by embedding pupils in the context of a relevant topic, and learning vocabulary and grammar related; Social and Civic Competence by respecting peers' ideas and working in groups to develop learning from a Project-Based Learning; Sense of Initiative and Entrepreneurship by developing active students that work in an autonomous way; Learning to learn by answering questions and organizing information from research; Digital competence by getting information from digital applications, on Internet and the Interactive Whiteboard; and finally, Cultural Awareness and Expression Competence by expressing their critical thinking about a specific topic making connections among cultures and countries.

CONCLUSION

PBL allows students to understand and get the general idea and specific information from different contexts through basic skills of understanding and recalling. These skills are shown on presentations and brief descriptions, using basic structures planned previously to express daily and interesting topics to give information. Finally, they write varied discursive patterns about quite demanding topics establishing the corresponding syntagmatic and paradigmatic structures with the corresponding vocabulary according to the context of social significance what makes learners better adapt and develop resilient behaviours to the current society.

References

1. Anderson, L. W. and Krathwohl, D. R., *et al* (Eds.) (2001) A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. Allyn & Bacon. Boston, MA (Pearson Education Group).

2. Asher, J. (2009). Learning another language through actions: The complete Teacher's Guide, 7th edition. California: Sky Oaks Production, Inc.

3. Basilotta Gómez-Pablos, V., Martín del Pozo, M, and García-Valcárcel Muñoz-Repiso, A. (2017) Project-based learning (PBL) through the incorporation of digital technologies: An evaluation based on the experience of serving teachers. *Computers in Human Behaviour*, 68, 501-512

4. Bransford, J. D. and Stein, Barry S. (1993). The Ideal Problem Solver: Guide for improving Learning, Thinking and Creativity . UK: W.H.Freeman & Co Ltd

5. Christoph, G., Goldhammer, F., Zylka, J., & Hartig, J. (2015). Computers in Human Behaviour, 53 (C), 149-160. doi: 10.1016/j.chb.2015.07.008

6. Dell, G.S., Oppenheim, G.M., and Kittredge, A.K. (2008). Saying the right word at the right time: Syntagmatic and paradigmatic interference in sentence production. Language and Cognitive Processes , 23(4), 583-608. doi: 10.1080/01690960801920735

7. Han, S. (2017). Korean Students' Attitudes toward STEM Project-Based Learning and Major Selection. Educational Sciences Theory and Practice, 17,2 529-548

8. Kellogg, R. T. (2003). Cognitive Psychology. Tousand Oaks-London, Sage Publications

9. Linse, C.T. (2005). Practical English language teaching: Young learners. New York: McGraw-Hill

10. Lozano, R. (2011). De las TIC a las TAC: tecnologías del aprendizaje y del conocimiento. *Anuario ThinkEPI*, 5, pp. 45-47.

11. Mohamed, N., Al-Jaroodi J., and Jawhar, I. (2012). Enhancing the Project-Based Learning Experience Through the Use of Live Web Data. I.J.Modern Education and Computer Science, 11, 33-43 doi: 10.5815/ijmecs.2012.11.03

12. Nunan, D. (2004). Task-based Language Teaching. Cambridge: Cambridge University Press

13. OECD. PISA (2006). Information and communication technology questionnaire (OECD Program for International Student Assessment). Retrieval from https://www.oecd.org/pisa/pisaproducts/37474503.pdf on 29th June 2017

14. Perkins, D. N., and Ritchhart, R. (2004). When is good thinking? In D. Y. Dai & R. J. Sternberg (Eds.), Motivation, emotion, and cognition: Integrative perspectives on intellectual functioning and development (pp. 351-384). Mahwah, NJ: Erlbaum.

15. Piaget, J (1954). The construction of reality in the child. NY: Basic Book

16. Puchta, H., & Williams, M. (2011). *Teaching Young Learners to Think*. Innsbruck and Cambridge: Helbling Languages and Cambridge University Press.

17. Ruggiero, D. and Boehm, D.J. (2017). Project-based learning in a virtual internship programme: A study of the interrelated roles between intern, mentor and client. Computers & Education, 110, 116-126

18. Shernoff, D.J., Sinha, S., Bressler, D.M. and Schultz, D. (2017). Teacher Perceptions of Their Curricular and Pedagogical Shifts: Outcomes of a Project-Based Model of Teacher Professional Development in the Next Generation Science Standards. *Frontiers in Psychology*. doi: 10.3389/fpsyg.2017.00989

19. Vygotsky, L. S. (1983). Problems in the development of mind. Vol. 3. Moscow: Izdatel'stvo Pedagogika.

20. Wolff, S. (2002). Design Features for Project-Based Learning. Retrieval from http://www.designshare.com/ on 1st July 2017

21. Wurdinger, S., Haar, J., Hugg, R. & Bezon, J. (2007). A qualitative study using project-based learning in a mainstream middle school. Improving Schools, 10(2):150-161. doi: 10.1177/1365480207078048.

22. Wurdinger, S. and Qureshi, M. (2014). Enhancing College Students' Life Skills through Project Based Learning. Innovative Higher Education, 39(5), doi: 10.1007/s10755-014-9314-3

****