

THE INCLUSION OF SIGN LANGUAGE ON THE SWISS WEB ECO-SYSTEM

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Received: 2022-01-16 | Accepted: 2023-03-08 | Published: 2023-05-31

Abstract: Websites are a primary means of communication between public/private organisations and the general public. Therefore, websites must be accessible to all internet users to maximise their reach and efficacy, including those with hearing disabilities using sign language.

Around 10,000 deaf people and an equal number of non-deaf people - such as CODA, hard-of-hearing, interpreters, and relatives - communicate using sign language (SL) in Switzerland (SGB-FSS, 2016). SL is, in fact, the preferred means of communication among the deaf community for two primary reasons. SL provides greater detailed and accurate information than written communication for its deaf users, given its expressive nature and many deaf people consider it part of their identity. In modern society, the Web has revealed itself as a new medium to convey and receive information since its inception more than 30 years ago. However, little is known about the actual presence of SL in the Web, particularly in the Swiss web ecosystem.

This study showcases the preliminary results of our research into the presence of sign language in the Swiss web ecosystem. Looking at 97 websites of Swiss public institutions, universities, companies, news portals, and online shops, we investigated whether videos on their websites provided SL interpretation. We found that less than a third of the websites investigated had one or more videos. We then analysed the common characteristics of a subset of the videos (French-speaking Swiss SL videos) and checked whether they provided an equivalent of the websites' textual content. We found that those videos were mostly integrated on a web page dedicated to accessibility. They also had non-oral subtitles and were typically medical or legal-themed. Based on our results, we could

argue that the presence of SL in the Swiss web ecosystem is anecdotal, especially if compared with the amount of written information that is included on those websites.

Keywords: Web Accessibility, Switzerland, Sign Language, Multimedia

Introduction

Most deaf people use a national sign language (SL) as their first language. Up to 80% of them cannot successfully understand written content or have limited reading ability (World Federation of the Deaf, 2003; Debevc, Kožuh, Kosec, Rotovnik, & Holzinger, 2012, p. 213). Traditionally, hearing people without contact with the aforementioned minority probably suppose all deaf people read text easily. For example, they are convinced the Web is an accessible media by reading (Dotter, 2004, p. 206; Hilzensauer, 2006, pp. 184-5 and p. 199). Unfortunately, text on the Web can represent a significant barrier for people with reading difficulties such as the aforementioned deaf people, thus hindering their integration into hearing information's society (Debevc et. al., 2012, pp. 213-4; Yeratziotis & Zaphiris, 2018, p. 195).

In Switzerland, three sign languages are used by the deaf community: Swiss-German sign language (Deutschschweizerische Gebärdensprache, DSGS), French sign language of French-speaking Switzerland (Langue des signes française de Suisse Romande, LSF-SR) and Swiss-Italian sign language (Lingua dei Segni Italiana, LIS-SI). Although specific to Switzerland, these sign languages are similar to those of their neighbouring countries. In other words, DSGS is similar to the sign language used in southern Germany, LSF-SR is close to the sign language used in metropolitan France and similarly LIS to the sign language used in northern Italy (Braem & Rathmann, 2010, pp. 20-2).

Web Accessibility Standards and SL

Over the 30 years since its inception (CERN, 2019), the World Wide Web has proved to be a highly effective way of disseminating information. As such, many initiatives worldwide aim to make the Web a universally accessible tool. Arguably, the most important initiative has been the *Web Accessibility Initiative* (WAI) of the World Wide Web Consortium (W3C). The WAI has produced, among other resources, the *Web Content Accessi-*

bility Guidelines (WCAG). At the time of writing, the current version is 2.1, but an upcoming 2.2 version is soon to be announced, and a groundbreaking 3.0 version is also on the make. These continually updated guidelines have already been adopted by many countries, including Switzerland.

Together with national measures and international agreements, the WCAG aim to better integrate people with disabilities into society, including deaf people using SL.

Web Content Accessibility Guidelines (WCAG): International Standard

These guidelines provide a useful tool for developers and content creators to produce accessible websites. WCAG 2.1 includes 13 general guidelines organised around four principles, i.e., perceivable, operable, understandable and robust. Furthermore, these guidelines provide success criteria with three levels of compliance: A, AA, AAA (A being the lowest and AAA being the highest). Finally, the WCAG 2.1 also has a list of techniques that can be followed to meet the aforementioned success criteria (Kirkpatrick, O Connor, Campbell, & Cooper, 2018).

Only one of the WCAG 2.1 success criteria – 1.2.6 Sign Language (Prerecorded) – directly mentions sign language. This success criterion (SC) refers to the inclusion of sign language interpretation in prerecorded videos. It is classified as AAA and Kirkpatrick et al. (2018) acknowledge the benefits of including SL interpretation in prerecorded videos as they state that:

People whose human language is a sign language sometimes have limited reading ability. These individuals may not be able to read and comprehend the captions and thus require a sign language interpretation to gain access to the synchronised media content.

No SC in WCAG 2.1 directly refers to the provision of SL videos signing the textual content of web pages. However, we could interpret that SC 3.1.5 *Reading Level* indirectly includes sign language in one of the five techniques that can be applied to meet it. SC 3.1.5 is also classified as AAA, and it specifically indicates that

When text requires reading ability more advanced than the lower secondary education level after removal of proper names and titles, supplemental content,

or a version that does not require reading ability more advanced than the lower secondary education level, is available. (Kirkpatrick et al., 2018)

One of the suggested techniques to meet this SC is G160, which suggests providing, ‘*sign language versions of information, ideas, and processes that must be understood in order to use the content*’ (Cooper, Kirkpatrick, & O Connor, 2016).

As Dotter & Hilzensauer (2006, p. 46) had already stated “the needs of sign language users are not always sufficiently taken into consideration” in accessibility standards. We can also argue that the inclusion of SL is still not sufficiently covered under the WAI initiative/WCAG, and we can offer two reasons for this:

a) the inclusion of SL only features under the following two conditions: when there is a prerecorded video (SC 1.2.6) and when the textual content requires an advanced reading ability (SC 3.1.5).

b) the aforementioned success criteria (1.2.6 and 3.1.5) are classified as AAA, and national regulations that refer to the WCAG usually consider a web page to be ‘accessible’ if it complies with all the A and AA WCAG success criteria. This means that the inclusion of SL would not be obligatory under those national regulations. Additionally, the WAI mentions in another document that sign language ‘*is not required in most web accessibility policies*’ (Henry, 2019).

Swiss Policy on Web Accessibility in SL

Web accessibility is central to current national and international policy discussions. In this section, we will examine the situation and legal framework in Switzerland concerning web accessibility in sign language.

International Agreements

Having ratified UN Convention on the Rights of Persons with Disabilities (CRPD) on the 15th of April 2014 (Swiss Confederation, 2014), Switzerland has accepted:

[...] to enable persons with disabilities to live independently and participate fully in all aspects of life, (...) shall take appropriate measures to ensure to persons with disabilities access (...) to information and communications, including

information and communications technologies and systems (...) These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to (...) information, communications and other services, including electronic services and emergency services. ([CRPD 2006, Art. 9 §1](#))

National Measures

Before ratifying the UN Convention, the Swiss Confederation had already included in its constitution of 1999 that “The law shall provide for the elimination of inequalities that affect persons with disabilities” ([Swiss Confederation 1999, Art. 8 §4](#)). Furthermore, in 2002, the Federal Act for the *Elimination of Discrimination against People with Disabilities* (DDA) was approved. As its name suggests, this federal act had “[...] the purpose of preventing, reducing or eliminating discrimination against people with disabilities” ([DDA 2002, Art. 1 §1](#)). The Web is not explicitly discussed in this act, although there is a mention of online services in Article 14. This particular article describes the measures for people with speech, hearing or visual disabilities, and it begins by stating that:

In its dealings with the public, the authorities shall take account of the special concerns of persons with speech, hearing or visual disabilities. ([DDA 2002, Art. 14 §1](#))

Where they offer their services online, such services must be accessible to persons with visual disabilities without difficulty. The Federal Council shall issue the required technical regulations. It may declare technical standards to be binding for private organisations. ([DDA 2002, Art. 14 §2](#))

As it can be observed, although people with hearing disabilities are mentioned in the article, the reference to make online services accessible only refers to people with visual disabilities.

In 2005, the Federal IT Council acted the *Federal Guidelines for the Design of Accessible Websites* (P028) based on WCAG 1.0 (Lindenmeyer & Riesch, 2007, p. 7). The first version of the eCH-0059 accessibility standard was based on P028 (ibid, p. 1). This standard will be explained in the next section.

Other recent efforts to promote digital accessibility have been made by the Swiss administration. We can quote, among others, the [Digital Inclusion Summit](#) (DETEC, 2016), organised by the Federal Office for Equality for People with Disabilities and the Federal Office of Communications, which focused on improving website accessibility for people with disabilities. Furthermore, the Conference had sought the expertise of the Access for All Foundation. The publication of easy-to-read texts and the editing of videos in SL featured prominently among the measures presented, designed to improve internet access. Other recent conferences about digital accessibility include [For an Accessible Cyber-administration for All](#) (DFI, 2019) and [E-Accessibility](#) (DFI, 2020).

eCH-0059: Accessibility Swiss Standard

The Swiss eCH association, which includes representatives of the Swiss Confederation, all Swiss cantons, several universities, more than 120 businesses and public organisations (eCH, 2021), has developed a specific standard for digital accessibility, namely the eCH-0059 standard. This standard aims to make all public Internet services barrier-free for people with disabilities. The new version (3.0) has been recently approved (June 2020) and details the rules for creating and providing digital information and services in Switzerland (Lindenmeyer & Riesch, 2020, p. 6). It is tailored to organisations providing public services and applies to all their internet content and mobile applications (ibid. p. 5). The new version of the standard is based on the aforementioned WCAG 2.1, and it also draws on digital accessibility tools inspired by the Directive (EU) 2016/2102 (ibid. p. 2).

Section (2.4) of this standard focuses on alternative means of communication such as easy-to-read language and SL. The standard does not specify with which reading levels these alternative means could be used, but rather the type of content provided. It distinguishes between two types of content that should be provided in easy-to-read language and SL:

A) Information linked to the most important life areas. The standard stipulates that this content should be available in easy-to-read texts and SL videos. It could be information that has an impact on life and health, political and individual rights, preventing violence and ill-health, civil rights and duties, or directly addressed to people with disabilities.

B) Information related to other life areas. The standard indicates that this content should be available *proportionately* in easy-to-read texts and SL videos. It may be information

related to education, work, family, housing, leisure or public services (ibid, pp. 9-10). In this regard, we consider eCH-0059 to be one step ahead of WCAG 2.1 as it puts SL (and easy-to-read language) in a prominent position.

We can therefore conclude that, although eCH is based on WCAG 2.1, it gives more importance to the inclusion of SL on websites as it clearly describes the scenarios where it should be used and does not restrict its use to specific circumstances (prerecorded videos and text that require advanced reading abilities).

Research Objectives

As it can be deduced from the previous sections, we could state that there are several ongoing efforts being made on several fronts to attain a more accessible Web for SL users in Switzerland. Considering the aforementioned standard and the goal of the Swiss Research Centre for Barrier-Free Communication (Bouillon *et al.*, 2018) to foster SL inclusion, our objective is twofold. We would like to first determine the current situation of the SL in the Swiss web ecosystem and then explore, if present, some different techniques adopted for this inclusion. During our research, we organised our investigation around the following research questions:

Question 1 (Q1): Do the websites contain videos with SL?

Question 2 (Q2): How were the SL videos integrated on the web page and what are their main characteristics?

Question 3 (Q3): Do the SL videos provide an equivalent of the textual content of the web pages?

The paper is structured as follows: the *Methodology* section explains the methods applied during the Swiss websites' inspection to address our research questions, two subsections present the dataset, and the corpus examination method followed. The *Results* section presents and discusses the results obtained and answers the central questions, and the final section deals with conclusion and future work.

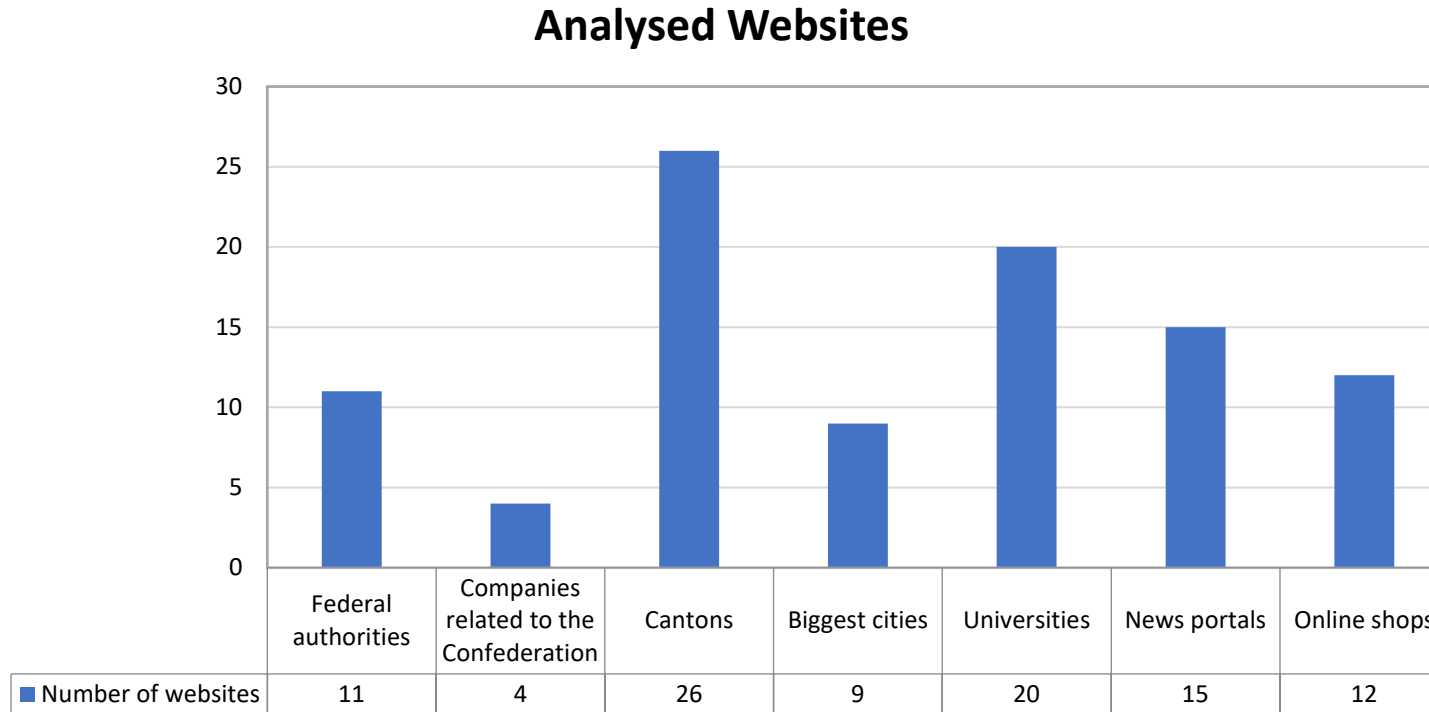
Methodology

In order to answer our research questions, the current study utilised a mixed methods approach. Firstly, we examined a corpus of 97 Swiss websites to check the presence of SL videos. Secondly, we conducted a qualitative analysis of a subset of the videos retrieved from the first phase. What follows is a description of the corpus and the data collection and analysis put in place.

Corpus

We analysed a corpus made of 97 multilingual and monolingual websites that were included in the *Swiss Accessibility Study 2016*, carried out by the Swiss organisation, Access for All (Bolfing et al., 2016). Although the original study claimed to include 100 websites (Bolfing et al., 2016, p. 21), we only found 99 in their public report. Furthermore, one of the websites featured in two different categories (we included Basel City and Canton's website in only the 'Cantons' category), and another website was no longer available when we conducted our study. Ultimately, our corpus comprised 97 unique websites. The complete list of analysed websites can be consulted in Appendix A. These 97 websites from the original study were divided into seven categories, i.e., Federal authorities, companies related to the Confederation, Swiss cantons, the nine biggest cities (Basel was not included as previously noted), universities, news portals, and online shops. The distribution of websites (Figure 1) is not equal between all these categories: there are 26 canton's websites (26.8%), 20 universities' (20.6%), 15 news portals' (15.2%), 12 online shops' (12.4%), 11 Federal authorities (11.3%), 9 biggest cities (9.3%), 4 companies related to the Confederation (4.1%).

Figure 1. Analysed Websites per Category.



The dataset reflected the multilingual nature of Switzerland. Our first inspection enabled us to identify 55 multilingual websites and 42 monolingual websites (29 in German, 9 in French and 4 in Italian). As we can see in Figure 2, four of the aforementioned categories (Federal authorities, companies related to the Confederation, universities and online shops) included the highest percentage of multilingual websites.

Figure 2. Monolingual and Multilingual Websites.

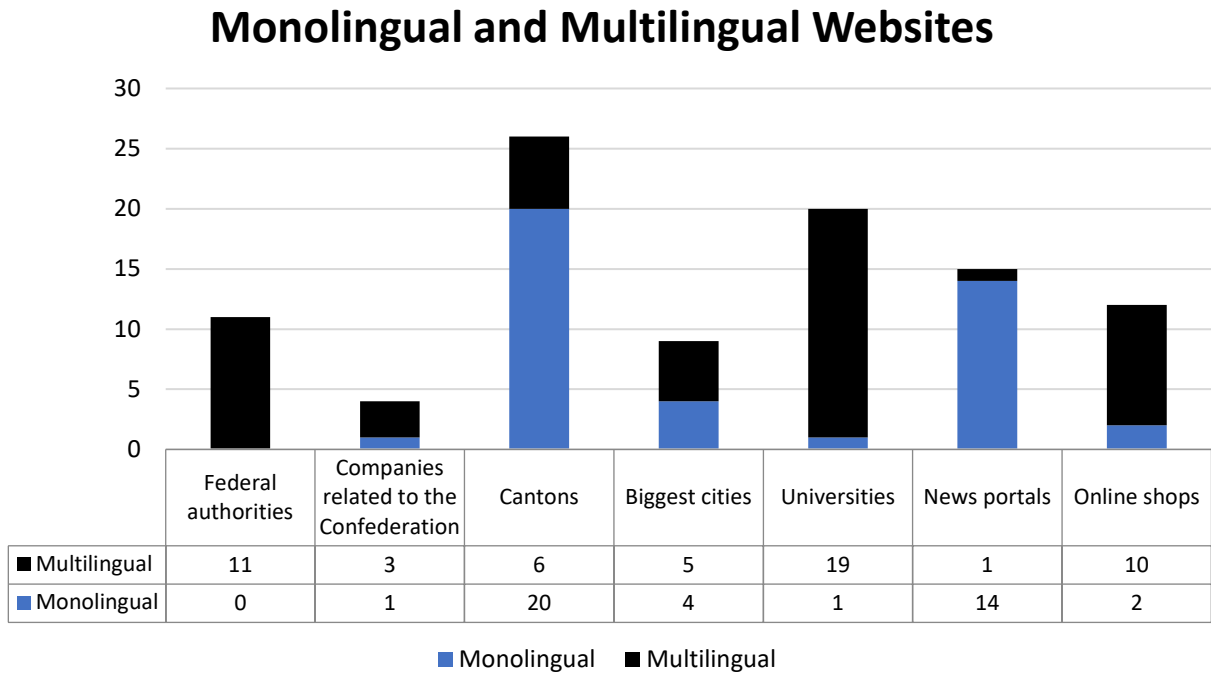
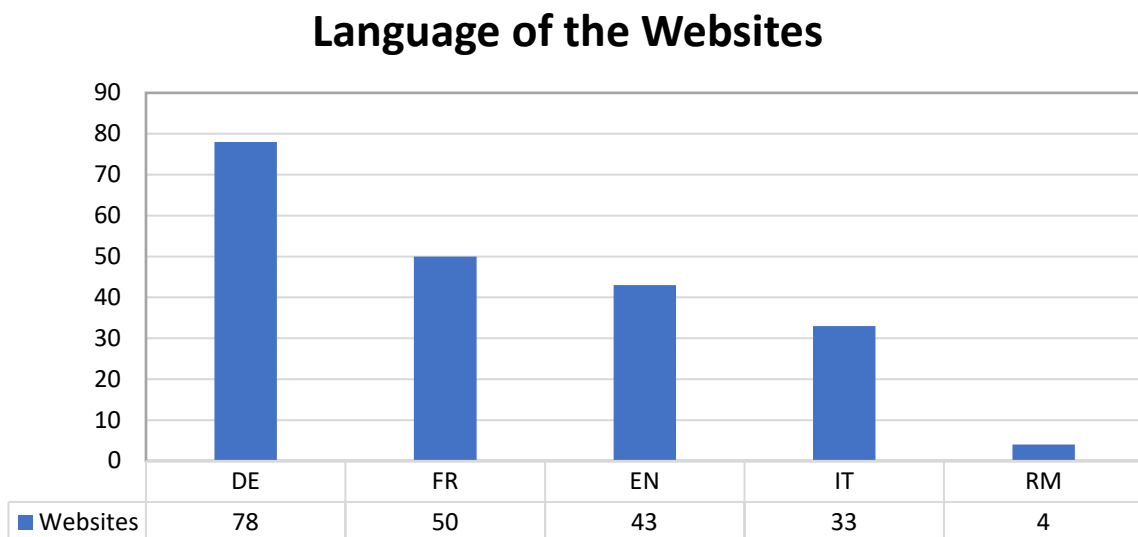


Figure 3 shows that, in our dataset, German was the most used language (78 of the 97 websites, 80.4%), followed by French (50 websites, 51.5%), English (43 websites, 44.3%), Italian (34 websites, 34 %), and Romansch (4 websites, 4.1%).

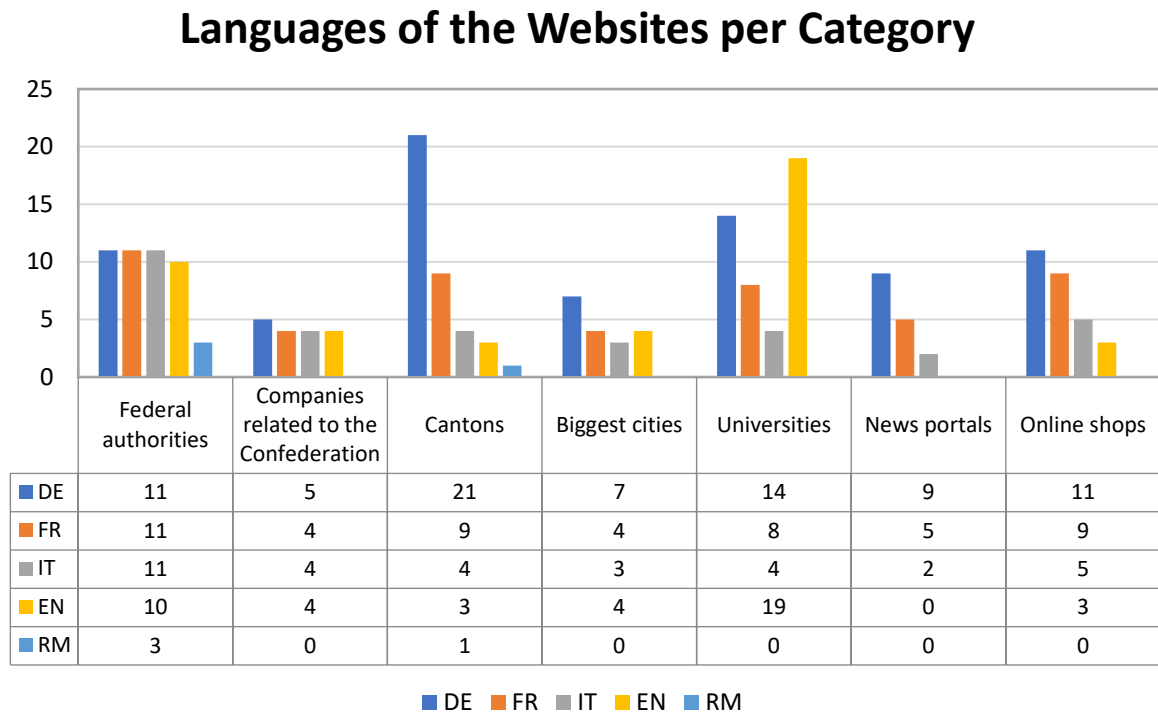
Figure 3. Language of the Websites.



The languages are also unevenly distributed within website categories, as shown in Figure 4. The four Swiss national languages (German, French, Italian and Romansch) are present on three of the Federal authorities' websites and in one of the cantons. English

is particularly present among universities’ websites (19/20 websites) and the Federal authorities’ websites.

Figure 4. Languages of the Website per Category.



Corpus examination

We manually viewed and searched for keywords in the four language versions of the websites. Each language variant of the website was studied independently, i.e., if a website was available in French and English, we conducted two separate visual and keyword inspections in each language. Overall, we conducted 204 individual inspections in our corpus: 78 in German (DE), 50 in French (FR), 43 in English (EN), and 33 in Italian (IT). Websites were studied by three researchers according to their language combinations, ranging from October 2020 to March 2021 for French and English versions and February to March 2021 for German and Italian versions. SL videos from the French dataset were analysed between mid-February and mid-March 2021 and consolidated in August 2021. Researchers conducted the inspections independently and met regularly to compare outcomes, share uncertainties and agree on results.

We used two main search methods to examine each site: a) an internal search option of each website (whenever available), b) the Google Search engine and “site” function to

restrict our search. As shown in Table 1, we used two/three keywords per language. Firstly, we searched for the general term ‘accessibility’ in each corresponding language version to see if we could find an ‘accessibility statement’ (Abou-Zahra, Velleman, Antonisse & de Bruin, 2021) that would include information about the website’s accessibility and the potential presence of SL. Secondly, we used the keywords ‘sign language’ in each language. We examined the first 30 results of each individual query and included our findings using a predefined and shared template.

Table 1. Multilingual Keywords Used for this Study

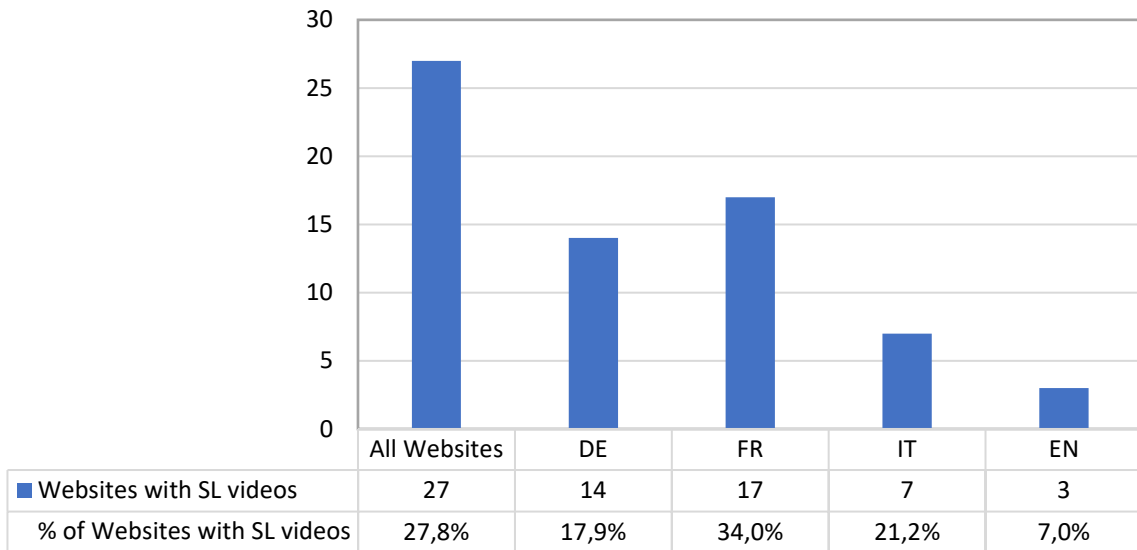
English	French	German	Italian
“accessibility”	“accessibilité”	“Zugänglichkeit” “Barrierefreiheit”	“accessibilità”
“sign language”	“langue des signes”	“Gebärdensprache”	“lingua dei segni”

Results

Presence of SL on specific websites

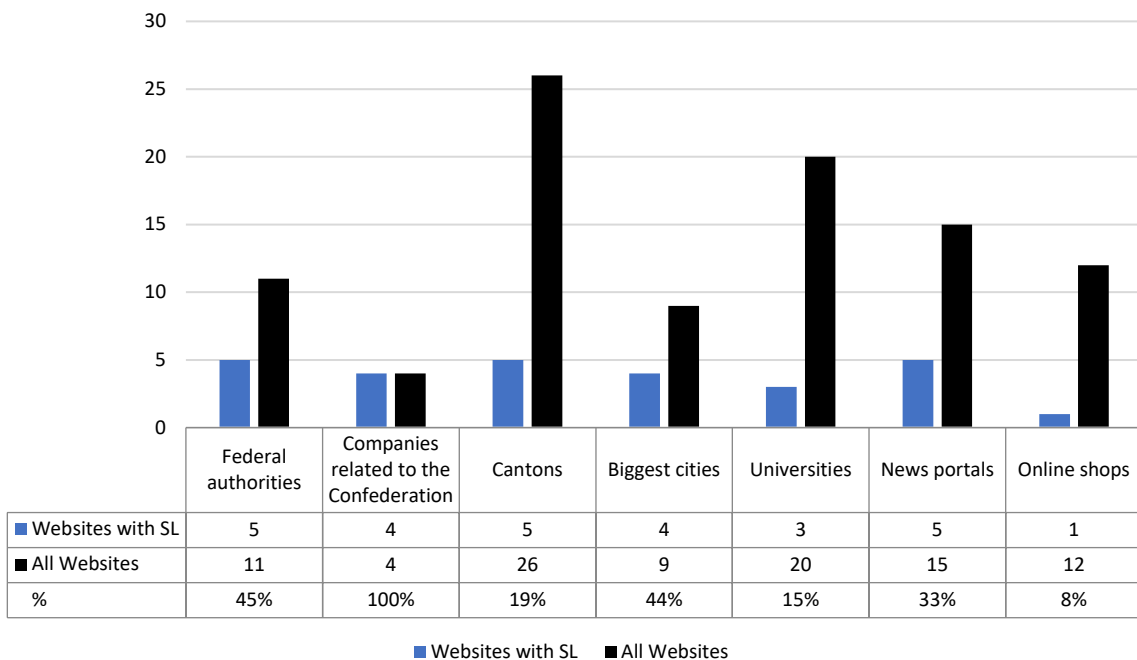
Overall, we found the presence of one or more SL videos in 27/97 websites (27.8%). In terms of individual languages, Figure 5 shows how we found one or more videos containing SL in 14/78 websites (17.9%) in German. In the French corpus, 17/50 websites (34%) contained videos in SL. In the Italian corpus, we found SL videos on 7/33 websites (21.2%). Lastly, in the English corpus, only 3/43 websites (7%) contained at least one video in SL.

Figure 5. Presence of SL Videos in our Corpus.



In terms of website category, as shown in Figure 6, those 27 websites containing SL videos belong to all the studied categories: Federal authorities (5), companies related to the Confederation (4), cantons (5), biggest cities (4), universities (3), news portals (5) and online shops (1).

Figure 6. Presence of SL per Website Category.



These initial raw results provide a partial response to our question about the presence of SL in the Swiss web ecosystem, which we can consider scarce as we did not find any

video in SL in 70 of the 97 analysed websites in any of their language versions. Moreover, we observed that they are very different in terms of topic, integration, or SL used, and not all of them represented an alternative means of communication. For example, SL might have only been featured in a news report specifically about SL, but not all the information present in the video was SL interpreted. Further exploring the initial results, we looked at how the websites incorporated a subset of those videos, their primary characteristics such as the SL used, the signer's position and the video's topic (Q2), and whether they provided an equivalent of the web page's textual content (Q3). The results from that second analysis are presented in the next section.

Description and Integration of Videos

In the second part of our study, we present the results of the qualitative analysis of SL videos in only the French websites. We composed a second corpus comprising the 43 SL videos that were found on 17 French websites. Appendix B provides a list of the videos analysed and the results.

As previously mentioned, these videos were analysed in mid-March 2021 and consolidated in August 2021. The period between our first data inspection and the qualitative analyses led to some changes in our dataset. For example, SBB/CFF/FFS, the Swiss railways company, integrated a new article (30.11.2020) about its accessible movie projects, including five GIFS videos in Swiss French SL.

More than half of the videos (n=24, 55.8%) were found on Federal authorities' websites, almost a quarter (n=9, 20.9%) on Swiss cantons' websites, six videos (13.9%) on the websites of companies related to the Confederation and four videos (9.3%) in universities' websites. We did not find any SL video on the biggest cities' websites. This analysis did not include results from news portals and e-shops that were not publicly available as a subscription was required to consult them. Results from this sub-dataset analysis helped us answer our second and third research questions, i.e., *how were SL videos integrated on the web page? And Do the SL videos provide an equivalent of the textual content of the web pages?*

Video integration

The majority of the videos (37/43, 86%) were hosted on online video platforms: YouTube (28/37, 75.7%), Vimeo (5/37, 13.5%) and SWITCHtube (4/37, 10.8%) for higher education videos in Switzerland. More than half of the videos found were integrated into the web page (28/43, 65.1%) and could be watched directly by the user, and almost half of them were available in both (22/43, 51.1%). Concerning the 15 videos that were not included on their web page, hypertext links were used to redirect users to video platforms or external web pages. However, this might not be the best technique to integrate SL videos as Debevc, Kosec and Holzinger (2011) pointed out that “[they] may interrupt user’s visual contact/focus with the content beneath.” (p. 187).

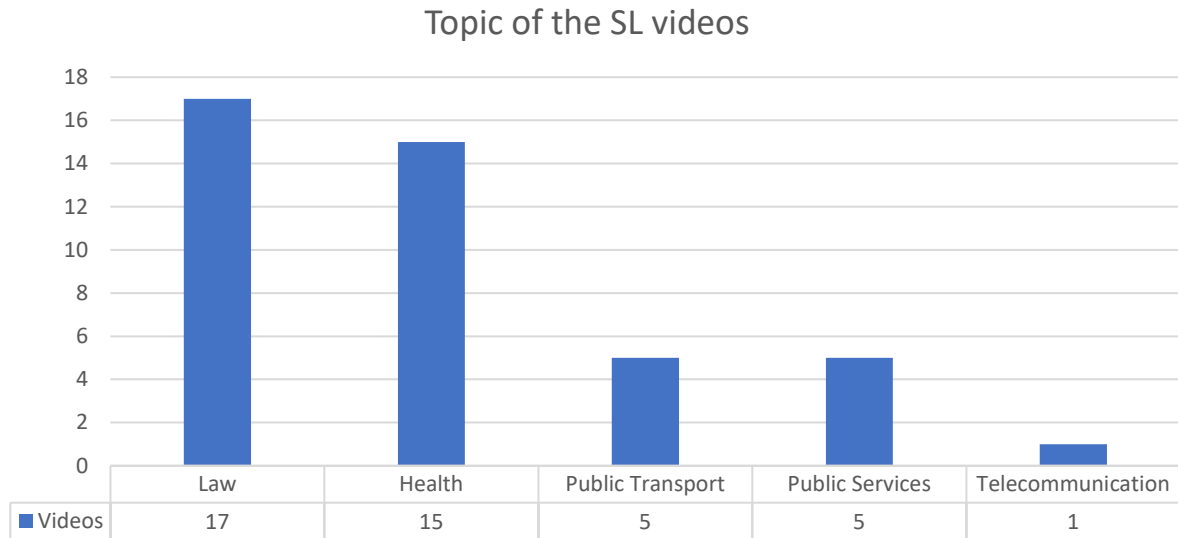
Sign Language variant and multimodal data

As expected, most of the videos found were interpreted into Swiss-French Sign Language (42/43, 97.6%). However, Swisscom, a Swiss telecommunication company, mixed German speech with French subtitles and Swiss-German Sign Language in a video advertisement (Appendix B, swi01). Concerning multimodal data, 28 videos (65.1%) included French captions. More than half of the videos (n=27, 62.8%) did not include verbal language. While 17 of those 27 provided captions, the remaining 10 did not include any captions and therefore were only accessible to SL users.

Topics covered

Five main topics were identified in the analysis of the videos: Health, Law, Public Transport, Public Services and Telecommunication. As can be observed in Figure 7, Law (39.5%, 17 videos) and Health (34.8%, 15 videos) were the most represented topics in our dataset. The higher representation of health-related videos is undoubtedly directly associated with the COVID-19 pandemic (13 videos). These results are in line with the topics mentioned in section 2.4 of the Swiss eCH-0059 standard in terms of providing alternative communication as easy-to-read texts and SL videos in the most important life areas, i.e., “life and health, politics and individual rights, (...) and health prevention, civil rights and obligations” (Lindenmeyer & Riesch, 2020, pp. 9-10).

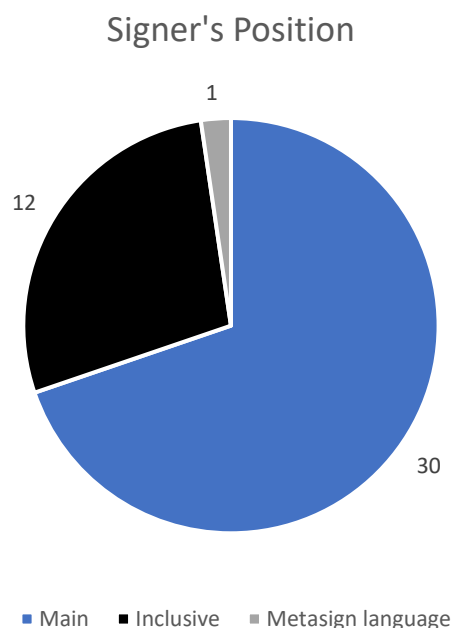
Figure 7. Topic of the LS Videos in the French Websites.



Signer position

The signer position (SL users or interpreter) is a crucial aspect that should be taken into account when recording a video. This position depends on the video context and the place of his/her intervention. We identified three different position categories in our dataset, namely Main, Inclusive and Metasign language. As we can see in Figure 8, in most cases (69.7%, 30 videos) the position was identified as 'Main', which means that the signer was on either the side of the screen or centred. He/she could be considered as the primary speaker of the video. In the case of the 'Inclusive' position (27.9%, n=12), the signers appeared to complete animation videos or other short videos. In those cases, the signer's position was included after the short video or on a specific window and placed on the side of the screen. In the Metasign category we found one video (2.3%). The video shows a signer being interviewed and signing, but the content of that video as a whole was not interpreted on SL. This type of video was not directly targeting SL users, as the signer was not really conveying the main information of the video.

Figure 8. Signer's Position of the SL Videos in the French Websites.



Discussion and Conclusion

This research deepens our knowledge of the presence of SL on the Web and sheds new light on the presence of SL in the Swiss website ecosystem. As far as we know, there was no information available regarding the presence of SL in the Swiss web ecosystem prior to this study.

We conducted a multilingual inspection in a corpus of 97 Swiss websites and found the presence of one or more SL videos in less than a third of them. Our first research question concerned the presence of videos with SL in the Swiss ecosystem. Our initial results confirmed it, but we must clarify that this is still a scarce presence.

A first look at the initial results showed us that not all sign language videos on the Swiss web ecosystem share the same characteristics. Therefore, to answer our second research question, we set up a descriptive *strategy vis-à-vis* the sign language videos on the French-speaking Swiss web. We found out that website managers use direct video integration on their website (28/43, 65.1%), hyperlinks to external resources (37/43, 86%) with links to other pages including videos or video platforms (such as Vimeo or YouTube), or both solutions (22/43, 51.1%).

Swiss-French websites predominantly integrate SL videos in Swiss-French sign language (42/43, 97.6%). One of the most represented topics is health, specifically the COVID-19 health crisis (15/43, 34.8%). The signer's physical position in the video is also important as it helps determine whether the media was designed for the deaf or whether it was adapted while being recorded or later. Most videos provide a signer with a main role (30 videos, 69.7%). Centred or on the side of the screen, we consider him/her as the main speaker. 12 videos (27.9%) included the interpreter after the main video clip, and one video (2.3%) provided a short sign language intervention but the content of the video as a whole was not available in SL.

Checking if the textual content on all the websites was equally represented by SL videos, as per the new version of eCH-0059 for some types of content, would have exceeded the scope of this preliminary study. However, our inspection of the websites and their SL videos has provided a partial response to our third research question and suggests that the amount of information in SL videos is merely anecdotal, especially if we compare it with the amount of content that was included in textual form on those websites.

Considering all our results, we have seen that despite the fact that the current Swiss legal framework and the new version of the eCH-0059 standard aim to promote the accessibility of the Web content in the Swiss context, the presence of SL content in this medium is still anecdotal. Having said that, we salute the effort that all these institutions have made to include SL videos on their websites, and we consider it the first step towards a more inclusive society. We would also like to commend the Swiss Federal Office of Public Health's (FOPH) efforts during the Covid-19 health crisis to make the information accessible to different sign languages and easy-to-read languages (DE, FR, IT, EN). The FOPH demonstrated how to develop and provide accessible alternative information for signing deaf people, such as summarising text to sign language or simplifying it to easy-to-read language.

The present research has only considered the Swiss web context and its second step only covered the videos found in the French queries. Therefore, a natural progression of this work would be to extend the corpus of websites and to study the SL videos found in the other language queries. Our corpus could be extended to include the most visited websites in Switzerland and/or other countries, following some well-known rankings like the Alexa top 500 sites on the Web (Alexa Internet, Inc., 2021) or websites that belong to certain categories (e.g. universities' websites). Furthermore, it would be interesting to

repeat the study in 2022 to observe if the application of the new eCH-0059 standard has served as a catalyst for the production and inclusion of SL videos on the Swiss web ecosystem.

Our study methodology relied on an initial keyword search, which we hypothesised a user searching for SL videos might use. This method might not always be reliable if those keywords do not appear close to the sign language videos, but regular users applying the same search method would encounter the same barrier. Moreover, when our query offered multiple results, we only analysed the initial 30 results, again hypothesising that a regular user might not go over that limitation. To overcome these flaws, in future iterations of this study, we could implement two different additional methodological approaches. The first approach would involve studying the current navigation and search practices of SL signers on the Web. This user-based study would help us better understand how they make use of the Web in general and how they specifically access SL video content. The second approach could entail a survey among the web and communication managers of the studied websites. This second study would enable us to obtain first-hand data from the videos included on their websites and gather more information about their implementation strategies and general policies on this topic.

The multilingual nature of Switzerland and our datasets has created new research questions that cover this multilingual aspect and which would be worth exploring further: 1) Is SL more present in one particular language version? 2) Is the SL used or its dialectal variant specified and coherent with the text around it?

Finally, future research should undoubtedly include members of the Swiss deaf community to investigate their real needs and experience with the usage of Swiss websites. To conclude, this initial study can serve as a base for future studies that investigate the presence of SL videos in the web.

Acknowledgements

This research study was conducted as part of the research project UNI-ACCESS, in the framework of the “P-7 Diversity, inclusion and equal opportunities in university development (2021-2024)” funded by Swissuniversities. We would like to express our gratitude to the other members of the project for their valuable feedback.

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Appendices

Appendix A. All Data Collect

Website	Institution/Company	Category	FR-LS	IT-LS	EN-LS	DE-LS	LS Total*
www.meteoschweiz.admin.ch	Bundesamt für Meteorologie und Klimatologie MeteoSchweiz	Fed. Aut.	N	N	N	N	N
www.bsv.admin.ch	Bundesamt für Sozialversicherungen	Fed. Aut.	N	N	N	N	N
www.bger.ch	Bundesgericht	Fed. Aut.	N	N	N/A	N	N
www.ch.ch	ch.ch	Fed. Aut.	Y	Y	N	Y	Y
www.edi.admin.ch	Eidgenössisches Departement des Innern	Fed. Aut.	Y	Y	N	Y	Y
www.eda.admin.ch	Eidgenössisches Departement für auswärtige Angelegenheiten	Fed. Aut.	N	N	N	N	N
www.uvek.admin.ch	Eidgenössisches Departement für Umwelt, Verkehr, Energie und Kommunikation	Fed. Aut.	Y	Y	N	Y	Y
www.vbs.admin.ch	Eidgenössisches Departement für Verteidigung, Bevölkerungsschutz und Sport	Fed. Aut.	N	N	N	N	N
www.wbf.admin.ch	Eidgenössisches Departement für Wirtschaft, Bildung und Forschung	Fed. Aut.	Y	N	N	N	Y
www.efd.admin.ch/	Eidgenössisches Finanzdepartement	Fed. Aut.	N	N	N	N	N

Website	Institution/Company	Category	FR-LS	IT-LS	EN-LS	DE-LS	LS Total*
www.ejpd.admin.ch	Eidgenössisches Justiz- und Polizeidepartement	Fed. Aut.	Y	Y	N	Y	Y
www.postfinance.ch	PostFinance	Companies	N	N	N	N	N
www.srf.ch	Schweizer Radio und Fernsehen	Companies	N/A	N/A	N/A	Y	Y
www.sbb.ch	Schweizerische Bundesbahnen SBB	Companies	Y	N	N	N	Y
www.post.ch	La Poste	Companies	Y	N	N	Y	Y
www.swisscom.ch	Swisscom	Companies	Y	N	N	Y	Y
www.ag.ch	Aargau	Cantons	N/A	N/A	N/A	N	N
www.ar.ch	Appenzell Ausserrhoden	Cantons	N/A	N/A	N/A	N	N
www.ai.ch	Appenzell Innerrhoden	Cantons	N/A	N/A	N/A	N	N
www.bl.ch	Basel	Cantons	N/A	N/A	N/A	N	N
www.bs.ch	Basel-stadt	Cantons	N	N	N	N	N
www.be.ch	Bern	Cantons	N	N/A	N/A	N	N
www.fr.ch	Fribourg	Cantons	N	N/A	N/A	N	N
www.ge.ch	Genève	Cantons	N	N/A	N/A	N/A	N
www.gl.ch	Glarus	Cantons	N/A	N/A	N/A	N	N
www.gr.ch	Grisons	Cantons	N/A	N	N	N	N
www.ju.ch	Jura	Cantons	N	N/A	N/A	N/A	N

Website	Institution/Company	Category	FR-LS	IT-LS	EN-LS	DE-LS	LS Total*
www.lu.ch	Luzern	Cantons	N/A	N/A	N/A	Y	Y
www.ne.ch	Neuchâtel	Cantons	Y	N/A	N/A	N/A	Y
www.nw.ch	Nidwalden	Cantons	N/A	N/A	N/A	N	N
www.ow.ch	Obwalden	Cantons	N/A	N/A	N/A	N	N
www.sh.ch	Schaffhausen	Cantons	N/A	N/A	N/A	N	N
www.sz.ch	Schwyz	Cantons	N/A	N/A	N/A	N	N
www.so.ch	Solothurn	Cantons	N/A	N/A	N/A	N	N
www.sg.ch	St. Gallen	Cantons	N/A	N/A	N/A	N	N
www.tg.ch	Thurgau	Cantons	N/A	N/A	N/A	N	N
www.ti.ch	Ticino	Cantons	N/A	N	N/A	N/A	N
www.ur.ch	Uri	Cantons	N/A	N/A	N/A	N	N
www.vs.ch	Valais	Cantons	Y	N/A	N/A	N	Y
www.vd.ch	Vaud	Cantons	Y	N/A	N/A	N/A	Y
www.zg.ch	Zug	Cantons	N	N	N	N	N
www.zh.ch	Zürich	Cantons	N/A	N/A	N/A	Y	Y
www.bern.ch	Bern (stadt)	Biggest cities	N	N	N	Y	Y
www.biel-bienne.ch	Bienne	Biggest cities	Y	N/A	N	N	Y

Website	Institution/Company	Category	FR-LS	IT-LS	EN-LS	DE-LS	LS Total*
www.bs.ch	Basel-stadt	Biggest cities	N/A	N/A	N/A	N/A	N/A
www.ville-geneve.ch	Genève (ville)	Biggest cities	Y	N	N/A	N	Y
www.lausanne.ch	Lausanne	Biggest cities	N	N/A	N/A	N/A	N
www.lugano.ch	Lugano	Biggest cities	N/A	N	N/A	N/A	N
www.stadtluzern.ch	Luzern (stadt)	Biggest cities	N/A	N/A	N/A	N	N
www.stadt.sg.ch	St. Gallen (stadt)	Biggest cities	N/A	N/A	N	N	N
stadt.winterthur.ch	Winterthur	Biggest cities	N/A	N/A	N/A	N	N
stadt-zuerich.ch	Zürich (stadt)	Biggest cities	N/A	N/A	Y	Y	Y
www.epfl.ch	École Polytechnique Fédérale de Lausanne	Universities	N	N/A	N	N/A	N
www.ethz.ch	Eidgenössische Technische Hochschule Zürich	Universities	N/A	N/A	N	N	N
www.usi.ch	Università della Svizzera italiana	Universities	N/A	N	N	N/A	N
www.unibas.ch	Universität Basel	Universities	Y	N/A	N	Y	Y
www.unibe.ch	Universität Bern	Universities	N	N/A	N	N	N
www.unilu.ch	Universität Luzern	Universities	N/A	N	N	N	N
www.unisg.ch	Universität St. Gallen	Universities	N/A	N/A	Y	Y	Y
www.uzh.ch	Universität Zürich	Universities	N/A	N/A	Y	Y	Y
www.unifr.ch	Université de Fribourg	Universities	N	N/A	N	N	N

Website	Institution/Company	Category	FR-LS	IT-LS	EN-LS	DE-LS	LS Total*
www.unige.ch	Université de Genève	Universities	N	N/A	N	N/A	N
www.unil.ch	Université de Lausanne	Universities	N	N/A	N	N/A	N
www2.unine.ch	Université de Neuchâtel	Universities	N	N/A	N	N/A	N
www.bfh.ch	Berner Fachhochschule / Haute école spécialisée bernoise	Universities	N	N/A	N	N	N
www.fhnw.ch	Fachhochschule Norwestschweiz	Universities	N/A	N/A	N	N	N
www.ffhs.ch	Fernfachhochschule Schweiz	Universities	N/A	N/A	N	N	N
www.htwchur.ch	Hochschule für Technik und Wirtschaft Chur	Universities	N/A	N/A	N	N	N
www.hslu.ch	Hochschule Luzern	Universities	N/A	N/A	N	N	N
www.kalaidos-fh.ch	Kalaidos Fachhochschule Schweiz	Universities	N/A	N/A	N/A	N	N
www.supsi.ch	Scuola universitaria professionale della Svizzera italiana	Universities	N/A	N	N	N/A	N
www.zhaw.ch	Zürcher Hochschule für Angewandte Wissenschaften	Universities	N	N	N	N	N
www.20min.ch	20 Minutes/ Minuten	News portals	Y	N/A	N/A	N	Y
www.24heures.ch	24 heures	News portals	Y	N/A	N/A	N/A	Y
bazonline.ch	Basler Zeitung	News portals	N/A	N/A	N/A	N	N
www.blick.ch	Blick	News portals	N/A	N/A	N/A	N	N
www.bernerzeitung.ch	Berner Zeitung	News portals	N/A	N/A	N/A	N	N

Website	Institution/Company	Category	FR-LS	IT-LS	EN-LS	DE-LS	LS Total*
www.cdt.ch	Corriere del Ticino	News portals	N/A	Y	N/A	N/A	Y
www.derbund.ch	Der Bund	News portals	N/A	N/A	N/A	N	N
www.laregione.ch	La regione	News portals	N/A	Y	N/A	N/A	Y
www.lematin.ch	Le matin	News portals	N	N/A	N/A	N/A	N
www.letemps.ch	Le temps	News portals	Y	N/A	N/A	N/A	Y
www.luzernerzeitung.ch	Neue Luzerner Zeitung	News portals	N/A	N/A	N/A	N	N
www.nzz.ch	Neue Zürcher Zeitung	News portals	N/A	N/A	N/A	N	N
www.tagesanzeiger.ch	Tages-Anzeiger	News portals	N/A	N/A	N/A	N	N
www.tdg.ch	Tribune de Genève	News portals	N	N/A	N/A	N/A	N
www.watson.ch	Watson	News portals	N/A	N/A	N/A	N	N
www.coopathome.ch (The original URL does not work anymore, we inspected www.coop.ch)	Coop @home	Online shops	N	N	N	N	N
www.leshop.ch	Le Shop Migros	Online shops	N	N/A	N	N	N
speedyshop.ch	It does not exist anymore	Online shops					
www.brack.ch	Brack	Online shops	N	N/A	N/A	N	N
www.conrad.ch	Conrad	Online shops	N	N/A	N/A	N	N
www.digitec.ch	Digitec	Online shops	N	Y	N	N	Y

Website	Institution/Company	Category	FR-LS	IT-LS	EN-LS	DE-LS	LS Total*
www.exlibris.ch	ex libris	Online shops	N	N/A	N/A	N	N
www.books.ch (The url redirects to: https://www.orellfuessli.ch/)	Orell Füssli	Online shops	N/A	N/A	N/A	N	N
www.weltbild.ch	Weltbild.ch	Online shops	N/A	N/A	N/A	N	N
www2.hm.com	H&M	Online shops	N	N	N/A	N	N
www.manor.ch	Manor	Online shops	N	N	N/A	N	N
www.zalando.ch	Zalando	Online shops	N	N	N/A	N	N

Note: Although the original study claimed to include 100 websites, we could only find 99 in their public report. Besides, one of the websites is included in two different categories (city and canton) and another website was no longer available when we conducted our study. Therefore, our corpus was finally made of 97 unique websites. See Bolfig 2016, Introduction.

Note: The original study included here the website of Basel city, however as this website is also analysed in the canton's category, we decided not to include it here. See Bolfig 2016, note p. 89.

* In this column the "Y" value represents that we found at least one video in one of the language variants of the website.

Appendix B. French Corpus Analysis

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
bag01	https://www.bag.admin.ch/bag/fr/home.html	Informations sur le coronavirus	Principaux modes de transmission du nouveau coronavirus	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Top	Right
bag02	//	//	Qui sont les personnes particulièrement vulnérables ?	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Top	Right
bag03	//	//	Utilisation correcte des masques d'hygiène	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Middle	Right

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
bag04		//	Combien de temps se passe-t-il entre l'infection et l'apparition de la maladie ?	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Middle	Right
bag05		//	Comment se traite une infection au nouveau coronavirus ?	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Bottom	Right
bag06		//	Recommandations pour les milieux professionnels	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Bottom	Right

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
bag07		//	Les employeurs doivent protéger les personnes vulnérables	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Bottom	Right
bag08		//	Autres recommandations pour les milieux professionnels	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Middle	Right
bag09		Voici les règles à suivre quand vous devez rester à la maison.	COVID-19 : Consignes sur l'isolement	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Middle	Right
bag10		//	Utilisation correcte des masques d'hygiène	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Middle	Right

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
bag1 1		//	COVID-19 : Consignes sur la quarantaine	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Bottom	Right
bag1 2		Informations sur le vaccin contre le COVID-19.	Vaccination contre le CO- VID-19 : Pour- quoi dois-je me faire vacci- ner ?	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Middle	Right
bag1 3		//	Vaccination contre le CO- VID-19 : Qui doit se faire vacciner ?	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Health (Covid-19)	Main	Centered Middle	Right
chc0 1	https://www.ch.ch/fr/	Informations en langue des signes	Langue des signes : Qui peut voter en Suisse ?	Y	Y (YouTube)	Y	LSF-SR	fr	fr	fr	Law (Citzen- ship)	Main	Left Middle	Left

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
chc02		//	Elections fédérales - Le Parlement suisse	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Law (Citizenship)	Main	Right Middle	Centered
edi01	https://www.edi.admin.ch/edi/fr/home.html	Notre mandat	Vidéo en langue des signes: BFEH	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Law (Equality)	Main	Right Middle	Right
edi02		//	Politique en faveur des personnes handicapées	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Law (Equality)	Main	Right Middle	Centered
edi03		//	Demandes d'aides financières - Aides financières de la Confédération - BFEH	Y	Y (YouTube)	Y	LSF-SR	N	fr	fr	Law (Equality)	Main	Right Middle	Centered

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
edi04		Retour en images et vidéos sur le colloque	Colloque "Participer, une chance pour toutes et tous" 3.12.2020	N	Y (YouTube)	N	LSF-SR	fr	fr	N	Law (Symposium, Equality)	Inclusive	Centered Middle	Right
uve01	www.uvek.admin.ch	Votation sur la révision de la loi sur la chasse	Langue des signes - Modification de la loi sur la chasse	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Law (Hunting)	Main	Centered Middle	Left
uve02		Initiative contre le mitage	Langue des signes - Initiative contre le mitage - votation populaire du 10 février 2019	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Law (Sprawl)	Main	Centered Middle	Left

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
wbf 01	www.wbf.admin.ch	vidéos explicatives en langue des signes	Langue des signes - Prévoyance vieillesse 2020 - Votation populaire du 24. septembre 2017	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Health (Old-age provision)	Inclusive	Centered Bottom	Left
wbf 02	//	//	Langue des signes - Arrêté fédéral sur la sécurité alimentaire: votation populaire du 24.09.2017	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Health (Food Safety)	Inclusive	Centered Bottom	Left

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
ejp01	www.ejpd.admin.ch	Vidéo avec langue des signes	Langue des signes - Modification de la directive de l'UE sur les armes	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Law (Weapon)	Inclusive	Centered Middle	Left
sbb01	www.sbb.ch	Lever les barrières pour les voyageurs sourds	Locomotive	Y	N	N	LSF-SR	N	fr	N	Public Transport (GIF, Train)	Main	Left Middle	Centered
sbb02		//	Train duplex	Y	N	N	LSF-SR	N	fr	N	Public Transport (GIF, Train)	Main	Left Middle	Centered
sbb03		//	Dérangement technique	Y	N	N	LSF-SR	N	fr	N	Public Transport (GIF, Train)	Main	Left Middle	Centered
sbb04		//	Contrôle des billets	Y	N	N	LSF-SR	N	fr	N	Public Transport (GIF, Train)	Main	Left Bottom	Centered

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
sbb05		//	Bon voyage	Y	N	N	LSF-SR	N	fr	N	Public Transport (GIF, Train)	Main	Left Bottom	Centered
swi01	www.swisscom.ch	Accessibilité chez Swisscom	Vidéo Relais Swisscom pour malentendants	Y	N	N	SDGS	ge	fr	fr	Telecommunication (Video relais)	Meta-signlanguage	Centered Middle	N/A
gee01	www.ge.ch	Un nouveau site sur l'aide aux victimes réalisé par la CDAS	Aide aux victimes_Introduction	N	Y (Vimeo)	N	LSF-SR	N	fr	N	Public Service (Victim support)	Main	Centered Top	Right
gee02		//	A qui s'adresse l'aide aux victimes?	N	Y (Vimeo)	N	LSF-SR	N	fr	N	Public Service (Victim support)	Main	Centered Top	Right
gee03		//	Que fait l'aide aux victimes?	N	Y (Vimeo)	N	LSF-SR	N	fr	N	Public Service (Victim support)	Main	Centered Middle	Right

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
gee04		//	Comment contacter l'aide aux victimes?	N	Y (Vimeo)	N	LSF-SR	N	fr	N	Public Service (Victim support)	Main	Centered Middle	Right
gee05		//	Gratuit, confidentiel et anonyme	N	Y (Vimeo)	N	LSF-SR	N	fr	N	Public Service (Victim support)	Main	Centered Bottom	Right
nee01	www.ne.ch	Pour une adaptation des documents officiels de l'État ... - NE.ch	Langue des signes : Initiative pour des multinationales responsables	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Law (Initiative, Multinationales responsables)	Inclusive	Left Middle	Left

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
nee02	//		Langue des signes : Interdiction du financement des producteurs de matériel de guerre	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Law (Weapon)	Inclusive	Right Middle	Left
vdd01	www.vd.ch	Votation fédérale du 19 mai 2019: les enjeux	Langue des signes - Réforme fiscale et financement de l'AVS - votation du 19 mai 2019	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Law (Reform, AVS)	Inclusive	Left Middle	Left

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
vdd02	//		Langue des signes - Modification de la directive de l'UE sur les armes -	N	Y (YouTube)	N	LSF-SR	fr	fr	fr	Law (Weapon)	Inclusive	Right Middle	Left
bas01	https://www.unibas.ch/de	Conférences en ligne sur le droit de l'égalité des personnes handicapées	Alexia Black : Encourager une véritable désinstitutionnalisation - Une perspective de la Nouvelle-Zélande	Y	Y (SWITCH-tube)	Y	LSF-SR	fr	fr	N	Law (Equality)	Inclusive	Centered Top	Right

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
bas02	//		Prof. Dr. Thierry Tanquerel : Les droits politiques des personnes handicapées	Y	Y (SWITCH-tube)	Y	LSF-SR	fr	fr	N	Law (Equality)	Inclusive	Centered Top	Right
bas03	//		Dr. Camilla Parker : Le droit à une vie autonome	Y	Y (SWITCH-tube)	Y	LSF-SR	fr	fr	N	Law (Equality)	Inclusive	Centered Top	Right

Id	Web Site	Name of the Web Page	Name of the Video	Integration on web page	Integration on video platform	Integration on both	Communication methods: Sign Language	Communication methods: Oral	Communication methods: Writing	Communication methods: Captions	Thematic of the Video	Type of Video	Screen Position	Human Position
bas04	//	//	Dr. Caroline Hess-Klein: Stratégie en matière de litiges pour la mise en œuvre des droits des personnes handicapées	Y	Y (SWITCH-tube)	Y	LSF-SR	fr	fr	N	Law (Equality)	Inclusive	Centered Top	Left

E-Shop: no subscription access.

Biggest Cities: no video found.

How to cite this article:

David, B., Morado Vázquez, L., & Casalegno, E. The Inclusion of Sign Language on the Swiss Web Ecosystem. *Journal of Accessibility and Design for All*, 13(1), 1-42.

<https://doi.org/10.17411/jacces.v13i1.370>

The [Journal of Accessibility and Design for All](#), ISSN 2013-7087, is published by the [Universitat Politècnica de Catalunya, Barcelona Tech](#), with the sponsoring of [Fundación ONCE](#). This issue is free of charge and is available in electronic format.

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