



University Service-Learning in Physical Education and Sport Sciences: A systematic review

Oscar Chiva-Bartoll¹, Pedro Jesús Ruiz-Montero², Ricardo Martín Moya³, Isaac Pérez López⁴, Javier Giles Girela⁵, Jonatan García-Suárez⁶, Enrique Rivera-García⁷

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Abstract. Higher education requires a pedagogical transformation to guide teaching practice toward true educational competences. Service-Learning (SL) has become a teaching methodology that promotes social and personal skills. This systematic review of the literature reports SL experiences and research of university subjects related to physical education and sport sciences. All of them are based on different descriptive axes such as the type of publication: description of educational experiences, research articles or theoretical works. Similarly, this review has considered the geographical location, the methodological approaches used, the type of service provided and the different profiles of service recipient groups. Following an exhaustive search, 18 peer-reviewed publications were organized according to the methodology used, characteristics of the sample, duration and intensity of intervention programmes, instruments used, geographic distribution, profile of the group receiving the service and effects on students' academic learning. The results indicate that the methodologies used tended to be qualitative, while the variety of samples and duration of interventions was very broad. The instruments used were mainly interviews and questionnaires. Most of the groups receiving SL included people with functional diversity or disabilities, children with attention deficit and hyperactivity disorder, children with special educational needs, people at a disadvantage or social exclusion and curricular lag. The publications in the present review highlight the impact of SL in university subjects related to physical education and sport sciences.

Keywords: Systematic review; service learning; university; methodology; physical education.

¹ Universitat Jaume I

E-mail: ochiva@uji.es

² Universidad de Granada

E-mail: pedrorumo@ugr

³ Universidad de Granada

E-mail: r.martinm91@gmail.com

⁴ Universidad de Granada

E-mail: isaacj@ugr.es

⁵ Universidad de Granada

E-mail: javiggr@hotmail.com

⁶ Universidad de Granada

E-mail: jonathan90garcia@gmail.com

⁷ Universidad de Granada

E-mail: erivera@ugr.es

[es] Aprendizaje-Servicio universitario en Educación Física y Ciencias del Deporte: Una revisión sistemática

Resumen. La educación superior exige una transformación pedagógica que oriente la praxis docente hacia la educación por competencias. El Aprendizaje-Servicio (ApS) se ha convertido en un método pedagógico que promueve competencias sociales y personales. La presente revisión sistemática reporta experiencias e investigaciones de ApS en asignaturas universitarias relacionadas con las ciencias de la actividad física y del deporte. Todas las publicaciones presentadas se organizan en diferentes ejes descriptivos como la distinción entre descripción de experiencias, investigaciones o trabajos teóricos. Igualmente, se ha tenido en cuenta la localización geográfica, los enfoques metodológicos empleados, el tipo de servicio proporcionado y los diferentes perfiles de los colectivos receptores del servicio. Tras la búsqueda, 18 publicaciones fueron organizadas según la metodología utilizada, características de la muestra, duración e intensidad de los programas de intervención, instrumentos empleados, distribución geográfica, perfil del colectivo receptor del servicio y efectos producidos sobre el alumnado. Los resultados también indican que la cualitativa es la metodología más utilizada, mientras que la variedad de la muestra y duración de las intervenciones es muy amplia. Los instrumentos empleados fueron principalmente entrevistas y cuestionarios. Los colectivos con mayor recepción de ApS han sido las poblaciones con diversidad funcional o discapacidad, niños y niñas con trastorno por déficit de atención e hiperactividad o necesidades educativas especiales, personas en situación de exclusión social y desfase curricular. Las publicaciones recogidas en el presente trabajo muestran el impacto del ApS en estudiantes universitarios del ámbito de las ciencias de la actividad física y del deporte.

Palabras clave: Revisión sistemática, aprendizaje-servicio, universidad, metodología, educación física.

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1. Introduction

Current university education requires a pedagogical renewal both centered on training competent and creating effective professionals and educating them as citizens committed to civic and democratic values. To promote the development of skills, this reform is an educational action more relevant than the traditional transmission of knowledge. Among the education for skills methods and society values, Service-learning (SL) is one of those most accepted in universities (Butin, 2006; Herold & Waring, 2016; Kenworthy-U'Ren, 2008), as the students' experiences contribute to civic education and facilitate the acquisition of new learning. From an historical perspective, SL is a relatively new phenomenon. The term was first coined in 1967, and it is based on the work of researchers and theorists on learning, including Jean Piaget, Kurt Lewin, Donald Schon, David Kolb and John Dewey with the "Progressive Education Movement" in United States, who believe that we learn through combinations of action and reflection (Jacoby, 2015). SL establishes an operation-

al relationship between theory and practice, providing university students with the opportunity to learn while contributing with a service. In addition, it is defined as a pedagogical proposal that combines learning and community service, based on the application of skills and reflective understanding of curriculum content in real contexts, experientially and with the aim of improving students' critical capacity while also offering a social benefit (Eyler & Giles, 1999; Domangue & Carson, 2008; Furco & Billig, 2002; Tapia, 2008). SL has a series of particular elements that conform its essence, such as: (1) the need of a curriculum link with the subject in which it is applied; (2) there must be reciprocity, understood as the need to integrate, balance and evaluate learning and service objectives; (3) there must be reflection, centered on interiorizing the learning that emanates from the experience and on encouraging the students to know themselves; (4) student decision making must be present in all phases of the process; (5) attention must be paid to a real need, SL programs cannot remain in hypothetical cases.

The increase of SL has aroused great interest in educators at all educational levels and academic disciplines, as well as researchers interested in its effects (Warren, 2012; Yorio & Ye, 2012), with a multitude of studies examining its impact, especially in higher education (Novak, Markey, & Allen, 2007). Another proof of its effectiveness is the commitment to the processes of institutionalization that SL has had in many universities (Butin, 2006; Kenworthy-U'Ren, 2008). Given this proliferation, the need to better understand SL at the university level is pressing for all agents committed to its implementation. In this line, previous works such as the meta-analyses of Conway, Amel and Gerwien (2009), Warren (2012) and Yorio and Ye (2012), offer a panoramic overview of SL in terms of research and implementation. However, at the present point of proliferation it begins to be necessary to provide specific analyses from each discipline and educational level (Novak et al., 2007; Warren, 2012). In response to this need, this work presents a systematic review of the literature on university SL implemented in physical education and sport sciences.

One of the most relevant prior works is that of Carson and Raguse (2014), with its systematic review of SL in scenarios of physical activity in young people. That work offers a rigorous analysis based on three pillars: research, study programmes and implementation strategies. The authors, who do not only deal with university studies, conclude that physical activity and education facilitate the use of SL as a successful educational proposal. Another good example of the growing use of SL in this area is the review of Cervantes and Meaney (2013), who describe its development in the university education of physical education (PE) teachers. In that case, the authors include an examination of SL's theoretical framework, the impact on student teachers specializing in PE and a series of recommendations for implementation and research. The work presented in this paper complements this analysis with a systematic review of SL publications related to university subjects of physical education and sport sciences.

With the intention of promoting this educational practice and publicizing its potential for university teachers and researchers in physical education and sport sciences, this review is structured around the following descriptive axes: type of work published (description of an educational experience, empirical research article or theoretical work); geographical location of experiences and published research; methodological research approaches; types of SL programmes implemented (direct, indirect, advocacy and investigation) and profile of the groups receiving the service.

2. Method

2.1. Search strategy

Three main search strategies were used. The first step consisted of a double search in both English and Spanish languages, in two databases highly respected by the academic institutions responsible for assessing research productivity in the field of social sciences: ISI Web of Knowledge and Scopus-Elsevier. From these we considered all peer-reviewed publications in the period between 2005 and 2017 (inclusive). All of them had to contain at least one term related to ‘service-learning’ (service-learning, service learning, community learning, experiential education, experiential learning) and ‘university’ (university, higher education) in the abstract, titles, or key words. The second step was to similarly combine the terms already sought and a new keyword related to ‘physical education’ (physical activity, kinesiology, physical education, sport, fitness, health). Subsequently, the same search strategy was followed in the same databases with the same terms in Spanish language. Finally, the reference lists of all retrieved articles were reviewed to identify the possible existence of other interesting publications on the subject of SL and subjects in the field of physical education and sport sciences in higher education.

2.2. Inclusion criteria

The selection of the studies included four general criteria, namely quality, relevance, educational level and topicality. Items that did not meet these criteria were excluded. The filter used to determine the quality of the selected articles was the academic nature of the database where they were found. All items that did not present a clear design or methodology were excluded and, only those that clearly specified the research questions or hypotheses, the method and the results obtained were selected. The research design, therefore, should break down the basic strategies that the researcher adopts to generate accurate and interpretable information. Likewise, the format of each item had to meet standardized scientific criteria being empirical, narrative or reasoned, with well-defined objectives and methodologies and designs containing valid and recognized studies. The application and implementation of SL programmes had to be well argued in each of the articles, without creating situations that would lead to confusion.

The theme of SL determined the relevance of the article, meaning any kind of educational experience as one that seeks to link any educational level with community service (Carson & Raguse, 2014). In this case the search was directed solely to SL that used subjects in the field of physical education and sport sciences as key to enriching experiences for university-age young people. The contact of students with members of the same community, through the provision of a service related to the curriculum, should underlie the project’s aims.

The objectives when using SL had to be innovative and address the needs of today’s society, while responding to new models of learning. Thus, reviews host current studies with the use of SL for students of higher and university education in subjects in the field of physical education and sport sciences.

The result of the search for the selected articles should respond to the type of research and / or application carried out through SL experience related to the subjects of physical education and sport sciences, excluding internships, scholarships, volunteering, etc. In this regard, the review team responsible for developing the present study carried out the work of clarifying and selecting items through strict compliance with the criteria set forth above. Those responsible for this review are members of different universities and research centers with expertise in teaching and researching university SL in the area of physical education and sport sciences.

The information from each article was selected and analyzed and each member of the review team contributed to the final discussion. In case of doubt or difference between authors, the issue was presented to an expert external professor and researcher, with long experience in the field of university SL in physical education and sport sciences. Differences were always resolved with careful consideration and clarification by the rest of the review team.

2.3. Classification criteria

The final items that were chosen for the study were treated individually depending on the type of article, specifically, the methodology used (qualitative, quantitative or mixed methods), the characteristics of the sample, duration and intensity of intervention programmes, instruments used in collecting information (interviews, surveys / questionnaires, individual and group reflections), geographical distribution (countries), the profile of the group receiving the service (people with functional diversity or disabilities, children with special needs, people at risk of social exclusion, elderly people, local communities, etc.), the effects on students regarding the academic, personal, social outcomes and citizenship and the type of service provided.

3. Results

3.1. General Results

The initial search in the databases used resulted in a total of 5727 publications in English and 15 in Spanish. In addition, by checking the reference lists, nine additional publications were found. Of those 5736 articles, 3982 were not considered relevant (e.g. education in public health, pharmacy practice or service learning experiences in nursing education programmes); 1022 articles were discarded from the Scopus database as they were repeated in the ISI Web of Knowledge database, 41 articles were not about SL university students and 158 articles did not provide enough information or were only abstracts. Out of a total of 524 potentially eligible articles, only 18 articles are included in this review as meeting all inclusion criteria.

The synthesis of all works that met certain inclusion criteria for this review is presented in Table 1, highlighting the most relevant aspects of each. All of them will also be specified in the sections presented after the table.

Table 1. Inclusion criteria of the present systematic review.

Study (country)	Research method	Sample, duration and intensity	Information collection instruments	Groups receiving the service	Effect on university students	Type of service provided
Mumford, V., Kane, J. (2006)-USA-			-2 questionnaires, 1 with oral answers and the other written. The students involved decided to organize and implement a SL project related to sport.	Those affected by hurricane Katrina (Florida, 2004) who formed part of a community with growing need in matters of nutrition.	Improvement of skills related with leadership, to take risks and accept challenges, responsibility, accountability, and reasoning skills such as problem solving and critical thinking.	Direct
Carlson, J. J., Eisenmann, J. C., Pfeiffer, K. A., Jager, K. B., Sehnert, S. T., Yee, K. E., Feltz, D. L. (2008) -USA-	Mixed Methods	- 8 sessions during 2 semesters	- For knowledge, attitude, conduct and self-efficacy evaluations, a battery of surveys was applied, which included questions on heart health, attitudes and self-efficacy on life style -Normal physical activity of free time was evaluated with a pedometer (Digwalker 200-SW) during one week. -Dietary intake was evaluated through a questionnaire of frequency of blocks for boys and girls (Dietic Block Data Systems, Berkeley, CA). - For the profile of risk factors for CDV the following items were included: Body mass index (BMI), body fat, waist circumference, blood pressure at rest, cholesterol in blood, protein C reaction, and aerobic aptitude.	Primary prevention of cardiovascular disease in children (CVD).	Model of education and healthy behavior change for effective heart, which can be adopted profitably in public schools to promote a state of desirable risk factor for cardiovascular disease in school-age children.	Direct

Study (country)	Research method	Sample, duration and intensity	Information collection instruments	Groups receiving the service	Effect on university students	Type of service provided
Domangue, E., Carson, R. L. (2008) -USA-	Qualitative	-16 PE students -Programme of de 9 hours	Initial scale of 14 items of multicultural teaching skills.	Children of level 5k who lived in a community affected by hurricane Katrina.	The results reveal that there were changes in cultural competences.	Direct
Miller, M. (2012) -USA-	Mixed Methods	-26 first-year PE students -One day a week for 45 minutes for a complete semester	-A survey entitled <i>Llamada vocacional del maestro/a de educación física</i> , that tackled three dimensions (service, thought and feeling). As well as demographic questions, the survey included 38 Likert- scale type questions.	Infant -age school boys and girls, with and without disabilities.	Maturing in their PE teaching vocation and strengthening their feeling that PE teaching was important.	Direct
Robinson, D. B., Meyer, M. (2012) -Canada-	Mixed Methods	-21 PE student teachers -2 weeks	SL questionnaire completed after the programme.	Adolescent secondary school students (13-16y ears) who worked as the content of the ordinary PE curriculum with other students.	The study showed the benefits of practices in the studies of PE learning.	Direct
Rodríguez- Gallego, M. R. (2014) -Spain-	Mixed Methods	-360 first- year students of the degree in Pedagogy.	-Institutional diagnosis to evaluate the needs of counting on the human resources available and a local diagnosis. -Meetings.-Drawing up a draft project. -Participant observation (field notes and video y audio recordings). - Semi-structured interviews.	Students at social disadvantage and/ or with educational difficulties.	Curricular, personal and social development.	Direct

Study (country)	Research method	Sample, duration and intensity	Information collection instruments	Groups receiving the service	Effect on university students	Type of service provided
Simó, S. (2013) -Spain-	Qualitative	-More than 50 Students -Sessions for 3 hours a week	-In-depth interviews -Diaries shared by pairs being one student and one user of the project.	People in situations of social exclusion and the students themselves.	SL improved the health and well-being of the students.	Direct
Wilkinson, S., Harvey, W. J., Bloom, G. A., Joobert, R., Grizenko, N. (2013) -Canada-	Qualitative	-6 students (4 women and 2 men) -A total of 4 course over a period of 2 years.	Semi-structured interviews.	Boys and girls with problems arising from ADHD.	Teaching skills to confront the realities and challenges of a changing world.	Direct
Capella, C., Gil, J., Martí, M. (2014) -Spain-	Qualitative	-4 students -A Programme through SL training in the subject studied during the second year of the Childhood Education Degree.	Life stories as a research tool to determine if practical skills and academic content in the field of PE teaching.	Boys and girls with functional diversity.	Development of practical skills and academic content in PE as well as encouraging students' critical and reflective attitudes.	Direct
Heo, J., King, C., Lee, J. W., Kim, H. M., Ni, C. (2014) -USA-	Qualitative	-142 Students -Students participated in SL for 4-6 hours in the <i>Indiana Senior Games</i> .	Documents showing the students' reflexions, written at the end of the programmes.	Population over 50 years.	Improving the relationship between degree students and older adults, reducing the negative stereotypes towards older people and increasing social responsibility and self-esteem of the students involved.	Direct

Study (country)	Research method	Sample, duration and intensity	Information collection instruments	Groups receiving the service	Effect on university students	Type of service provided
Huffman, A. M., Hillyer, S. J. (2014) -USA-		Students, members of the community and friends.		The service consisted of treating the health needs of the local community through sports programmes.	Analytical learning in the student body through practical application.	Direct
Gil-Gómez, J., Chiva-Bartoll, Ó., Martí, M. (2015) -Spain-	Qualitative	-346 Student teachers -2 academic years	Written reflexions based on the discussion groups after each session.	Boys and girls with special educational needs.	Academic and personal learning, especially useful aspects for future teachers (teaching skills), especially for children with SEN. It also increased cultural understanding of disability, contributing to the construction of a more inclusive society.	Direct
Lleixà, T., Ríos, M. (2015) -USA-	Qualitative	-10 participants 2 semesters and the summer, participating once a week	-2 focus groups: one composed of members of a working group and other group of prison inmates. -A semi-structured interview with a representative of the warders of the unit. -The field diaries of the students who participated in the experience.	Prison inmates	Interaction among students and prisoners. SL helped to lessen conflicts through improvement in the climate of co-existence. With respect to the personal skills, the experiences fostered the prisoners' capacities to understand and structure verbal discourse, increased their self-confidence and their willingness to cooperate.	Direct

Study (country)	Research method	Sample, duration and intensity	Information collection instruments	Groups receiving the service	Effect on university students	Type of service provided
Richards, K. A. R., Eberline, A. D., Padaruth, S., Templin, T. J. (2015) -USA-	Mixed Methods	-97 participants (82 women and 15 men) - A semester, during summer 2012, autumn 2012 and spring 2013	-Pre-and post-questionnaires on civic learning. -Public Affairs Scale. -Diary of participants reflexion - Semi-structured interviews. -Observations by non-participants.	Boys and girls with a variety of 197 physical, emotional and cognitive disabilities (3-18 years old).	Themes included making a difference, academic and career connections, emotional and personal growth. PAL Program also may help students get experience while teaching them to be more active civic participants.	Direct
Capella, C., Gil, J., Martí, M., Chiva-Bartoll, Ó. (2015) -Spain-	Qualitative	-4 university students -Developed over 11 weeks -Incorporated into the subject. -No determined duration, frequency or intensity.	-Open interviews. -Life stories as a tool to evaluate the influence of SL on students.	Population of boys and girls with functional diversity.	Personal traits of the family and professional context, and personal learning.	Direct
Corbatón, R., Martí-Puig, M., Moliner-Miravet, L., Gil-Gómez, J. Chiva-Bartoll, Ó., (2015) -Spain-	Qualitative	-25 university Students -Two academic years.	Written group reflections.	Boys and girls with Attention Deficit Disorder and Hyperactivity.	The main results showed were in the technical and cultural learning and in the identity development of students.	Direct

Study (country)	Research method	Sample, duration and intensity	Information collection instruments	Groups receiving the service	Effect on university students	Type of service provided
<p>Bruening, J. E., Peachey, J. W., Evanovich, J. M., Fuller, R. D., Murty, C. J. C., Percy, V. E., Chung, M. (2015) -USA-</p>	<p>Mixed Methods</p>	<p>-305 students of <i>City Sport service learning courses</i> -Minimum of a semester</p>	<p>Questionnaires, on-line questionnaires and individual interviews.</p>	<p>Sports volunteers and who use sport programmes as initiatives of development to produce positive effects in society through conflict resolution, help to marginalised population, fostering peace and intercultural exchange.</p>	<p>The intentional and structural design of the programme, as well as its management, contributed opportunities to improve the development of social capital.</p>	<p>Direct</p>
<p>Gil-Gomez, J., Moliner-Garcia, O., Chiva-Bartoll, O., Garcia Lopez, R. (2016). -SPAIN-</p>	<p>Mixed Methods</p>	<p>-84 students</p>	<p>Evaluation of the Prosocial and Inclusive Civic Competence (EPICC), written reflections and questionnaires.</p>	<p>Boys and girls who had reduced mobility as a common characteristic.</p>	<p>Improvement in some dimensions of the prosocial and civic competence.</p>	<p>Direct</p>

3.2. Experiences and research (methodology) at University SL in Physical Education and Sport Sciences

First, it should be noted that all publications that are part of this work are research articles, except for Mumford and Kane (2006), in which a SL experience is described. No theoretical article was identified. In relation to the methodology used in the research articles identified, 38.8% (seven of the 18 works included after the search) were performed using a mixed method approach, while qualitative methodology defines 50.0% (9 of 18) of the research that has been done in the area of study of SL.

3.3. Sample, duration and intensity of university programmes in SL in Physical Education and Sport Sciences

In connection with the variety of methodological approaches, there was a wide range of samples in the investigations. In fact, it varies between the four students of Capella, Gil-Gomez and Marti-Puig (2014) and Capella et al. (2015) to the 360 students of Rodriguez-Gallego (2013). A wider disparity is even more evident in the total length and number of sessions of the proposals, an aspect that was difficult to analyze because in most cases neither duration, frequency or the number of hours per week are clearly determined. Among those offering the most specific data are, for example, the work of Miller (2012), where the programme had a very marked continuity of 45 minutes one day a week during a full semester, or Heo et al. (2014), where the data were collected during the summers of 2008, 2009, 2010 and 2011, and the students had to participate in four/six hours of SL in “Indiana Senior Games”.

3.4. Data collection instruments used

Regarding the instruments used to collect data, among the great diversity, we would highlight interviews used in seven of the 18 works collected in different formats; open (Capella et al., 2015), in-depth (Simo, 2013) transversal (Rodríguez-Gallego, 2014) or, the most widely used, semi-structured (Lleixà & Rios, 2015; Richards et al., 2015; Rodríguez-Gallego, 2014; Wilkinson et al., 2013). And as frequently as the previous instrument (in 36.8% of cases), surveys / questionnaires were used, and a particular aspect that can be distinguished in those works are those that employed *ad hoc* surveys when compared with those that used specifically focused surveys. The *ad hoc* instruments of Gil-Gomez et al. (2016) are those on pro-social and inclusive citizen skills, or that of Miller (2012) to address the dimensions of service, thought and feeling. Of targeted surveys we would highlight that centered on civic learning (Richards et al., 2015), relating to cultural competence (Domangue & Carson, 2008) or that adapted to the development of knowledge, attitude, behavior and self-efficiency adapted to lifestyle (Carlson et al., 2008). All of them are followed by reflections on different types of formats and groupings, namely individual reflections through diaries, such as in the work of Gil-Gomez, Chiva-Bartoll, and Martí-Puig (2015) and Richards et al. (2015), pairs (Simo, 2013) and even groups (Corbatón et al., 2015).

3.5. Geographical distribution of university SL in Physical Education and Sport Sciences

Another aspect where there was not a wide variation was in the countries that carried out these programmes. This datum is relevant in order to know the world's leading research centers of university SL in physical education and sport sciences. Of the 18 studies identified in this review, all of them relate to only three different countries. Most research is carried out in the USA with 50%, followed by Spain with 38.9% and, finally, Canada, far below the previous two countries, with 11,1%.

3.6. Profile of groups receiving university SL services in Physical Education and Sport Sciences

As for the population receiving SL, those groups that have received most attention were people with functional diversity or disability (Capella et al, 2014. Capella et al, 2015; Gil-Gomez et al, 2016; Miller, 2012 or Richards et al, 2015), children with attention deficit hyperactivity disorder or special educational needs (Corbatón et al, 2015; Gil-Gomez et al, 2015; Wilkinson et al, 2013), people at a disadvantage or social exclusion and curricular lag (Rodríguez-Gallego, 2014; Simo, 2013). However, we must also refer to many other populations for which SL programmes have been carried out in the works that make up this review as, for example, adults over 50 years of age (Heo et al., 2014), university students (Lleixà & Rios, 2015), children affected by hurricane Katrina (Domangue and Carson, 2008) or local communities with health needs (Huffman & Hillyer, 2014).

3.7. Effects on university students performing S-L in Physical Education and Sport Sciences

The classification of Furco and Billig (2002), Eyler et al. (2001) and Eyler and Giles (1999) established four categories of the results of the implementation of SL programmes on students participating in them: social issues, academic results, personal achievement, and citizenship. Table 1 shows that those which predominate in the different studies analyzed are results of academic nature (Carlson et al., 2008; Mumford & Kane, 2006; Robinson & Meyer, 2012; Wilkinson et al, 2013; Capella et al., 2014; Huffman & Hillyer, 2014; Rodríguez-Gallego, 2014; Corbatón et al., 2015; Gil-Gómez et al., 2015; Richards et al., 2015), mainly related to the mastery of content, problem solving skills, attitudes toward learning or the ability to connect learning with the world around them.

To these we should add personal development (Miller, 2012; Simo, 2013; Heo et al., 2014; Rodríguez-Gallego, 2014; Gil-Gomez et al, 2015; Leixa & Rios, 2015; Richards et al., 2015) where changes in thoughts, feelings, self-esteem or academic commitment are found. This dimension involves the assessment of what students perceived as positive or negative about themselves, leading them to feel more at ease or more dissatisfied about their personal qualities.

On the other hand, within the category of social outcomes, encompassing all those aspects related to changes in the ability to interact with others, beliefs that show respect for the people to whom the service is provided, and the awareness and understanding of social issues, it is necessary to highlight the work of Bruening et

al. (2015), Capella et al. (2015), Gil-Gomez et al., (2015), Gil-Gomez et al. (2016), Mumford and Kane (2006) and Rodríguez-Gallego (2014).

And as for the fourth category, citizenship, that is, what brings together everything concerning personal responsibility, active participation in actions involving improvements in the community, justice, generosity, loyalty, honesty, etc., this review identified positive results in this regard, although to a lesser extent than in the previous categories (Domangue & Carson, 2008; Simo, 2013; Huffman and Hillyer, 2014; Leixa & Rios, 2015; Richards et al, 2015).

3.8. Type of service provided

Regarding the type of service provided, according to literature the existing modalities are: *direct*, *indirect*, *advocacy* and *research service*. *Direct service* activities require personal contact with people in need. These types of activities are generally the most rewarding as students, while in the process of helping others, receive immediate positive feedback. *Indirect service* is commonly implemented in schools as it is a modality easy to organize, involving students' working behind the scenes. *Advocacy* requires students to lend their voices and talents to the effort of eliminating the causes of a specific problem and to making the public aware of the problem. *Research* is defined as a partnership of students, faculty, and community partners who collaboratively engage in research with the purpose of solving a pressing community problem or effecting social change. On this front, it is remarkable that all (100%) the analysed works in this review are based on direct service modality.

4. Discussion

This present systematic review shows the gradual progress of SL as content, gaining presence in the specific literature of physical education and sport sciences in higher education and university. Through the analysis given here, this work provides the scientific community with a compendium of publications – mainly of research work of recognized scientific value, which illuminates the main focuses of SL research in this field.

One of the most paradoxical conclusions presented in the study is the contrast between some countries with a great tradition and proven experience in SL, and their scant contribution to the number of research publications in higher studies of physical education and sport sciences. All publications identified in this review refer to experiments carried out in only three countries: USA, Spain and Canada. The extensive contribution of these countries is not a surprise, since it was in Mexico and the USA where the bases of SL were established, and not in vain there is an eminent geographical proximity (USA and Canada), as well as cultural links between Mexico and Spain. In fact, the term SL was first used in the USA by Ramsay, Sigmon and Hart in 1967 (Tapia, 2008). But that model soon crossed borders, exported to different geographical parts of Latin America and even Europe (Eberly, 1988; Eberly & Sherraden, 1990). This scenario has today resulted in one of the world centers of SL residing in Argentina, crystallizing in 2002 with the birth of the Latin American Center for Learning and Solidarity Service (CLAYSS) and then the creation of the Latin American Network of SL in 2005 (Máximo Ochoa, 2010).

Currently, these practices are expanding in America and Europe, where some countries like USA, Argentina and the Netherlands have formally incorporated SL in their educational systems. However, except for USA, this growth has not been reflected in the quantity or quality of published research, at least in the area of physical education and sport sciences. This conclusion may not be extrapolated to other areas, and it may be that in other disciplines the increase in published research itself is comparable to the development of the geographical location of SL. Therefore, despite the undeniable expansion and consolidation in terms of practical application, it is reasonable to say that research on SL is still at an embryonic stage (Cervantes and Meaney, 2013). The latter affects both the formation of future teachers as well as other aspects of the physical education and sport sciences professionals.

Another important conclusion is the wide variety of differentiating aspects between different SL projects, for example, with respect to the objectives set: the number of participants, intensity and duration of the programmes implemented, the type of service receivers, the type of service provided (100% *direct service* in the publications analyzed), etc. Thus, it can be concluded that, beyond the disciplinary scope and educational level, SL is a pedagogical method that can be adapted to give individual answers to the characteristics and needs of each educational context. This fact, in addition to validating what is described in the SL theoretical framework set out by Cervantes and Meaney (2013), is fully in accord with that of Carson and Raguse (2014) in their review of SL and young practitioners of physical activity.

Similarly, the effects found in investigations collected here faithfully replicate the results reported in the literature on SL, both those related to similar disciplines (Cervantes & Meaney, 2013; Carson & Raguse, 2014), as well as those on other disciplines (Novak et al 2007; Warren, 2012; Yorio & Ye, 2012). They are particularly consistent with the effects on the academic, personal, social and citizenship characteristics referred by Eyler et al. (2001). According to this analysis, it is clear that the achievements or results earned by SL programmes are remarkably successful at the university level in the field of physical education and sport sciences. In fact, among the most common findings is that of their suitability as a tool for the development of core competences in the training of future teachers, such as social and civic skills (Gil-Gomez et al., 2016), and emotional, academic and personal growth (Gil-Gomez et al., 2015; Richards et al., 2015.).

Studies also agree that SL represents a great opportunity to gain valuable leadership skills, problem solving and critical thinking (Mumford & Kane, 2006). Moreover, it promotes the training of future teachers in addressing the realities and challenges of a changing world (Wilkinson et al., 2013). To the extent that, as Miller (2012) indicates, SL is an important methodology for students to learn to explore their own vocation, and all this comes from practice in real environments (Huffman & Hillyer, 2014). In short, the most repeated main idea, and which sums up the general feeling of the different studies, is that SL training programmes are useful for the development of practical skills and academic content in the field of physical education and sport sciences, and enables the students to have critical and reflective attitudes when following the results of their work (Capella et al., 2014). Moreover, although the grounding of SL suggests that this has the potential to benefit all the agents involved, this work reveals the lack of research that consistently examines more deeply the effects of SL in groups that receive the service. Exceptionally, studies such as that of Richards, Wilson and Eubank (2012) are supported in the 'strong

belief' of students that the experience provided to children who receive their service had a positive effect for them. In any case, Carson and Raguse (2014) warned of the lack of rigorous analysis of the effects of SL in the population receiving the service. The need of carrying out future research is clear. But besides focusing the object of study on the effects on the students, it should fix their gaze on variables such as satisfaction with the service received, the type of relationships established between recipients and students to reaffirm the social rapprochement between groups, visibility and perception of the university as being a socially responsible institution, etc.

The main limitation of this study lies in the number of languages used by the research team (Spanish and English), excluding publications in other languages due to the insufficient domain of the authors.

5. Conclusions

To conclude, it can be stated that the physical education and sport sciences begin to assume the challenge of facing, through SL, an educational praxis based on competencies, in connection with diverse social needs close to the universities. This review has considered descriptive and empirical works, on which valuable recommendations for application and research can be extracted. The main findings of the studies published to date indicate that, on the one hand, SL facilitates the promotion of social and civic competence of the students and, on the other hand, that its application helps to deconstruct prejudices about certain groups at risk of exclusion. The development of skills related to professional improvement has become one of the most important aims for higher education in the twenty-first century. In that regard, SL may seem to represent an optimal educational methodology that achieves these goals, while at the same time offering valuable local community services. Even though the effectiveness of SL is constantly under review, the results of this systematic review reinforce the case to continue using SL and investigating its effects in the ambit of physical education and sport sciences.

6. References

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