Student participation and peer-to-peer learning processes in primary education

Eduard Ramirez Banzo

Department of physical education, Universitat de Vic-Universitat Central de Catalunya, Spain.

Abstract

This study considers the influence that classmates have over a student's learning process in an individual sport. "Others" are defined as classmates who become educational agents and establish mechanisms of educational influence during learning processes through peer-to-peer relationships. From the perspective of the teacher researcher, the goal of changing and improving the author's own teaching practice is presented as the starting point for the design, validation and implementation of a support-recall-projection (SRP) proposal for intervention. The data analysis showed that the proposal contributed to the development of independence, decision-making, teamwork and respect for each person's pace of learning among primary education students in physical education.

Keywords: student participation, peer-to-peer learning, basic competencies, and teamwork.

1. Introduction

This paper, as a reflective journey towards improving the author's own teaching practice, presents the process of designing and validating an innovative proposal for intervention in physical education area according to the government guidelines on the educational context based on basic competencies. Based on teamwork strategies, the new proposal provides an innovative focus on the mechanisms and processes involved in learning an individual sport and it is presented as an alternative to traditional teaching models in the processes of learning individual sports (Layne, Todd; Hastie, 2013) (Famose, 1982) (Ramírez, 2008).

The psychological and pedagogical principles of the SRP[1] methodology outline a scenario based on a constructivist context (Bruner, 1981) (Coll, 1993a). In this scenario, teachers introduce processes of cooperation and reflection that enable students to get problem-solving and decision-making skills. Students become an educational agents of learning process where communication system enables them to compare and modify their schema of knowledge and their representations of what is being taught and learnt (Light & Wallian, 2008). Its use helps students to restructure and reorganize their experiences and knowledge highlighting above all the strengths of each of them.

This new way of education in physical education (by the implement of the SRP proposal) represents the main answer to the question of the study: How can I turn a traditional learning context of physical education into a basic competencies learning processes?

The conclusions of this research shows us that using SRP methodological proposal contributes to the development of basic competencies among the students who become active agents and protagonists of teaching and learning processes, which are aided by classmates according to the new role of the teacher as facilitator and mentor (Zabala & Arnau, 2007).

2. Psychological and pedagogical principles of the stages in the srp proposal for intervention

SRP[2] (Support, Recall, Projection) are the initials of the three stages in the proposal for intervention that is based on research; juxtaposes cooperative (Johnson, Johnson & Holubec, 1999) and individual learning structures and promotes a group approach to learning, without overlooking individual challenges.

In the first of the three stages, the **Support** (S) stage, small work teams are formed (that are proposed by the teacher depending on the group's needs and the content covered in the

---

[1] Suport, Recall and Projection are the fases of the proposal which are described in the following section of the work.

[2] Ramírez (2012)

session) to start to practice the contents of the session, which are written on the board in the form of indicators[3]. The indicators inform students about what they should learn in terms of swimming strokes or specific motor skills. This stage involves interaction classroom processes at social level, stresses the importance of the group as a factor that triggers learning (Johnson, D.W.; Johnson, R.T.; Johnson Holubec, 1984) (Kagan, 1994), and is based on the concept of teaching as an aid (Vygotsky, 2000). Peer collaboration (Damon, W. & Phelps, 1989) is the cornerstone of collaborative work between students and promotes the establishment of mechanisms of educational influence between them, in the form of support and on the basis of the concept of peer-to-peer positive interdependence working together to achieve common goals (Geer, J., McCalla, G., Collins, J., Kumar, V., Meagher, P., Vassileva, J, 1998). This situation enables each student to progress and to achieve higher levels of learning and reflection than they would have been able to achieve without the assistance, as well as a notable increase in awareness of what they are learning (Bruner, 1981), in a significant way (Coll, 1993b).

On the second stage, that of **Recall** (R), teacher is managing a positive climate of team reflection on what occurred in the previous stage, at both individual level (reflections on what you have to improve by comparing your execution with that of your classmates) and group level (reflections on what your classmates should improve in their motor execution), taking as a point of reference the contrast between actual performance and the indicators on the blackboard. As the first stage, language is of central importance. In this case, it links cognition (theory and reflection) to the learning of some technical movements (the practice) (Fosnot, 1996) (Light, 2008).

Finally, the **Projection** (P) stage is organized at individual level. In this stage, each student projects into their own practice the aspects of motor execution that their teammates highlighted in the Recall stage and should be improved. The memory of those aspects that you compared with your classmate's performance in the Support stage will help to improve their own performance in the Projection stage.

3. Research method and design

The creating process of the SRP proposal was defined through the use of the intervention in a ten pilot swimming school programme sessions aimed at the same time, to introducing basic skills to the practice and also to improving it's teacher practice. It was cemented after the fourth session, when no further changes were made to the structure of the stages. Subsequently, the research method and design were devised. The participation of ten teach

---

[3] There should be no more than three indicators. They must be written clearly to make it easy for the students to understand them, and they must be attainable: they should not be difficult to execute by those who aim to push beyond their possibilities.

to swimming professionals in the study, made it possible to validate the research by using the SRP proposal in their school swimming sessions with a population of 182 students. Those professionals were formed in a seminar at University and trained to use SRP proposal in two school sessions. After the first session we met again at University to discuss together about the process, how to solve problems and encourage them for the second session. After implementing the two sessions we keep discussing at University in the seminar about the proposal in order to write final conclusions. Both sessions and meetings were recorded on video to be analysed in detail by two external research who at least analysed 640 session minutes setting the indicators for each objective of SRP proposal that we could display in different charts and quantify their frequency.

Taking into account the characteristics of research, and in line with Anguera (2004), the study uses a qualitative and quantitative approach. Quantitative methodology was used at the outset of this study to quantify types and frequency of student behaviour, which had previously been divided into different categories. Data were analysed by using IBM® SPSS® Statistics 21.0 software. To assess the effect of the SRP proposal implementation on different basic competencies, a table for repeated measures was performed. Opinion from professionals about the SRP proposal during discussion sessions (qualitative) were used to identify strategies in order to reinforce and complement the data analysis by a quantitative perspective (Castañer, M., Camerino, O., & Anguera, M. T.; 2013). In parallel, Cohen's Kappa coefficient certified the concordance between objectives and cathegories in each session by both external observers.

4. Contribution to the development of basic skills

In this section I would like to focus on Perrenoud's ideas on the concept of skill, which were one of the precursors to educational change. Zabala and Arnau (2007) set out criteria that enable us to determine characteristics of teaching basic skills. These criteria can be summed up as: significance, complexity, and the procedural nature of learning based on basic skills. In terms of the significance of learning, and in reference to "schemes of thinking" (Perrenoud, 2002), there is a need to review students' schemes of action with respect to other situations and experiences (Hastie, P. 1998).

On the basis of this proposal, the following table shows the achievement of basic competencies and their indicators as a result of the implementation of the SRP proposal. It's the result of students' contribution and participation to the development of basic skills:

Table 1. Contribution of participation in the SRP proposal to the development of skills.

Skill in independence and personal initiative	Skill in learning to learn	Social skill	Communication and linguistic skill
• **Take decisions (on the use of material, in accordance with the indicators written on the board at the start of the activity)** • **Seek solutions (how to use the material)** • **Self-esteem (pace of learning, open activities, contribution of solutions)**	• **Be aware of our capacities** (chose which material and decide how to use it to solve a minor problem according to my level) **and of the learning process** • **Accept and learn from success and mistakes** • **Learn from classmates executions and feedback**	• **Accept others' opinions and feedback** (to accept classmates' corrections. Correct classmates) • **Help classmates** (to learn and to improve) and **accept** their help.	• **Organize knowledge** (the contents of the board) • **Explain and express** what classmates solve successfully and what they need to improve, in relation to the indicators on the board • **Listen** to classmates.

5. Conclusions

The detailed quantitative analysis of the different sessions carried out by different physical education teachers allow us to confirm that:

In terms of the potential of the SRP proposal for intervention in an educational context, it appears to be a teaching strategy that could have an active impact on students' involvement as the real protagonists of the learning process.

As a strategy, it could and must co-exist with all other learning processes as another tool that is open and flexible.

In terms of learning process, the proposal for intervention encourages students' independence (both personal and with respect to the group) and decision-making in a learning environment

that is based on cooperative learning strategies, in contrast to the traditional approach in Physical Education lessons.

The SRP proposal offers to the teachers the opportunity to establish work dynamics in the classroom, although the lesson take place in the swimming pool or gymnasium that differ from current school classroom.

Coaches who participated in the process of validating the SRP proposal have incorporated some of the elements and stages into their practice related with teamwork, which shows that ideas from the proposal have been disseminated.

For students, the SRP proposal provides an opportunity to technically improve the learning of a sports technique, and to become better people who respect the learning pace and process of each member of a group, and treat all members equally.

The proposal therefore contributes to the development of basic skills in students who participate in its practical application.

References

Anguera, M. T. (2004). Posición de la metodología observacional en el debate entre las opciones metodológicas cualitativa y cuantitativa. ¿Enfrentamiento, complementariedad, integración?, *10* (Psicologia em Revista, Belo Horizonte), 13–27.

Bruner, J. (1981). Vygotski: Una perspectiva histórica y conceptual. *Infancia Y Aprendizaje*, *14* (Infancia y aprendizaje), 3–17.

Castañer, M., Camerino, O., & Anguera, M. T. (2013). Mixed Methods in the Research of Sciences of Physical Activity and Sport, *112* (Apunts. Educació Física i Esports.), 31–36.

Coll, C. (1993a). Construcivismo e intervención educativa ¿Cómo enseñar lo que se ha de construir? *Inervención Pedagógica*.

Coll, C. (1993b). *El constructivismo en el aula*. Graó Serveis Pedagògics.

Damon, W., & Phelps, E. (1989). *Strategic uses of peer learning in children's education*. In T. Berndt; Ladd G (Ed.), *Peer relationships in child development* (pp. 135–157). New York: Wiley.

Geer, J., McCalla, G., Collins, J., Kumar, V., Meagher, P., Vassileva, J. (1998): Supporting Peer Help and Collaboration in Distributed Workplace Environments. *International Journal of Artificial Intelligence in Education* (9), 159–177

Hastie, P. (1998). Applied Benefits of the Sport Education Model. *Journal of Physical Education, Recreation & Dance*, *69*(4), 24–26.

Johnson, D.W.; Johnson, R.T.; Johnson Holubec, E. (1984). *Cooperation in the classroom*. Minnesota: Edina.

Kagan, S. (1994). *Cooperative learning*. Kagan publishing.

Light, R., & Wallian, N. (2008). A Constructivist-Informed Approach to Teaching Swimming. *Quest*, *60* (3), 387–404.

Perrenoud, P. (2002). *Construir competencias desde la escuela*. Santiago de Chile: Dolmen Ediciones.

Ramírez, E. (2008). Hoy por fin hemos nadado en el aula. *Cuadernos de Pedagogía*, *375*, 30–32.

Ramírez, E. (2012). *Srp: noves estratègies d'ensenyament per a implicar els alumnes d'educació primària en el procés d'aprenentatge de la natació*. Universitat de Vic.

Vygotskii, L. S. (2000). *El desarrollo de los procesos psicológicos superiores.* Barcelona: Crítica.

Zabala, A., & Arnau, L. (2007). La enseñanza de las competencias. *Aula de Innovación Educativa*, *161*, 40–46.