

International

REPORT



**Study II – Communication
between PE teachers and deaf
students**







Co-funded by the
Erasmus+ Programme
of the European Union

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Table of Contents



Some milestones in history	1
Introduction.....	5
Methodology	9
Results.....	19
Conclusion.....	33
Bibliography.....	37

Some milestones in history



EUROPEAN PARLIAMENT RECOMMENDATIONS

The European Parliament, through document A2-302/87, calls upon the governments of the Member States to recognize sign languages and for the sign language of each country to become an integral part of the education of the deaf.

UNITED NATIONS

The United Nations Resolution no. 48/96 of March 1994, Standard Rules on the Equalization of Opportunities for Persons with Disabilities, highlights the need to provide the use of sign language in the education of the Deaf and to ensure the presence of interpreters as communication mediators, explicitly mentioning that, given their specificities, deaf children are a special case when it comes to integration into mainstream education.

THE SALAMANCA STATEMENT

The Salamanca Statement, signed by representatives of ninety-two countries, is considered to be one of the most important documents in the world for advocating social inclusion, together with the Convention on the Rights of the Child (1988) and the World Declaration on Education for All (1990). It refers to the Deaf in chapter 2(21), emphasizing the need for the recognition of sign language as a medium of communication, reinforcing that access to education in their national sign language must be ensured (UNESCO, 1994).

UNITED NATIONS GENERAL ASSEMBLY

At the United Nations General Assembly in 2006, the Convention on the Rights of Persons with Disabilities was the subject of work and negotiations that took place

over a period of 5 years. To date, its content has been approved by 127 countries. In Article 24, Member States underline that the learning of sign language and the promotion of the linguistic identity of the deaf community should be facilitated (3/b) as a way of enabling persons with disabilities to learn and participate in education as members of the community. It is referred that the education of deaf children should be “delivered in the most appropriate languages and modes and means of communication (...) and in environments which maximize academic and social development” (3/c). It also recommends that appropriate measures should be taken to employ teachers with qualifications in sign language, including deaf teachers. The training must be specific and include the professionals who work at all levels of education, providing them with knowledge regarding the intervention areas and appropriate educational techniques that include “the use of (...) means and formats of communication, educational techniques and materials to support persons with disabilities” (4).

WORLD FEDERATION OF THE DEAF

The WFD is an international organization of deaf associations from 133 countries which has a consultative status at the United Nations and is a founding member of the International Disability Alliance (IDA). It develops its activity to ensure that deaf people across the globe are equipped with the knowledge, tools and strategies to advocate for and achieve their rights. Together with the European Union of the Deaf (EUD) this organization calls upon policymakers and national

as well as regional stakeholders to not only legally recognize the national sign languages, but also ensure that in practice deaf children are educated in a bilingual environment. That is, they simultaneously acquire the national sign language and the national (written) language. According to these organizations, becoming bilingual is a fundamental right for deaf children and must be ensured in education as early as possible and throughout the course of the whole educational path.

At the conference held in Ål, Norway, together with the WFD and the Ål Experiential College, it was concluded that - “Bilingual education is the only way for deaf children to gain equal opportunities and allowing them to become full citizens in their own right” (Wheatley, 2011)¹.

1 Mark Wheatley – EUD Executive Director.



Introduction



The education of deaf children and young people has undergone teaching models that range from the pure oral method, instituted after the Milan Congress in 1880, through several proposals for renewal, namely the philosophy of total communication, some of which are still in force (Gomes, 2011), up to the current inclusion policies (The Salamanca Statement, 1994) that imply bilingual education. The recognition of sign language as the natural language of the deaf community, evidenced by the many studies developed in the area of linguistics and neurolinguistics, as well as the recognition that, when exposed to sign language early, deaf children make their own appropriation in a natural way, brought to light important data that contributed to shifts in paradigm. These determinations strengthened the demands of the deaf communities in the second half of the 20th century, appealing to the need for changes that have long been claimed in the political, educational and social spheres and for the urgency of taking a new look at the education of the Deaf. In recent decades, the struggle for a new perspective on deafness and for a bilingual education for the Deaf has been a priority for the WFD and the EUD. Despite these recommendations, “policies for deafness and for the education of the deaf continue to emerge within the framework of action plans for persons with disabilities” (Gomes, 2011, p. 109).

Lacerda (2006) states that a language delay can imply emotional, cognitive and social consequences even if the deaf child learns the language at a later time. Generally, this learning occurs within a school context, where the child often comes into contact with sign language for the first time. Still, according to the author, this linguistic delay causes an educational gap, which is inevitably reflected in a state of development and knowledge that falls short of what is expected for the age.

In the specific context of physical education classes, Siedentop & Tannehill (2000) refer that the quality of teaching is indispensable for stimulating students' skills, with verbal and non-verbal communication being a criterion for success. Verbal instructions can be replaced with visual instructions, but teaching conceptual aspects of the subject to deaf students can be problematic in a class comprised of hearing students and a teacher who is not fluent in sign language.

Currently, given the importance of learning the natural sign language, the Bilingual approach is the main strategy requested by deaf community for deaf education in several countries. This approach proposes the learning of the two languages: the Sign Language as L1, and the Language of the hearing community where the deaf person is inserted, as L2.

(Barboza et al, 2019, p.717)

Skliar (2009) mentions that, when a political decision is made to introduce bilingual education in schools, this change cannot be expected to happen overnight, nor can bilingual education be understood simply as the domain of two languages, resulting from the pedagogy exercised in schools by teachers, trainers and interpreters. This author alerts to the need of looking at bilingual education in a deeper way and to reflect on various issues that cannot be ignored, otherwise there is a risk of transforming this pedagogy into another teaching method whose failure is foreseeable.

On reflecting about the implications of the new model and the literacy of the deaf, Avendaño (2005) highlights the need for teacher training and the imperative need to provide them with theoretical and methodological tools for the success of this educational model. However, he also makes sure to emphasize the urgent need for a change in attitude towards the Deaf. As long as this social and cultural change does not happen, and despite the attempts, the Deaf will continue to be treated as communicatively disabled, even if they master sign language and read and write correctly. Franco (2009) recognizes that the introduction of a sign language subject in higher education courses does not train teachers who are proficient in the language, but it is important to break the stigma and preconceived standards that exist in schools, and can act as a driver for change. There are teachers of different ages, with different academic backgrounds, with different motivations, and when a political decision is made to introduce bilingual education in schools, changes will certainly have to take place in order for the entire process to run smoothly.

The growing importance that has been attributed to sign language in the teaching of physical education and sports (Barboza et al., 2019; Kurková & Scheetz, 2016; Sarmiento et al., 2013; Sarmiento et al., 2016) and the concerns raised by some researchers regarding the way teachers communicate and transmit information to students, led us to investigate how physical education teachers perform their activity with deaf students. What knowledge do they have of deafness? What motivations led them to work with deaf students? How do they communicate with the students? What knowledge do they have of sign language? How do they self-assess their communicative competence? According to Kyle (1999), the academic training which they usually receive does not prepare them for the deaf community, but is generally based on the ideas of the hearing students and guided by the teaching of the curriculum. It is likely that there is a variation in the contact that teachers have with the deaf community, which at times is reduced or nonexistent.

This study was developed with the purpose of verifying if there are divergences or common points among the practices in the partner countries that are part of the SportSign project.

Goals:

- i) Characterize physical education teachers who teach in schools attended by deaf students;
- ii) Understand if they have training and certification in national sign language²;
- iii) Determine the importance they attach to the use of sign language in physical education classes;
- iv) Understand the type of pedagogical resources/strategies used in teaching theoretical and practical content;
- v) Understand how they evaluate the communication they establish with deaf students.

2 National sign language refers to the official sign language of each country participating in the project.

Methodology

Participants and data collection



73 physical education teachers (37 female, 34 male and 2 preferred not answer) participated in this study, with an average age of 44.52±10.38 years: 12% from Germany, 16% from Italy, 34% from Portugal, 11% from Slovenia, and 27% from Spain.

Table 1 presents some information regarding the characterization of the sample. The variables considered were: gender, age, hearing status, degree of deafness, preferred communication and education/academic degree.

		Germany (n=9)		Italy (n=12)		Portugal (n=25)		Slovenia (n=7)		Spain (n=20)		
Hearing status	Gender	Male n(%)	Female n(%)	Male n(%)	Female n(%)	Male n(%)	Female n(%)	Male n(%)	Female n(%)	Male n(%)	Female n(%)	Prefer not to answer n(%)
		5(55.6)	4(44.4)	4(33.3)	8(66.6)	9(36)	16(64)	3(43)	4(57)	13(65)	5(25)	2(10)
	Age ±sd)	33.2± 4.53	45.25± 11.30	38± 11.79	40.5± 14.43	53.9± 6.50	48± 9.65	45.3±4.2	39.3± 7.1	46.70±8.96	41.6±3.67	33.5±6.5
	Total average	38.5±10.20		39.67±13.65		50.12±9.10		41.9±6.75		44.1±8.77		
	Deaf	1(11.1)	---	3(25)	3(25)	---	1(4)	---	---	1(5)	---	1(5)
	HH	---	---	---	---	2(8)	2(8)	---	---	4(20)	---	---
	H	4(44.4)	4(44.4)	1(8.3)	5(41.7)	7(28)	13(52)	3(45)	4(57)	8(40)	5(25)	1(5)
	MILD	---	---	---	---	---	1(4)	---	---	2(10)	---	1(5)
	MOD	---	---	---	---	2(8)	1(4)	---	---	---	---	---
	SEV	1(11.1)	---	2(16.7)	---	---	---	---	---	1(5)	---	---
	DEEP	---	---	---	2(16.7)	---	1(4)	---	---	1(5)	---	---
	TLoss	---	---	1(8.3)	1(8.3)	---	---	---	---	1(5)	---	---
	Preferred communication	SL	---	---	---	---	---	---	---	---	---	2(10)
SpL		6(66.66)	---	5(41.7)	---	16(64)	---	4(57)	---	16(80)	---	
BOTH		3(33.33)	---	7(58.3)	---	9(36)	---	3(43)	---	1(5)	---	
Academic degree	BACH.	---	---	2(16.7)	---	11(44)	---	---	---	15(75)	---	
	MAST.	9(100)	---	5(41.7)	---	12(42)	---	7(100)	---	4(20)	---	
	PhD	---	---	---	---	2(8)	---	---	---	1(5)	---	
	Other	---	---	5(41.7)	---	---	---	---	---	---	---	

Table 1 – Descriptive statistics for teachers

Legend - D (Deaf), HH (Hard of Hearing), H (Hearing), MILD; MOD (moderate), SEV (severe), DEEP, TLoss (total loss); Preferred communication – SL (sign language), SpL (spoken language), BACH (Bachelor's Degree); MAST (Master's Degree); PhD (Doctoral Degree).

Sample distribution

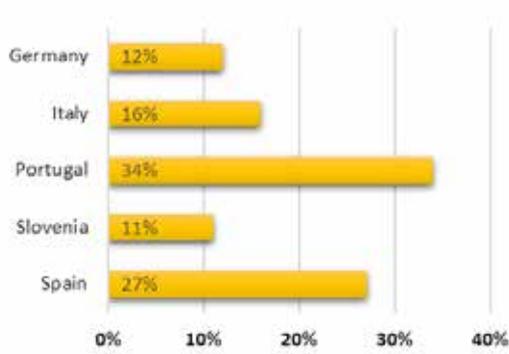


Figure 1 - by country

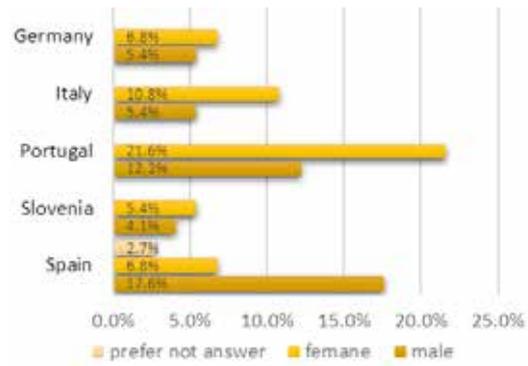


Figure 2 - by gender

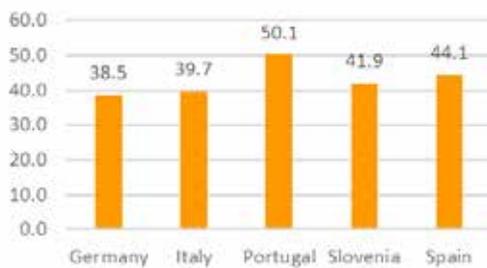


Figure 3 - by age

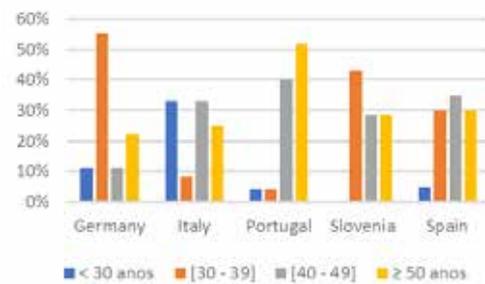


Figure 4 - by age group

The teachers who answered the questionnaire presented an average age between 38.5 years old (teachers from Germany) and 50.1 years old (teachers from Portugal).

As for hearing status, 77.8% of the teachers were hearing, 15% were deaf and 7.2% were hard of hearing. It should be noted that all the teachers from Slovenia were hearing and the sample from Italy was comprised of 50% of hearing teachers and 50% of deaf teachers. Figure 6 shows the degree of deafness of teachers whose hearing status corresponded to deaf/hard of hearing.

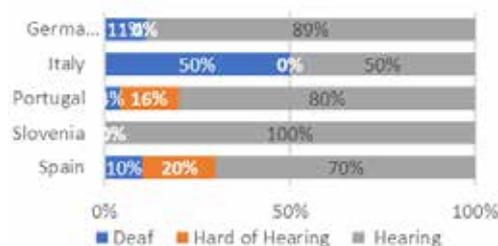


Figure 5 - by hearing status

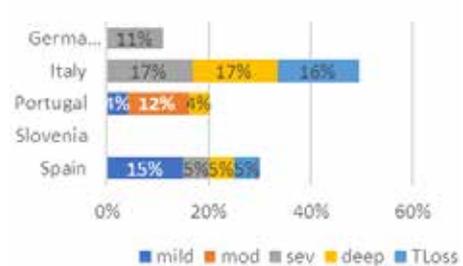


Figure 6 - by level of deafness

Figures 7 and 8 refer to the type of communication preferred by the teachers and their educational background. It is evident that 62% of the sample prefers the spoken language, 35% prefers both types of communication (spoken and sign) and only 1% prefers sign language.

As for educational background, 91.6% of the teachers were holders of a degree in the field of physical education (Bachelor's Degree, Master's Degree or PhD), only 8.4% of the teachers from Italy had other qualifications.

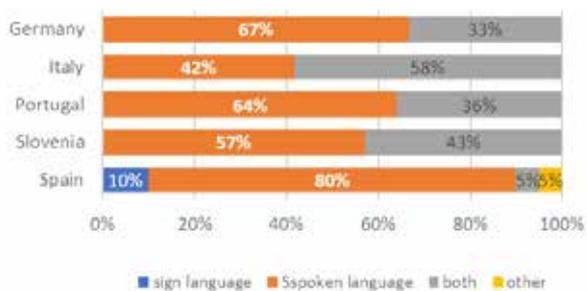


Figure 7 – preferred communication

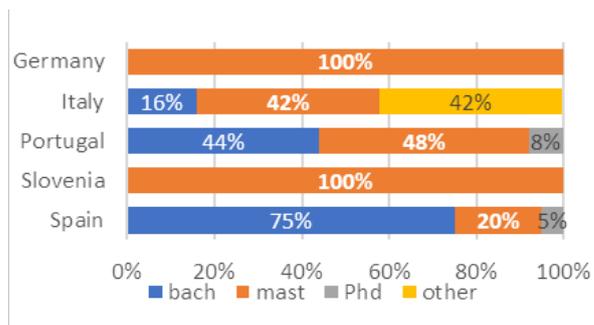


Figure 8 – academic degree

Instrument



In order to collect data, a questionnaire prepared by researchers was used and administered to PE teachers who taught deaf students. The questionnaire seeks to emphasize sign language and issues related to communication established in the teacher-deaf student relationship and learning process. The consulted literature was the main support for the construction of the questionnaire, as well as the professional experience of the researchers in this teaching area.

The questionnaire was structured into five groups of questions, with the option of closed-type answers for the selected choice and two questions on a 5-point Likert scale. The first group of questions was directed to the characterization of the sample. The relevant sociodemographic factors were gender, age, hearing status, academic background, professional experience, years of experience teaching deaf students and the reasons for working with deaf students.

The second group of questions was subdivided into a set of questions for the research of knowledge and training in sign language by teachers. The level of training was based on the sign languages and the Common European Framework of Reference for Languages - Common Reference Level Descriptors. The third group was oriented towards situations related to the practice of the teacher, where we sought to collect data related to I) updating sign language, II) the importance of using sign language in PE classes, and III) opinion regarding the difficulties presented by deaf students. In the fourth group, the intention was to understand which pedagogical resources were used by physical education teachers in the transmission of the subject's contents. In the fifth group, the intention was to understand the perception teachers had in relation to the communication skills they established with deaf students and the perception of the effectiveness of that communication.

At the first meeting held at ISMAI, the questionnaire was presented to every partner. All questions were analyzed in detail and, whenever necessary, small changes were made. All doubts regarding the content of the questions and the terminology used were clarified. Following that, the questionnaire was validated [by the Ethics Committee – ISMAI, Portugal](#). It was suggested that all partners translate the questionnaire into their national language. The method used for the translation was presented by the Portuguese partner.

Data collection and analysis procedures



Germany

The PE teachers at the schools are educated and qualified in their subject. They teach at secondary or vocational schools and some of them are special education teachers for hearing impaired students as well. There are many young and new teachers at the schools. For this reason, there is a variety of sign language competences in this group. Those colleagues who have been teaching at these schools for years and the special education teachers have a better sign language competence than the new teachers. However, they attend sign language courses to improve their competence. We also have two deaf sports teachers who are using sign language like their “mother tongue”.

Italy

The questionnaire was made available on social media and manually distributed by the Deaf Sport Federation. The content and objectives of the study were explained to the school principals through email and Skype, so that the questionnaires were filled out only by PE teachers who teach deaf students. All clarifications deemed necessary and/or required were provided and, similarly, all information relating to the study was provided in writing. The questionnaires were made available online and authorization was requested from the school principals, so that they could be filled out. The teachers answered the questionnaires between May and October 2020.

Portugal

The questionnaires were made available online and authorization was requested from the school principals, so that they could be filled out. In Portugal, there are 17 groups of Reference Schools for Bilingual Education, and the questionnaire was sent by email to schools in Porto, Braga, Coimbra, and Lisbon. Before that, the content and objectives of the study were explained to the school principals through a telephone conversation, so that the questionnaires were filled out only by PE teachers who teach deaf students. The teachers answered the questionnaires between February 2 and 28, 2020.

Slovenia

Data was collected from the administration of the questionnaires. The questionnaires were made available online. They were sent by email to PE teachers at the schools. Authorization was requested from the school principals so that they could be filled out. The content and objectives of the study were explained to the school principals through a direct in-person conversation. The questionnaires were made available online (Google Forms) and the teachers answered the questionnaires at the end of February 2020.

Spain

In Spain there are 31 schools with students with deaf disabilities (in Galicia teaching is inclusive, students attend any school), and the questionnaire was sent by email to schools in Galicia. The content and objectives of the study were explained to the school principals through a telephone conversation and email so that the questionnaires would be filled out only by PE teachers who taught deaf students. All clarifications deemed necessary and/or required were provided and, similarly, all information relating to the study was provided in writing. The questionnaires were made available online and authorization was requested from the school principals or heads, so that they could be filled out. The teachers answered the questionnaires between February and October 2020.

For the analysis of the information, descriptive statistics were used, namely absolute and relative frequencies, measures of central tendency (mean, mode and median), and measures of dispersion (standard deviation). All analyses were performed using the Excel software tool (Windows 10).



Results



The results of this study are presented according to the sequence of the questionnaire completed by the teachers. In all multiple-choice questions, more than one response option could be selected.

Experience as a teacher and as a teacher of deaf students

The professional experience of the surveyed teachers ranged from a minimum of 0.5 years to a maximum of 43 years of service. The teachers had been performing this profession on average between 8.67 ± 10.55 years (teachers from Germany) and 27.5 ± 4.9 years (teachers from Slovenia). As for the experience of teaching deaf students, the average ranged between 2.55 ± 2.27 years for Spanish teachers, and 9 ± 6.32 years for Slovenian teachers. In this regard, Burden (1990) considers 3 phases that characterize the professional experience: the initiation phase, which contemplates between 1 to 2 years of experience; the adjustment phase, between 3 and 4 years; and the stabilization phase, which corresponds to 5 or more years of experience. Graph 2 illustrates the professional experience in teaching and the experience in teaching deaf students. While 79.2% of the teachers were in a stabilization phase, regarding experience with the deaf, 58.3% were in an initiation phase, with an average experience of 2.96 ± 1.96 years.

Table 2 – Distribution of the sample by years of teaching (PE teacher) and years of experience in teaching deaf students

	Germany	Italy	Portugal	Slovenia	Spain
	%	%	%	%	%
PE teacher	8.67 ± 10.55	15.33 ± 10.80	27.2 ± 7.10	27.5 ± 4.9	15.65 ± 10.40
Teacher of deaf students	7.3 ± 19.79	8.16 ± 7.42	7.16 ± 6.7	9 ± 6.32	2.55 ± 2.27

Context in which physical education classes took place

Almost all teachers, 78.3%, teach in schools where physical education takes place in inclusive classes; deaf students take classes together with other students. Only 21.7% teach in separate classes.

Table 3 – Sample distribution according to the teaching context of physical education classes by country

	Germany	Italy	Portugal	Slovenia	Spain
	%	%	%	%	%
Inclusive classes	---	91.6	100	100	100
Separate classes	100	8.4	---	---	---

Reasons for working with deaf students

It was considered important to understand the reasons why the respondents worked with deaf students, if by choice or by chance. Of all teachers, 68.3% taught classes to the Deaf by “mere chance”, 21.4% by professional option and 10.3% by invitation. Table 2 presents the distribution by country.

Table 4 – Reasons for working with deaf students

	Germany	Italy	Portugal	Slovenia	Spain
	%	%	%	%	%
By mere chance*	44.5	41.7	76	85.7	95
Professional option	44.4	25	20	14.3	5
Invitation to teach	11.1	33.3	4	4	---

* (Job opportunity, teacher’s application for vacancies at a national or local level; possessing academic training in this area; other)

Knowledge of sign language

With this question, the intention was to understand if the teachers knew sign language and how they learned it. Several response options were presented, more than one could be selected, and 74 answers were registered. Table 5 summarizes the options highlighted by the respondents regarding the way they learned sign language: 37.8% learned through sign language courses, 16.2% learned in contact with the deaf, 18.9% learned at school, and 4.1% learned with a deaf teacher. The remaining 21.6% did not know or did not learn sign language.

Table 5 – Sample distribution according to how sign language was learned (absolute frequency)

	Germany	Italy	Portugal	Slovenia	Spain	Total responses
	n=9	n=12	n=25	n=7	n=20	n(%)
I did not learn	--	2	5	--	9	16(21.6)
With deaf people	1	4	4	--	3	12(16.2)
With a deaf teacher	--	--	3	--	--	3(4.1)
In college	--	--	1	--	--	1(1.4)
At school	--	2	7	--	5	14(18.9)
In sign language courses	9	4	5	7	3	28(37.8)

Training in national sign language (official sign language of the country)

Regarding the Certified Training of Teachers in sign language, the response options presented referred to the levels of training included in the Common Reference Levels: Global Scale for Sign Languages (Leeson et al., 2016, p. 9).

In Table 6, we can see that the majority of the respondents (78.1%) answered that they did not have certified training in the Sign Language of their country. Regarding the teachers who did have that training: 9.6% in SZL (Slovenian Sign Language), 5.5% in LIS (Italian Sign Language), 5.5% in LGP (Portuguese Sign Language), and 1.4% in LSE (Spanish Sign Language).

Table 6 – Distribution of the sample by Certification in National Sign Language (absolute frequency)

	Germany (1)	Italy (2)	Portugal (3)	Slovenia (4)	Spain (5)	Total
	n=9	n=12	n=25	n=7	n=20	n=73(%)
Yes	---	4	4	7	1	16(21.9)
No	9	8	21	---	19	57(78.1)

(1) DGS – German Sign Language; (2) LIS - Italian Sign Language; (3) LGP – Portuguese Sign Language; (4) SZJ – Slovenian Sign Language; (5) LSE – Spanish Sign Language

Table 7 presents the certification level of teachers in the sign language of their country, according to the answer “Yes” highlighted in the previous question. It is important to note that only 7 teachers possessed a certification equal to or higher than B1- Independent User and Proficient User; 8 teachers had training in Basic User, equivalent to levels A1.3 and A2.4

3 Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.

4 Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.

(Common Reference Levels: Global Scale for Sign Languages, Council of Europe, April 2016)

Table 7 – The sample distribution according to the certification level (Common Reference Levels)

	Germany	Italy	Portugal	Slovenia	Spain
	n(%)	n(%)	n(%)	n(%)	n(%)
A1 (Basic User)	--	--	3(12)	1(14.3)	--
A2 (Basic User)	--	--	1(4)	4(57.1)	--
B1 (Independent User)	--	--	--	1(14.3)	--
B2 (Independent User)	--	--	--	--	1(5)
C1 (Proficient User)	--	--	--	1(14.3)	--
C2 (Proficient User)	--	4(33.3)	--	--	--

Use of Sign Language in PE classes

The importance attributed to the use of sign language in physical education classes was assessed on a 5-point Likert scale, ranging from “not important” to “very important”. Table 8 contains the sample data, relative frequency, mode and median. The attribution of “very important” was the option most frequently selected by teachers, in the assessment of the items presented. The median varied between 4 and 5, “important” and “very important”, respectively.

Table 8 – The importance of Sign Language in PE classes

	Not important	Slightly important	Moderately important	Important	Very important	Mode	Median
Explanation of theoretical knowledge	0.0%	0.0%	12.3%	16.4%	71.2%	Very important	5
Exercise correction	0.0%	2.7%	21.9%	34.2%	39.7%	Very important	4
Teacher-student communication	0.0%	4.1%	8.2%	23.3%	63.0%	Very important	5
Identity building of deaf students	0.0%	2.7%	16.4%	16.4%	64.4%	Very important	4
Social relationship (peer work)	0.0%	2.7%	15.1%	24.7%	57.5%	Very important	4
Explanation of exercises	1.4%	5.5%	26.0%	27.4%	39.7%	Very important	5
Student assessment	2.7%	8.2%	23.3%	27.4%	38.4%	Very important	5

More than 50% of the teachers considered the use of sign language as very important for the “Explanation of theoretical knowledge”, for the “teacher-student communication”, for the “identity building of deaf students” and for the “social relationship (peer work)”.

Germany



Italy



Portugal

	Not important	slightly important	moderately important	important	very important
Explanation of theoretical knowledge	0	0	0	8	92
Exercise correction	0	0	4	36	60
Teacher-student communication	0	4	4	28	64
Identity building of deaf students	0	0	20	16	64
Social relationship (peer work)	0	0	20	20	60
Explanation of exercises	0	4	20	36	40
Student assessment	4	4	20	32	40

Slovenia

	Not important	slightly important	moderately important	important	very important
Explanation of exercises	0	14.3	57.1	14.3	14.3
Exercise correction	0	0	71.4	28.6	0
Teacher-student communication	0	0	42.9	14.3	42.9
Identity building of deaf students	0	0	42.9	14.3	42.9
Social relationship (peer work)	0	0	14.3	28.6	57.1
Explanation of exercises	0	14.3	57.1	14.3	14.3
Student assessment	0	0	28.6	57.1	14.3

Spain

	Not important	slightly important	moderately important	important	very important
Explanation of theoretical knowledge	0	10	5	10	75
Exercise correction	5	5	25	30	35
Teacher-student communication	0	0	20	35	45
Identity building of deaf students	0	5	10	15	70
Social relationship (peer work)	0	0	15	35	50
Explanation of exercises	5	10	20	25	40
Student assessment	5	15	25	20	35

Difficulties of deaf students

With this question, the intention was to understand teachers' opinions regarding the difficulties they perceived in deaf students. The level of agreement with the statements presented was assessed on a 5-point Likert scale, where 1 corresponded to "completely disagree" and 5 to "completely agree", 3 was attributed to the "neutral" opinion.

The "neutral" opinion was used to assess 64% of the items presented. The median varied between 3 and 4, "neutral" and "agree", respectively.

Table 9 – Difficulties perceived in deaf students (relative frequency, mode and median)

Difficulties	Completely disagree	Disagree	Neutral	Agree	Completely agree	Mode	Median
Low levels of National Sign Language literacy	4.1%	24.7%	37.0%	17.8%	16.4%	Neutral	3
Low L2 (second language) literacy levels	13.7%	21.9%	31.5%	27.4%	5.5%	Neutral	3
Difficulties in understanding the information being transmitted	1.4%	2.7%	27.4%	37.0%	31.5%	Agree	4
Difficulties in acquiring (or learning) the contents	13.7%	17.8%	20.5%	30.1%	17.8%	Agree	4
Class participation and interactivity	2.7%	9.6%	35.6%	35.6%	16.4%	Neutral	3
Difficulty interacting with the teacher	12.3%	12.3%	38.4%	27.4%	9.6%	Neutral	3
Difficulty interacting with peers	6.8%	19.2%	34.2%	32.9%	6.8%	Neutral	3
Concentration difficulties	13.7%	20.5%	30.1%	28.8%	6.8%	Neutral	3
Motor coordination disorders	13.7%	20.5%	28.8%	30.1%	6.8%	Agree	3
Balance difficulties	19.2%	21.9%	21.9%	31.5%	5.5%	Neutral	3
Low motor availability	17.8%	16.4%	39.7%	24.7%	1.4%	Neutral	3
Little motivation	8.2%	17.8%	32.9%	27.4%	13.7%	Agree	3
Lack of sports habits	5.5%	13.7%	38.4%	35.6%	6.8%	Agree	4
Lack of work habits	8.2%	16.4%	38.4%	20.5%	16.4%	Neutral	3

Then, the data were grouped in Table 10 by: disagreement (Σ completely disagree and disagree), neutral opinion and agreement (Σ agree and completely agree).

Table 10 – Items grouped by disagreement / neutral / agreement

Difficulties	Disagreement	Neutral opinion	Agreement
Low levels of National Sign Language literacy	28.8%	37%	34.2%
Low L2 (second language) literacy levels	35.6%	31.5%	32.9%
Difficulties in understanding the information being transmitted	4.1%	27.4%	68.5%
Difficulties in acquiring (or learning) the contents	31.5%	20.5%	47.9%
Class participation and interactivity	12.3%	35.6%	52.1%
Difficulty interacting with the teacher	24.7%	38.4%	37.0%
Difficulty interacting with peers	26.0%	34.2%	39.7%
Concentration difficulties	34.2%	30.1%	35.6%
Motor coordination disorders	34.2%	28.8%	37.0%
Balance difficulties	41.1%	21.9%	37.0%
Low motor availability	34.2%	39.7%	26.0%
Little motivation	26.0%	32.9%	41.1%
Lack of sports habits	19.2%	38.4%	42.5%
Lack of work habits	24.7%	38.4%	37.0%

By analyzing the data, more than 50% of the teachers agreed that deaf students have “difficulties in understanding the information being transmitted” and difficulties in “class participation and interactivity”. They also agreed that deaf students have “difficulties in acquiring (or learning) the contents”, “difficulty in interacting with peers”, “concentration difficulties”, “motor coordination disorders”, “little motivation” and “lack of sports habits”. They disagreed with the statement that the deaf have “low L2 (second language) literacy levels” and “balance difficulties”.

Communication strategies used by PE teachers

With this question, the objective was to obtain information regarding the resources that are used by teachers in the teaching of theoretical and practical content in PE classes. The 5-point Likert scale (ranging from 1 “never” to 5 “always”) was used to assess the frequency with which they used the presented strategies.

Table 11 contains the sample data, relative frequency, mode and median.

Table 11 – Communication strategies used by teachers in physical education classes (measures of central tendency)

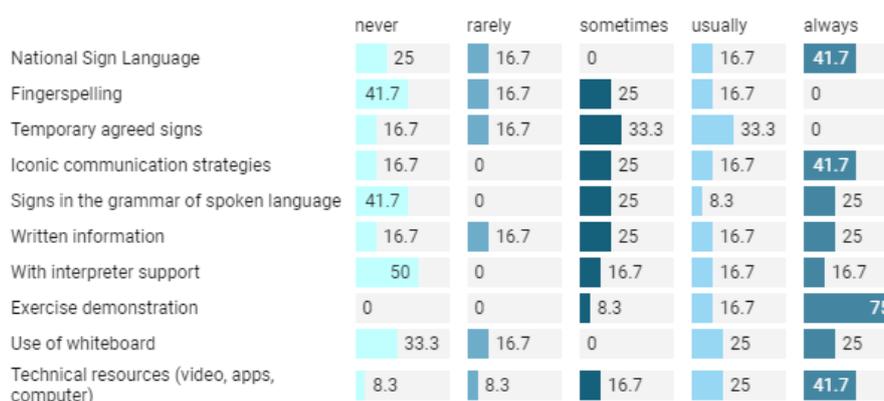
	Never	Rarely	Sometimes	Usually	Always	Mode	Median
National Sign Language	23.3%	27.4%	17.8%	12.3%	19.2%	Rarely	3
Fingerspelling	42.5%	16.4%	28.8%	12.3%	0.0%	Never	2
Temporary agreed signs	15.1%	12.3%	35.6%	28.8%	8.2%	Sometimes	3
Iconic communication strategies	16.4%	8.2%	27.4%	32.9%	15.1%	Usually	3
Signs in the grammar of spoken language	32.9%	6.8%	20.5%	21.9%	17.8%	Never	3
Written information	21.9%	23.3%	21.9%	19.2%	13.7%	Rarely	3
With interpreter support	34.2%	2.7%	5.5%	26.0%	31.5%	Never	3
Exercise demonstration	6.8%	1.4%	11.0%	28.8%	52.1%	Always	5
Use of whiteboard	19.2%	15.1%	21.9%	28.8%	15.1%	Usually	3
Technical resources (video, apps, computer)	16.4%	23.3%	23.3%	19.2%	17.8%	Sometimes	3

More than 50% of the teachers “always” use the exercise demonstration as a communication strategy. Generally, more than 30% of the teachers use “iconic communication strategies” and “use of whiteboard” (28.8%). Sometimes they resort to “temporary agreed signs” (34.6%) and “technical resources (video, apps, computer)”, they rarely resort to the use of “national sign language” (27.4%) and “written information” (23.3%).

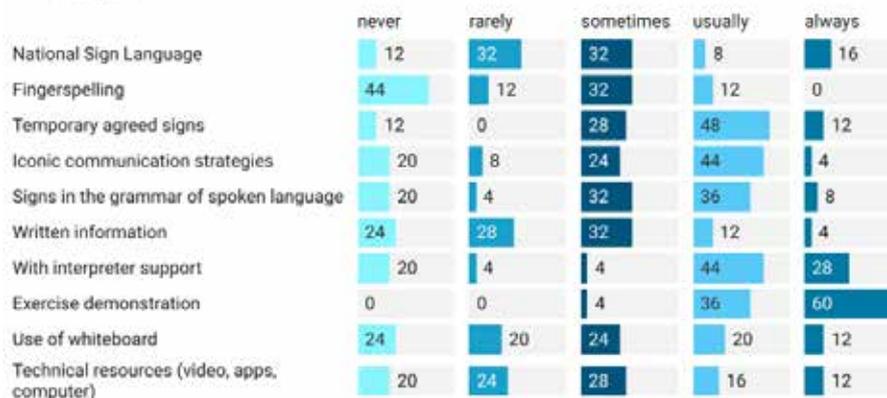
Germany



Italy



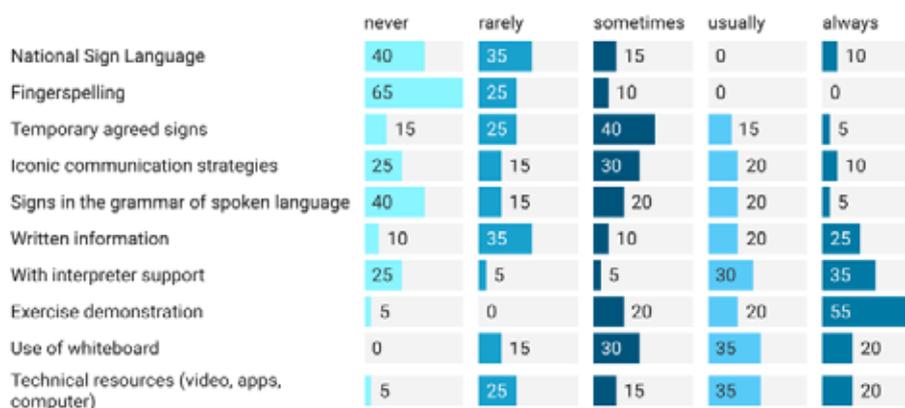
Portugal



Eslovénia



Spain



Communication with Deaf Students

Figure 9 shows the results of the teachers' self-assessment regarding their ability to communicate with deaf students. It was considered very good by 13% of the sample, good by 36%, sufficient by 29%, insufficient by 17% and poor by 5% of the teachers.

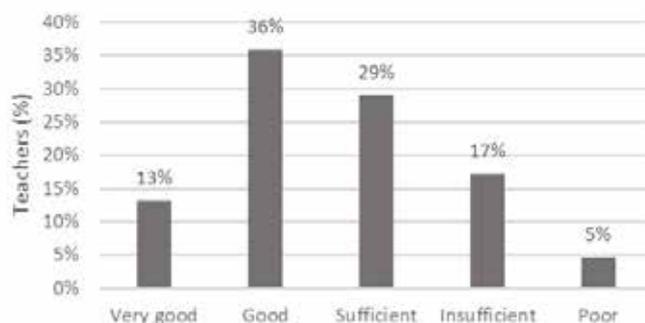


Figure 9 – Self-assessment of teachers' communication skills with deaf students.

In Table 12, the results are presented by country. The most prominent results are between Sufficient/Good for teachers from Germany; Good/Sufficient for teachers from Italy; Sufficient/Insufficient for teachers from Portugal; Good/Very Good for teachers from Slovenia and Insufficient/Good for teachers from Spain.

Table 12 – Self-assessment of teachers' communication skills (by country)

	Germany %	Italy %	Portugal %	Slovenia %	Spain %
Very good	11.1%	16.6%	4%	28.6%	5%
Good	33.3%	50%	24%	42.8%	30%
Sufficient	44.5%	25%	36%	14.3%	25%
Insufficient	11.1%	8.4%	32%	0%	35%
Poor	0%	0%	4%	14.3%	5%

Perception of the effectiveness of communication

With this question, the intention was to understand the perception of the effectiveness of communication with deaf students.

According to Figure 10, it is verified that effectiveness was rated "very good"/"good" by 51% of the teachers, and "sufficient"/"insufficient" by 49% of the teachers.

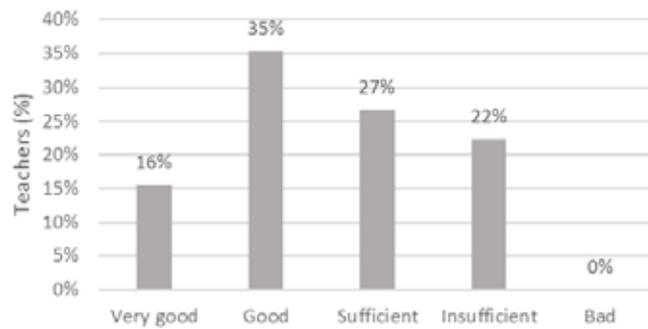


Figure 10 – Self-assessment of the effectiveness of teachers' communication with deaf students.

Table 12 presents the results obtained by country.

Table 12 – Perception of the effectiveness of communication (by country)

	Germany	Italy	Portugal	Slovenia	Spain
	%	%	%	%	%
Very good	11.1%	25%	8%	28.6%	5%
Good	33.3%	33%	28%	42.9%	40%
Sufficient	0%	33.3%	36%	14.3%	50%
Insufficient	55.6%	8.4%	28%	14.3%	5%
Poor	0%	0%	0%	0%	0%



Conclusion



The main objective of this study was to understand how physical education teachers carry out their pedagogical practice with deaf students. By analyzing the procedures through data collection, it is verified that the responses obtained in this questionnaire are not representative of the universe of physical education teachers in the country, who work with deaf students.

From the responses obtained, we could verify that almost all teachers carried out their pedagogical practice in an inclusive class, that is, with deaf students and hearing students integrated in the same class. In the case of teachers from Germany (100%) and some from Italy (8.4%) the physical education class was taught only to deaf students, which is known as a separate class. Regarding the teachers' hearing status, 77.8% were hearing, the remaining 22.2% were deaf or had hearing loss (hard of hearing). As for professional experience in teaching physical education, teachers from Germany were the ones who presented the least number of years of experience; however, they also presented the greatest number of years of work experience with deaf students, respectively 8.67 years and 7.3 years. Spanish teachers presented the least number of years of experience working with deaf students, 2.5 years. In this regard, Burden (1990) considers 3 phases that characterize the professional experience: the initiation phase, which contemplates between 1 to 2 years of experience; the adjustment phase, between 3 and 4 years; and the stabilization phase, which corresponds to 5 or more years of experience. According to this criterion, on average, teachers are in a phase of stabilization when it comes to working with deaf students, while Spanish teachers, on average, are in a phase of initiation.

We then tried to understand what were the reasons that led teachers to work with deaf students and what were the motivations for this practice. The answer "by mere chance" was the most selected by 95% of the Spanish teachers, 85.7% of the Slovenians, 76% of the Portuguese, 44.5% of the Germans, and 41.7% of the Italians. It seems to be common to all countries that working with deaf students happens by mere chance and is dependent on the placement of teachers, as a result of the teacher's application for vacancies at a national level or a job opportunity. Only 44.4% of the German teachers and 58.3% of the Italian teachers, taught deaf students by professional option or by invitation to teach. It is important to note that 50% of the sample of teachers from Italy were deaf teachers.

As for certified training in national sign language, only 21.9% indicated possessing this training, mainly at the level of basic user, which can not only dote them with a certain standard of communication skills, but also with a different awareness regarding some of the rules that must be followed when communicating with students. As Schmidt (1985) points out, the student is not able to understand what he/she cannot see, and these aspects of communication - eye contact, positioning students in the moment of teaching, changing exercises, are essential for communication to be successful. Certainly, the sign language training they attended gave them insight regarding the appropriation of these rules. However, we cannot fail to reinforce the need for a greater investment in sign language training.

Despite some controversy in the results of the studies carried out, the literature highlights communication (Butterfield, 1987; Dummer et al., 1996; Hopper, 2006; Longnair & Bar-Or, 2000) and the wide variety of communication systems used in education (Stewart et al., 1990) as responsible for the differences found in the students' motor performance. Schmidt (1985) also argued that communication, in this case the lack of it, is responsible for the most devastating effect on students' success in Physical Education, associated with all the problems that arise from it: teaching, feedback, reinforcement, motivation, are just a few examples, without going into details of a cognitive or affective nature. Sign language facilitates this communication and the teachers in our study considered its use in physical education class "very important" for the explanation of theoretical knowledge, the identity building of deaf students, teacher-student communication, social relationship (peer work), the explanation and correction of exercise, as well as for student assessment. As for the difficulties perceived in the students, "difficulties in understanding the information being transmitted", "class participation and interactivity", "difficulties in acquiring (or learning) the contents", "little motivation" and "lack of sports habits" were the main ones. The difficulties identified by the teachers seem to be related to communication problems between teacher-student. Schmidt (1985) refers that if the Physical Education teacher has little experience with or does not master sign language, its acquisition becomes an important requirement, since students must receive instructions, feedback and incentives in a language with which they are familiar, and the teacher must ensure that they understand what is expected of them.

Questioned about the resources they favored in the teaching of the subject's theoretical and practical content, more than 50% of the teachers selected "demonstration" as the main resource. Other indicated resources included "iconic communication strategies", "use of whiteboard", "temporary agreed signs", "technical resources (video, apps, computer)", with teachers rarely resorting to the use of "national sign language" (27.4%), and "written information" (23.3%). It is important to note that the use of the sign language interpreter as a strategy is often used by Portuguese and Spanish teachers. It was never used by the teachers from Germany, and rarely by the teachers from Italy and Slovenia. In this regard, Rink (1994) added that the presentation of the task can be improved if the teacher makes use of qualitative suggestions, that is, the appropriate amount of stimuli together with the visual demonstration and the verbal explanation.

Siedentop (2008) mentions that in Physical Education classes, students, in general, dedicate a significant part of their time to receiving information, instructions, information related to organization, description of skills, safety rules, appropriate behaviors or description of games, in an inclusive situation, where this information is made available orally to the remaining hearing students. Graziadei (1998) refers that in an inclusive situation, deaf students have the possibility to succeed in the activities they perform by imitation; however, they do not have the opportunity to acquire the concepts related to the subject if the information provided is only in the oral modality. Finally, it was our intention to understand the self-assessment that teachers made of the communication they established with deaf students and the perception they had regarding the effectiveness of that communication. Most teachers considered that

they had good/sufficient communication skills with deaf students. Regarding the self-assessment of the effectiveness of this communication, 35% rated it as “good” and 22% considered it “insufficient”.

For many deaf students, communication barriers continue to be present in many classes and in numerous learning situations. Over time, several researchers have been working on this subject in order to find the best practices that teachers and coaches should take into account in their work with deaf students. Among the various issues raised in these studies, the communication barrier remains the central and most complex issue. Hearing loss creates barriers for learning in the typical classroom environment, causing cumulative learning gaps and can compromise social interactions (Anderson, 2015). When the Deaf depend on sign language as the main form of communication and are surrounded by people who do not master it, misunderstandings in communication can arise, leading to the development of negative emotional responses, stress and anxiety. The same author states that one of the situations that occurs frequently is when the teacher explains the activity orally and in great detail to the hearing students and provides only simple instructions to the students who mainly depend on sign language for access to information. There is a need for trained teachers who know how to adequately respond to the needs of deaf students and who understand the deaf language and culture; teachers who are motivated to teach these students, regardless of their years of professional experience in teaching physical education; teachers who are capable of developing pedagogical practices directed to the different learning formats of deaf students; teachers who are capable of working in inclusive educational contexts, where there is heterogeneity and diversity in the privileged channels of communication which may be the basis for a structure that should solidly support bilingual teaching in physical education.

Bibliography



- Anderson, K. (2015). Access is the Issue, Not Hearing Loss: New Policy Clarification Requires Schools to Ensure Effective Communication Access. *Perspectives on Hearing and Hearing Disorders in Childhood*, 25, 24-36.
- Avendaño, C. (2005). El Español y el LESCO en el marco de la enseñanza de una segunda lengua para las personas sordas en Costa Rica. *Revista Educación*, 29(002), 217-232.
- Barboza, C., Ramos, A., Abreu, P., & Castro, H. (2019). Physical Education: Adaptations and Benefits for Deaf Students [Versão eletrónica]. *Scientific Research Publishing*, 10, 714-725. Consult. 20th october 2020, disponível em <https://www.scirp.org/journal/paperinformation.aspx?paperid=91890>.
- Burden, P. (1990). Teacher development. In W. Houston (Ed.), *Handbook of research on teacher education* (pp. 311-328). New York: MacMillan.
- Butterfield, S. (1987). The influence of Age, Sex, Hearing Loss, Etiology, and Balance Ability on the Fundamental Motor Skills of Deaf Children In M. Berridge & G. Ward (Eds.), *Internacional Perspectives on Adapted Physical Activity*. Champaign, Illinois: Human Kinetics.
- Dummer, G., Haubenstricker, J., & Stewart, D. A. (1996). Motor Skill Performances of Children Who Are Deaf. *Adapted Physical Activity Quarterly*, 13(4), 400-414.
- Franco, M. (2009). Educação Superior Bilingue para Surdos: O sentido da política inclusiva como espaço da liberdade: primeiras aproximações. *Revista Brasileira de Educação Especial*, 15(1), 15-30.
- Gomes, C. (2011). A Reconfiguração Política da Educação de Surdos. *Indagatio Didactica*, 3(1), 109-125.
- Hopper, C. (2006). Physical Activity and the Deaf Community [Versão eletrónica]. National Center on Health, Physical Activity, and Disability Consult. 29-12-2012, disponível em <http://www.ncpad.org/517/2431/Physical~Activity~and~the~Deaf~Community>.
- Kurková, P., & Scheetz, N. (2016). Communication strategies used by physical education teachers and coaches in residential schools for the deaf in the U.S. *Acta Facultatis Educationis Physicae Universitatis Comenianae*, 56(1), 1-15.
- Lacerda, C. (2006). A Inclusão de alunos surdos: o que dizem os alunos, professores e intérpretes sobre esta experiência. *Cadernos Cedes*, 26(69), 163-184.
- Leeson, L., Bogaerde, B., Rathmann, C., & Haug, T. (2016). Sign languages and the Common European Framework of Reference for Languages - Common Reference Level Descriptors. Nikolaiplatz: Council of Europe.
- Longrnuir, P., & Bar-Or, O. (2000). Factors Influencing the Physical Activity Levels of Youths With Physical and Sensory Disabilities. *Adapted Physical Activity Quarterly*, 17(40), 40-53.
- Rink, J. (1994). Task Presentation in Pedagogy. *Quest*, 46, 270-280.
- Sarmiento, F., Corredeira, R., & Coelho, O. (2013). (Re)Think Portuguese Sign Language in Specific Learning Contexts. In 1st Symposium on Sign Language Acquisition | 21-23 March 2013. Universidade Católica Portuguesa, Lisboa, Portugal.
- Sarmiento, F., Corredeira, R., & Coelho, O. (2016). A língua gestual na aula de Educação Física: Como comunicam os professores com os alunos surdos nas EREBAS. *Revista Portuguesa de Ciências do Desporto*, 16(S2A), 163-174.
- Schmidt, S. (1985). Hearing Impaired Students in Physical Education. *Adapted Physical Activity Quarterly*, 2, 300-306.
- Siedentop, D. (2008). *Aprender a ensinar la Educación Física* (2ª ed.). Barcelona: INDE
- Siedentop, D., & Tannehill, D. (2000). *Developing Teaching Skills in Physical Education* (4ª ed.). California: Mayfield Publishing Company.
- Stewart, D., Dummer, G., & Haubenstricker, J. (1990). Review of Administration Procedures Used to Assess the Motor Skills of Deaf Children and Youth. *Adapted Physical Activity Quarterly*, 7, 231-239.
- Wheatley, M. (2011). Bilingualism as a basic human right for deaf children in education. World Federation of the Deaf Consult. 08/03/2021, disponível em <https://wfdeaf.org/news/bilingualism-as-a-basic-human-right-for-deaf-children-in-education/>

Sportsign

