PROCEEDINGS OF THE
SECOND SWISS CONFERENCE
ON BARRIER-FREE COMMUNICATION
(BFC 2018)

Accessibility in Educational Settings

Swiss Research Centre
Barrier-free
Communication

9-10 November 2018

Geneva, Switzerland

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Proceedings of the 2nd Swiss Conference on Barrier-free Communication: Accessibility in Educational Settings (BFC 2018)

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2018, UNIGE Archive Ouverte

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Note from the Editors

The *2nd Swiss Conference on Barrier-free Communication (BFC)* took place in Geneva, Switzerland, 9th-10th November 2018. Following the success of its 1st edition in Winterthur (15th-16th November 2017), the conference sought to continue serving as a forum for researchers, students and practitioners to keep exchanging novel ideas on the topic. This year, the main theme of the event was *Accessibility in Educational Settings*, which represents one of the main working axes of the project "P-16: Proposal and implementation of a Swiss research centre for barrier-free communication", funded by the State Secretariat for Education, Research and Innovation (SERI) and supported by the Swiss University Conference (SUC). The project's main partners are the Institute of Translation and Interpreting of the ZHAW and the Department of Translation Technology (TIM) of the Faculty of Translation and Interpreting (FTI), University of Geneva, Switzerland, the main organiser of this second edition.

The conference attracted more than 100 people and showcased the work from researchers, practitioners and target group members from nine different countries, namely Belgium, Canada, France, Germany, Italy, Poland, Spain, Switzerland and the United Kingdom. All the talks were captioned in real time by Swiss TXT and the three keynote speeches, given by Dr. Sarah Ebling, Dr. Dónal Fitzpatrick and Prof. Kalus Schubert, were interpreted into Swiss-French Sign Language (LSF-CH). We would like to express our gratitude to all the speakers, as well as the the professionals (translators, interpreters, captioners, technicians), and the volunteers from the FTI, who worked hard to make the event as accessible as possible for all the participants. We are equally thankful to the Board of international experts who took part in the review process and voluntarily donated their precious time and expertise.

The present Collection comprises a total of 28 short papers (19 in English, 9 in French) dealing with a wide range of barrier-free communication aspects, including current challenges and best practices discussed from different perspectives −both at a national level, with a special focus on Switzerland, and at an international level. The authors' contributions cover many of the main research areas studied within the aforementioned project, particularly sign language, web and audiovisual accessibility. Overall, the Collection provides a wide but enriching overview of both theoretical approaches and applied research work in the form of methods, standards and new technologies which we believe are very relevant for the context of barrier-free communication.

The 3rd Swiss Conference on Barrier-free Communication will be held on 5th-6th June 2020 at at the School of Applied Linguistics of the Zurich University of Applied Sciences (ZHAW) in Winterthur, Switzerland. The BFC 2020 Conference sets out to provide a wider international forum to discuss most recent progress and future challenges in barrier-free communication. The conference will be centred on all aspects of the field, focusing in particular on novel research findings and emerging disciplines, such as interlingual live-subtitling, live-subtitling into easy-to-read language and text-to-sign interpreting by deaf interpreters.We look forward to meeting you there in order to keep making progress together on this fascinating field.

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Pierrette Bouillon, Silvia Rodríguez and Irene Strasly

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Translating Vague Language in Patient Information Leaflets

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Abstract

Vague Language (VL) is an integral part of language (Channell 1994; Cutting 2007; Sabet and Zhang 2015). Studies showed that VL is a typical feature of medical discourse. Patient Information Leaflet (PIL) as the most important source of information about a medicine that users have access to (Bjerrum and Foged 2003) and the written medical discourse that has to communicate complex health-related information in clear and easy to understand language to lay people, potentially the entire population of a country, is not an exception. The present study focused on translating of VL in PILs. Parallel corpus of the study was built of existing English PILs and their Persian translations. To describe and analyze VL in the selected corpus, Channell's (1994) framework was adopted. After identifying and analysing VL items in the selected corpus, observations were presented in detail. Findings of the study demonstrated the importance of investigating VL in health communication settings especially PIL as it has been tried to produce and translate PIL as plain and easy to understandable as possible.

1 Introduction

Vague Language (VL) is an integral part of language (Channell 1994; Cutting 2007; Sabet and Zhang 2015) and has been recognized as "a pervasive property of texts, and a property of considerable social importance" (Fairclough 2003, 55). VL cannot be treated as "the exception rather than the rule" in any theory of language (Channell 1994, 196). Channell (1994) one of the early founders of VL studies from the perspective of linguistics believed that an expression or word is vague if (a) it can be contrasted with another word or expression which appears to render the same proposition, if (b) it is purposely and unabashedly vague or if (c) the meaning arises from intrinsic uncertainty.

VL has been studied in various settings but suffers a dearth of research in health communication setting. Uncertainty, instantiated through the use of VL, is a typical feature of medical discourse (Adolphs et al. 2007; Bryant and Norman 1979; Prince et al. 1982; Varttala 1999; Sarangi and Clarke 2002). It has been showed that several tensions emerge regarding the appropriateness of using VL in the healthcare communication. Due to institutional requirements, healthcare professionals must provide precise and clear information about a patient's medical problems and gaining precise understanding of a patient's symptoms, while at the same time they must elicit and deliver such medical information in a way that the patient can understand and not find unduly alarming (Adolphs et al. 2007). Adolphs et al. (2007) discussed that in order to provide patients with a truthful and clear account of their illness, the use of any VL would seem to be undesirable. At the same time, the use of VL would be appropriate, in order to provide the patients with an account of their illness which is understandable (Varttala 1999; Adolphs et al. 2007). Moreover, the use of VL items would seem to be appropriate, in order to be a marker of politeness, minimize an imposition on the patients, leave room for the patients to add their own description of the situation, serve as a strategy to elicit a fuller description of the patient's symptoms, and convey to the patient the uncertainty within the medical subject-matter (Adolphs et al. 2007).

The scopes of previous studies carried out in healthcare setting were limited to spoken discourse. The present study tried to focus on written discourse i.e. PILs, "the most important source of information about a drug that patients have access to" (Bjerrum and Foged 2003, 58), a different setting with distinct institutional contexts and requirements.

Patient Information Leaflets (PILs) which accompany all medication and inform patients about dosage, side effects, etc., are known as the bedrock of methods used to inform people about their medications (Buck 1998; Raynor et al. 2007) and a tool which empowers patients and people to be more involved in making decisions related to

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their medications and health. Nisbeth Jensen (2015) stated that PIL has to communicate complex health-related information to lay people or general public. It is essential for the correct use of medication. If the receivers don't understand the communication, significant consequences will happen.

Considering its importance, the present study sought to investigate VL in PIL. More precisely, it intended to investigate typologies of VL in PILs, major reasons and functions of using VL in PILs, and choices made in translating VL in PILs.

2 Method

To achieve the objectives of the study, a parallel corpus of existing English PILs and their Persian translations was built. The official website of the European Medicines Agency (EMA) (http://www.ema.europa.eu/) was consulted in order to build the corpus. The EMA is the authoritative body in charge of the scientific evaluation, supervision and safety monitoring of medicines in the European Union (EU). 5 authorised PILs (English) which are available on the website were randomly selected. Existing Persian translations of the English PILs were used as target texts (TT).

To describe and analyze VL in the selected corpus, Channell's (1994) framework provided in the following was adopted. VL items were identified in the selected corpus, their frequencies were illustrated in tables, and they were examined in their contexts to find reasons for using them and functions they perform. Then, choices made in translating these items were identified and discussed in detail.

2.1 Channell's (1994) Typology

1. Vague additives

Channell (1994) defined vague additives as "a word or phrase is added to what would otherwise be a precise statement, to result in a vague reading" (18). One type of vague additives is "Approximation" which contains "approximators" i.e. some lexical material such as about or approximately, "exemplar numbers" i.e. one or two numbers, and also optionally a "measure noun" such as pounds, feet, etc. (Channell, 1994). She believed that there is another set of expressions which is used to approximate in much the same way as the approximators i.e. "Partial specifiers" (Wachtel's (1981) term) which specify upper or lower limits for quantities on the number continuum. The other type of vague additives

referred by Channell (1994) is "Vague category identifiers" such as 'coffee or something like that' which consist of "Exemplar" (coffee)+"Tag" (or something like that).

2. Vagueness by choice of vague words

According to Channell (1994) in these cases "speakers choose words which are always, and unabashedly vague, such as thingummy and whatsit" (18). She stated that terms such as loads of and heaps of exist for quantities. These words are referred by Channell (1994) as non-numerical vague quantifiers. Adverbs of frequency are also included in this area because it is possible to replace some them with exact amounts of frequency. She stated that the terms always and never are precise, not vague.

3. Vagueness by implicature

In this case "an apparently precise sentence can be used and understood to have a vague meaning" (18). For example, "Sam is six feet tall" can be both precise (Sam may be exactly six feet tall) or vague (Sam is exactly six feet and a quarter of an inch).

3 Results and Discussion

After analysis of the selected corpus based on Channell's (1994) VL typology, 94 VL items were identified in the source texts (ST) i.e. English PILs. The second main typology i.e. vagueness by choice of vague words was the most commonly used VL typology in the corpus.

There are several reasons for using VL in different contexts. In this study, major reasons for using VL in the context of PILs were uncertainty, lack of more precise information, and institutional requirements. These reasons are consonant with Adolphs, Atkins & Harvey (2007), Bryant and Norman (1979), Prince et al. (1982), Varttala (1999), and Sarangi and Clarke's (2002) findings about uncertainty and Adolphs, Atkins & Harvey's (2007) observations about the institutional requirements. Also, it should be considered that PILs are produced for general public i.e. for patients with different conditions, so this peculiar nature of PILs could be another reason for using VL. These reasons lead to the use of VL which serves various functions in the context of PILs. After analyzing the corpus, it was found that displacement was major function of VL in the context of PILs. It occurs mostly when there is uncertainty about what the speakers want to say (Channell, 1994).

Two main choices made in translating VL items were identified: 1. ST VL items were translated by equivalent VL items in the target language (TL). The major reasons mentioned above could be possible explanation for this choice. 2. ST VL items were omitted in the TTs. One possible reason for the omission could be underestimation of the importance of VL.

Findings of the study demonstrated the importance of investigating VL in health communication settings especially PIL. The VL typologies, the major reasons and functions, and the translation choices discussed in the study help those who try to produce and translate PIL as plain and easy to understandable as possible.

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Quality Training in Real Time Subtitling across EU and EU Languages

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Abstract

The need for real-time subtitles has risen since the adoption of the Convention on the Rights of Persons with Disabilities by the European Accessibility Act and the Audiovisual Media Service Directive. Both urge providers to ensure access to people with a visual or hearing disability. The provision across Europe is uneven and its quality uncontrolled (European Federation of Hard of Hearing People, 2015) or insufficient (Romero Fresco, 2015). Nowadays, many subtitlers still lack specialised training, and their professional status is not clear or recognised (ACT, 2015).

LiveTextAccess (LTA) is a project that approaches the mismatch between trained and needed skills in the labour market through a collaboration between educational and non-educational partners. Subtitlers trained by LTA will have suitable skills to provide high-quality subtitles by respeaking or velotyping in different contexts: cultural events, parliamentary assemblies, broadcasts, education, and at the workplace, as well as for three working settings: face-to-face, online and by relay.

LTA opens job opportunities for people with and without disabilities. The harmonised professional profiles and competence descriptions, and the ready-to-use open source materials will allow for easy implementation at universities and companies. Further, LTA will open a training pathway outside the universities for current professionals willing to develop new skills through vocational training.

1 Introduction

Real time subtitles can be produced in three ways: by stenotype, respeaking or Velotype. Stenotyping is reliable and accurate but it is language specific, and only exists in very few European languages. The training takes long and the service is expensive.

The second one, respeaking, implies using a speech recognition software to transfer voice to text. Respeaking is the less expensive option and the most used one nowadays. However, end-users criticize the uneven quality delivered (Romero Fresco, 2015). The number of available languages is limited, and the training focuses on the experience of the trainers.

The third one is Velotype, an EU developed system between the previous two in terms of quality, delay and cost. The Velotype keyboard produces whole syllables or words with every keystroke. Trained subtitlers can type at the speed of speech for longer periods. It covers over 30 languages, and has shown to deliver superior results in noisy environments and when it comes to high quality orthographic typing.

LTA focuses on respeaking and Velotype, since they cover the greater number of languages and working scenarios, respond to the market demands and thus shows a higher employability potential.

2 Objectives

Many EU research projects have been funded on media accessibility (e.g. DTV4ALL, ACCESSIBLE, ADLAB, HBB4ALL, SUMAT, SAVAS). However, to our knowledge, the professional nor the recognition aspect involved in media accessibility has not yet been covered in any EU funded projects[1]. LTA fills this gap. Media accessibility is gaining momentum, and it is high time to think and organise a new curriculum and define a new quality professional profiles who can be deployed in different media, social and cultural contexts.

LTA aims are:

- Increase employability by creating certified qualifications that will train professionals on the existing needed skills. The prospective trainees are: translation and interpreting graduates and postgraduates, professionals already working as translators or interpreters, real time subtitlers or other professionals who want to expand their skills, and become Intralingual Respeakers and/or Velotypists. The certified trainings will be available for both academic and vocational levels: ECTS/ECVETS. The flexible and modular design will allow to implement the courses in different institutions, be it at Universities, as professional courses, or as in-house trainings.
- Promote an Information for all approach (Greco, 2016). LTA aims to benefit a wider target group of real time subtitles viewers. This includes vulnerable audiences (deaf and hard of hearing viewers, physically challenged groups, people with special needs and learning disabilities) but also foreign audiences. In this regard, migrants, refugees and marginalized groups will acutely benefit from subtitles that allow them to improve their language skills, thus facilitating their integration in the new culture.
- Create flexible Open Educational Resources (OER) that can be integrated in different learning environments and catered to the needs of various trainees' profiles, also blind and low sighted trainees. This open access digital approach supports the modernization of training systems and produces flexible materials that can be re-purposed in different

learning situations. LTA adopts a strategic and integrated use of ICTs and OER in training putting the trainee at the centre of the learning process by generating content that can be used for self-learning, in flipped learning environments and in class.
- Conduct user centred evaluation with prospective trainers and trainees to secure the quality of the resources and the trained skills, and the certification.

The wide scope of LTA can only be reached through transnational cooperation and networking of diverse EU realities. The LTA consortium will assure that EU linguistic and cultural diversity is taken into account in the curriculum and material. The LTA consortium includes three HEIs (SDI München University of Applied Languages, Universidad Autònoma de Barcelona and Scuola Superiore per Mediatori Linguistici of Pisa) working at the cutting edge of media accessibility training and research, one European certification partner (ECQA) to secure academic and vocational levels, one end-users association (EFHOH) and three non-educational partners (SUBTI, ZDF Digital and Velotype) to ensure that the profile meets multiple market and end-user needs.

The complementary mix of educational and non-educational partners will assure exchange of expertise coming from different sectors (academia/industry/end-users) and operating in countries with different local or national subtitling traditions. A bottom-up cross-sectorial collaboration will be used to define the curriculum and the necessary digital technology, to outline existing and emerging solutions, possible innovation, not only for training but also for the deployment of real time subtitling.

3 Implementation

LTA will achieve its aims by applying a user-centric methodology and leaning on the certification process of the European Certification Agency ECQA, which is an LTA partner. In a first stage, LTA will create skills card for the new professional profiles. Then, the identified competences will be categorised and described as learning outcomes. This first stage

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[1] At the EU eACCESS+ web, www.eaccessplus.eu/education_survey, not a single education or training programme could be found.

will also include collecting best practices in training.

The design of a modular course will follow. A modular design will allow institutions to adapt the implementation to their own needs. The creation of training materials as Open Educational Resources will be the next step. The quality of the educational resources will be tested and evaluated by prospective students and trainers. The output of this stage will be a repository of assessment methods.

At the last stage of the project, LTA will harmonise the new profiles (LTA Respeaker and LTA Velotypist) and will attribute corresponding credits for both academic and vocational levels of the training: ECTS/ECTVES. These steps will ensure transferability, will set standards across Europe and will enhance the sustainability of the results beyond the completion of the project. Trainees will see their knowledge, skills, competences and qualifications quickly and easily recognised.

4   Impact

The training material created by LTA will be open source. The modular design will allow institutions to use the modules all together as a comprehensive course, or separately in different constellations, and catered to trainees´ needs as for blind and low sighted students. The materials will secure that future trained subtitlers have the necessary broad range of knowledge, skills and expertise required by an ever-changing market scenario.

Regarding transferability, the outputs delivered by LTA will help other institutions to develop similar training for other arising profiles as that of the easy-to-read professional; also appealing for blind and low-sighted students. The described methods for teaching transferable skills can be easily implemented or developed in other fields. The modular structure linked to learning outcomes and ECTS/ECTVES will maximise the flexibility for transferring the training scheme.

To sum up, LTA training will create added value in three ways: (1) enabling anyone to access and be trained via this material, regardless of their professional or academic background; (2) offering its deliverables worldwide thus allowing EU's know-how, access concepts and guidelines to be disseminated effortlessly across the globe; and (3) securing resilience, since the online material will have validity for many years.

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Enseigner les arts plastiques à des élèves non et malvoyants

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Résumé

Cet article propose une réflexion sur l'enseignement des arts plastiques à des élèves non et malvoyants basée sur l'expérience de l'auteur à l'Institut National des Jeunes Aveugles en France (INJA). Il s'appuie sur des recherches en didactique des arts plastiques qu'il confronte aux recherches sur le toucher et l'adaptation de documents tactiles. Ce texte présente rapidement l'enseignement actuel des arts plastiques en milieu ordinaire et à l'INJA puis développe l'exemple d'un cours.

1 Introduction

Enseigner les arts plastiques à des élèves non et malvoyants soulève beaucoup d'interrogations, de questions pratiques et parfois de réticences de la part des élèves, des familles ou des enseignants.

En tant que professeur d'arts plastiques à l'Institut National des Jeunes Aveugles à Paris, je m'efforce depuis quatre ans de proposer un enseignement le plus adapté et le plus complet possible. Pour ce faire, je pense qu'il faut partir des enjeux de la discipline afin de concevoir des adaptations qui ont du sens.

Je propose de livrer dans cette contribution mes réflexions sur mon expérience en tant qu'enseignante spécialisée et chercheur en arts.

Cet article s'appuie sur le croisement des recherches sur l'enseignement des arts plastiques et sur l'adaptation tactile d'images.

Il abordera dans un premier temps la question de l'adaptation dans l'enseignement des arts plastiques, puis la construction de l'enseignement des arts plastiques à l'INJA et enfin, il présentera l'exemple d'une séance d'arts plastiques au sein de cet Institut.

2 Adaptations et cours d'arts plastiques

Ces dernières années, les recherches sur l'accessibilité dans le milieu éducatif et les initiatives sur le terrain se sont multipliées en parallèle de la politique du handicap en France depuis la loi de 2005[2]. Plaisance (2013), fait le point sur ces nouvelles perspectives.

Comment ces évolutions raisonnent-elles dans l'adaptation de l'enseignement des arts plastiques ? Dans le domaine de l'adaptation tactile de documents, de nombreuses améliorations ont été apportées par la recherche (Bris 2006, 2008), mais il reste encore beaucoup à faire, en particulier dans l'enseignement des arts.

2.1 Les arts plastiques en France

En France, les arts plastiques font partie des matières du cursus scolaire de l'éducation obligatoire jusqu'à l'âge de seize ans.

Au collège, de la classe de sixième à la classe de troisième, les programmes de l'Éducation nationale prévoient une heure hebdomadaire d'arts plastiques et détaillent l'esprit et les enjeux de cet enseignement[3]. Cette matière fait partie des onze matières obligatoires. Les arts plastiques prennent une part importante dans la scolarité. Cet enseignement concourt au développement de l'élève, aux enseignements interdisciplinaires, à l'histoire des arts et à la culture générale ; en témoigne sa place dans le

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[2] Loi n° 2005-102 pour l'égalité des droits et des chances, la participation et la citoyenneté des personnes handicapées.

[3] Programme d'enseignement du cycle de consolidation (cycle 3) et du cycle d'approfondissement (cycle 4).

Arrêté du 9 novembre 2015. Bulletin officiel spécial n° 11 du 26 novembre 2015.

Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche, France.

Socle commun de connaissance, de compétences et de culture[4].

2.2 Les obstacles à l'adaptation

Cependant, parmi les ressources des différents organismes[5] proposant des adaptations tactiles, celles concernant les arts, restent les plus rares. Une des raisons de ce manque est la complexité de la réalisation de documents tactiles tant d'un point de vue technique que conceptuel (Kastrup et al. 2015 ; Orlandi 2015).

Comment adapter une œuvre d'art ? En deux ou en trois dimensions ? Comment aborder un vocabulaire visuel avec ceux qui ne voient pas ou mal ? Quelles pratiques artistiques peuvent-elles être proposées en classe ? Comment pratiquer la photographie, la vidéo ou la peinture avec des élèves non ou malvoyants ?

Pour me confronter à ces questions, ma démarche a été de partir de la recherche en arts plastiques et de la didactique des arts plastiques.

Partir des enjeux de l'enseignement des arts plastiques en milieu ordinaire permettrait d'améliorer l'accessibilité de cette discipline.

2.3 Enseigner les arts plastiques

En France, l'enseignement des arts plastiques, se concentre sur la pratique de l'élève au sein de situations mises en place par l'enseignant.

Les débuts de l'enseignement des arts plastiques comme discipline datent de 1972. L'enseignement artistique a évolué, passant de l'enseignement dit « traditionnel » à celui dit « en proposition », qui consiste à construire l'apprentissage par une production artistique de l'élève, initiée par une proposition ouverte de l'enseignant. Une phase appelée « verbalisation » permet, par la parole, de formaliser les acquis et de confronter les problématiques artistiques, abordées au cours de la pratique, à des œuvres et des pratiques artistiques (Vieaux 2010).

Ces situations d'enseignement sont conçues en fonction de compétences que l'enseignant cherche à faire travailler ou acquérir, dans une interaction entre action et réflexion. Ces questions sur les mécanismes de l'apprentissage

basé sur une expérience provoquée, puis éclairée par l'enseignant ont été analysées par Meirieu (1988).

Ces situations permettent aux élèves de construire des connaissances théoriques et de s'exprimer à l'oral sur leur pratique, celle des autres ainsi que celles des artistes. L'apport de références artistiques liées aux situations de pratique permet d'élaborer une culture commune.

Cependant, comme le rappelle Gaillot (2012), il n'y a pas de formule toute faite dans l'enseignement des arts plastiques. Il est important de varier les approches et de questionner la didactique.

2.4 Pour une adaptation réfléchie

Ainsi la question de l'adaptation en arts plastiques ne se réduit pas à l'adaptation tactile d'une œuvre d'art qui serait présentée en classe.

Les documents tactiles sont indissociables de la pratique de l'élève, qui doit aussi être adaptée en fonction des apprentissages visés.

Il ne s'agit plus de se demander : comment rendre accessible telle œuvre d'art mais : que doit transmettre l'adaptation de telle œuvre d'art dans le cadre d'un cours précis ?

L'adaptation de la pratique dépendra de l'intention pédagogique en arts plastiques. Que veut-on faire découvrir à l'élève ? Quelles pratiques artistiques veut-on lui faire expérimenter ? Quelles problématiques veut-on aborder ?

3 Les arts plastiques à l'Institut national des jeunes aveugles

L'Institut National des Jeunes Aveugles est un établissement d'éducation et d'enseignement spécialisé pour les enfants et adolescents aveugles ou malvoyants. Les élèves sont internes, externes ou suivis en inclusion en milieu ordinaire. Les niveaux enseignés vont de la grande section de maternelle à la terminale. L'INJA est placé sous la tutelle du Ministère des Solidarités et de la Santé.

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[4] Socle commun de connaissances, de compétences et de culture. Encart du Bulletin officiel n° 17 du 23 avril 2015. Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche, France.

[5] Institut National Supérieur de formation et de recherche pour l'éducation des jeunes Handicapés et les

Enseignements Adaptés, Suresnes, France (I.N.S.H.E.A.), Centre Technique Régional pour la Déficience Visuelle, Villeurbanne, France (CTRDV), La banque de données images (BDI) de la banque de données de l'édition adaptée (BDEA) répertoriée par l'Institut National des Jeunes Aveugles (INJA)

L'enseignement des arts plastiques à l'INJA est assez récent. D'autres enseignants ont donné des cours avant mon arrivée, mais je suis la première enseignante, en arts plastiques, détachée de l'éducation nationale.

En tenant compte des questions de l'enseignement des arts plastiques en milieu ordinaire et de l'adaptation pour les déficients visuels, j'ai organisé mon enseignement à l'INJA par étape. J'ai commencé par l'adaptation de l'espace de travail des élèves en privilégiant l'autonomie dans les déplacements et l'utilisation des outils. J'ai réfléchi à l'adaptation de la pratique artistique et j'ai cherché, ou conçu des adaptations tactiles des références artistiques présentées en classe.

3.1 Construction d'un espace de travail

Lors de mon arrivée à l'INJA en 2014, j'ai trouvé que l'organisation de la salle d'arts plastiques n'était pas pratique et ne favorisait pas l'autonomie des élèves. J'ai réorganisé cet espace avec l'accord de la direction.

Mon premier souci a été de mettre à disposition des élèves des outils et des matériaux pour la pratique artistique.

Pour favoriser les déplacements des élèves et leur autonomie, j'ai consulté les instructeurs en locomotion de l'INJA.

J'ai visité les salles de mes collègues enseignants en sciences et vie de la terre et en physique-chimie pour m'inspirer de leurs solutions d'adaptations pour les activités de manipulation.

Enfin, au cours des années, j'ai testé différentes solutions d'aménagement de l'espace et de mise à disposition du matériel en demandant leur avis aux élèves. Je continue régulièrement à améliorer l'espace de travail de la salle.

3.2 La salle d'arts plastiques en 2018 : une organisation pour la pratique des élèves

La classe est organisée autour d'un espace de travail central, une grande table avec six places.

À chaque bout de cet îlot se trouvent des meubles de rangement. D'un côté, il y a le matériel de « protection », en accès libre : tabliers, journaux (pour protéger les tables) et barquettes en carton pour poser les outils ou de petits matériaux pendant la pratique. Ces outils permettent aux élèves d'organiser leurs espaces de travail et d'éviter de faire tomber leurs outils.

De l'autre côté, un meuble rassemble une matériauthèque faite de boîtes en carton disposées sur des étagères. Les matériaux sont classés par catégories. Les élèves peuvent prendre les matériaux pour leurs réalisations : mousse, tissus, ficelles, cartons, plastiques, bois etc. Les élèves approvisionnent régulièrement la matériauthèque. Sur ce meuble se trouvent des feuilles (papier et plastique), des planches Dycem [6], des outils de tracé braille (règles, équerre, rapporteur, etc.), des adhésifs et des Perkins [7].

Autour du poste de travail central, d'autres postes sont à disposition des élèves. Il y a un bureau avec un ordinateur, un scanner, un appareil photo numérique et une imprimante. Les élèves qui en ont besoin peuvent travailler sur des bureaux avec des lampes orientables ou un téléagrandisseur [8]. Près de la fenêtre se trouve une table avec une presse d'imprimerie [9].

À côté des deux lavabos, il y a un meuble avec des outils de peinture, de dessin, de découpe et de collage. Ces outils sont classés et rangés par les élèves dans des pots, toujours à la même place. Ils sont proches du point d'eau pour faciliter l'étape du nettoyage des outils et des mains.

Sur les côtés de la salle se trouvent des armoires où je range les stocks de fournitures et les travaux des élèves.

3.3 La pratique artistique

Les pratiques artistiques proposées aux élèves en milieu ordinaire sont les plus diversifiées possibles. Certaines sont plus facilement adaptables que d'autres. Je pense que l'adaptation de la pratique doit se faire au cas par cas sans abandonner celles qui semblent les moins accessibles car l'expérience des cours montrent qu'elles peuvent toujours être bénéfiques pour les élèves. Kennedy (1997)

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[6] Les planches Dycem sont des supports en gel sur lequel on place des feuilles en plastiques qui permettent de tracer des traits en relief à l'aide d'une pointe.

[7] Une Perkins est une machine à écrire en braille.

[8] Un téléagrandisseur est une aide visuelle qui permet d'afficher sur un écran l'agrandissement de textes ou d'images.

[9] Les élèves pratiquent la gravure et le gaufrage sur une presse taille douce qu'ils apprennent à manipuler.

témoigne de l'intérêt du dessin pour les aveugles.

Lors d'un de mes cours, un élève, non voyant de naissance, ne souhaitait pas travailler en photographie, car il ne trouvait pas d'intérêt à produire des images qu'il ne verrait jamais

Ce cours proposait aux élèves de travailler sur la question de l'autoportrait. En entendant ses camarades travailler, l'élève a finalement commencé à manipuler son appareil pour prendre des photos. Il a alors découvert que la synthèse vocale indiquait la détection de visage et décrivait sa position dans le champ. Il a expérimenté différentes positions et s'est amusé du retour vocal.

Puis il a réalisé un projet de photographie et travaillé des questions de cadrage et de plan en choisissant l'arrière-plan de sa photographie.

Lors de la verbalisation, il a pu présenter son travail aux autres, expliquer les étapes de réalisations et formuler ses intentions par rapport à son autoportrait.

3.4   Les documents tactiles

Pour les adaptations tactiles, j'ai choisi de varier les supports et les techniques. J'utilise d'une part des documents existants et d'autre part des documents que je conçois. Je ne parlerai ici que des images tactiles que je réalise.

Pour leur conception, je me suis basée sur les travaux sur le toucher de Hatwell (2000), Gentaz (2009) et sur les analyses et recommandations de Bris (2006, 2008).

4   Exemple d'un cours d'arts plastiques

Le cours suivant a été conçu pour un groupe de six élèves non et malvoyants d'une classe de cinquième qui connaissent déjà l'établissement et les espaces de la classe.

4.1   Scénario pédagogique

Afin de réaliser un bestiaire[10], je propose aux élève de représenter chacun un animal grâce à un collage de végétaux sur une feuille à dessin (24 × 32 cm). Ce cours vise à travailler sur la représentation d'un animal ainsi que sur la matérialité et les constituants d'une production

plastique. Nous allons d'abord dans la cour de l'établissement pour récolter des végétaux.

Figure 1. Récolte des végétaux.

4.2   La pratique de l'élève

En classe, les élèves vont chercher leurs outils et travaillent pendant quarante minutes. Certains demandent de l'aide pour couper ou coller leurs végétaux. Je m'assure qu'ils effectuent le maximum de manipulations et qu'ils donnent des indications précises.

Figure 2. Plan de travail pendant la pratique.

4.3   La verbalisation

Après la pratique, les élèves découvrent toutes les réalisations de la classe.

Ils s'expriment à l'oral et répondent à des questions que je leur pose sur leurs réalisations, leurs choix et les opérations plastiques. Du vocabulaire spécifique est apporté à cette occasion.

Un élève explique qu'il a représenté un chameau parce qu'il est déjà monté sur cet animal. Il a utilisé plusieurs feuilles et tiges qu'il a découpées à la main. Il a commencé par les pattes puis a procédé par ajouts. Une autre élève parle d'une chèvre et dit qu'elle n'a voulu

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[10] Mot expliqué aux élèves, qui fait référence aux bestiaires médiévaux : livres illustrés d'animaux réels ou

fantastiques décrivant leurs caractéristiques physiques ou morales.

faire que la tête avec de petites cornes et des feuilles roulées en boule dans ses paumes pour faire les yeux.

Figure 3. Deux réalisations d'élèves : en haut le chameau et en bas la chèvre.

4.4 Présentation de références artistiques

Les documents artistiques sont présentés sous forme de série de planches thermogonflées[11].

Les références concernent la représentation animale et l'utilisation d'éléments naturels ou non pour représenter un animal. Les œuvres présentées sont : une libellule du recueil de dessins *Histoire naturelle* de 1926, de Max Ernst et *Zèbres*, dessin de 1939 de Victor Vasarely,

Les élèves reçoivent des documents en noir, en braille, en relief ou des photographies.

La découverte des références se fait collectivement et chacun est invité à prendre la parole pour analyser, décrire, commenter. La lecture tactile se fait suivant une méthode d'exploration en plusieurs temps apprise par les élèves. Je pose des questions aux élèves. Je demande, par exemple, quelle partie de la libellule est représentée avec des feuilles d'arbre. Une élève répond « les ailes, comme pour mon abeille ».

Pour les zèbres de Vasarely, j'ai prévu une adaptation en relief en deux planches. Les élèves découvrent d'abord les silhouettes des zèbres et doivent décrire leurs positions. Je leur demande de repérer les yeux de l'animal, de compter les pattes. Une élève dit qu'ils sont emboîtés.

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[11] Le thermogonflage consiste à imprimer une image sur un papier spécial qui, passé dans un four, gonflera aux endroits imprimés.

Un deuxième document présente les zèbres avec leurs rayures. Je demande aux élèves si le deuxième document permet de bien identifier les zèbres. Ils me répondent qu'on ne peut plus les trouver à cause des rayures qui sont partout. C'est exactement l'effet que produit le dessin original de Vasarely. La lecture des documents sera approfondie lors d'une prochaine séance où d'autres documents seront présentés.
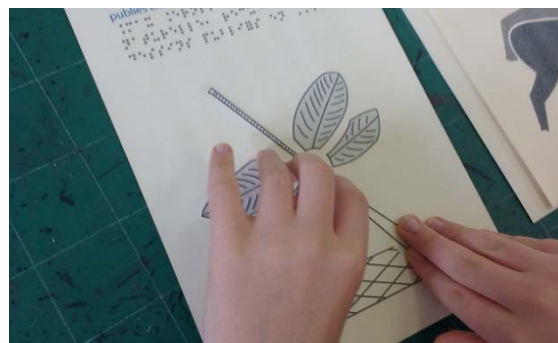
Figure 4. Document tactile sur Max Ernst.

5 Conclusion

Lors du cours décrit, les élèves ont été très actifs. Ils ont remarqué qu'ils ne prêtaient pas attention aux végétaux dans la cour d'habitude et que leurs formes étaient variées. Ils ont trouvé difficile le début de leurs réalisations puis en manipulant, ils ont eu des idées. Ils étaient tous curieux de découvrir le travail des autres et très volontaires pour s'exprimer à l'oral. Ils se sont intéressés aux images tactiles et ont fait des liens avec leurs réalisations.

Cet exemple de cours et mon expérience à l'INJA me confortent dans l'idée que l'enseignement des arts plastiques y est aussi essentiel qu'en milieu ordinaire. Il est particulièrement important pour les élèves non et mal voyants qui peuvent se sentir exclus des références visuelles communes et abondantes. Son adaptation est complexe mais permet aux élèves d'expérimenter et de produire un travail artistique personnel. C'est un défi qui produit de l'entraide et de l'innovation. Plusieurs collègues ont déjà mené avec moi des séquences transdisciplinaires. Enfin, sur la demande des élèves, l'option arts plastiques a été créée au lycée, cette année à l'INJA, preuve de leur intérêt pour cette matière. Je pense que des étudiants adultes seraient également intéressés

et que cela les aiderait à développer leurs connaissances, leurs compétences et leur expression artistique.

Crédits

Cet article est basé sur l'expérience de l'enseignement des arts plastiques à l'Institut National des Jeunes Aveugles de 2014 à 2018 par Florence Bernard.

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Technologies et outils d'assistance en mutation : Agents virtuels, interaction dialoguée et logique floue

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Résumé

À travers trois projets réalisés par le laboratoire CHArt-THIM (EA 4004) de l'Université Paris 8 (France), nous montrerons la pertinence et l'impact d'une approche par scénarios, dialogues, agents virtuels, interactions directement multimodales sur les mutations potentielles des technologies d'assistance :

Au-delà de l'indéboulonnable lecture d'écran (Jaws, VoiceOver, NVDA), un logiciel d'assistance par agents virtuels (FrancoTrio) a été expérimenté : une page web n'est plus une page d'informations mais un lieu d'actions (lire, télécharger, écouter, visionner, partager, produire). Lecteur, secrétaire et scribe virtuels exploitent la logique floue, les réseaux sémantiques ou neuronaux pour une coopération dialoguée ;

Un logiciel d'histoire utilisant la simulation haptique d'objets virtuels 3D (les sceaux médiévaux) avec commentaires audio historiques et techniques dans une session préparée par un médiateur-éducateur ;

Un logiciel de lecture accélérée, d'écriture avec écho et correcteur spécifique dys à base de logique floue et d'IA.

Sous l'angle méthodologique, le développement et l'expérimentation itératifs auprès d'utilisateurs handicapés et de leurs associations créent une boucle top down-bottom up qui souligne à la fois la pertinence concrète et la démarche suivie.

1   Introduction

Les TIC sont aujourd'hui devenus les TICAC (Technologies de l'Information, de la Communication, de l'Action et de la Captation). Cette évolution n'a pas suffisamment été prise en compte par les technologies d'assistance qui se concentrent toujours sur le « I » (Information) et très insuffisamment sur le « CAC » qui constitue pourtant aujourd'hui l'essentiel de la composante pédagogique et le support à la motivation de l'utilisation de cette technologie quand l'utilisateur n'a pas de handicap.

L'enseignement à travers le web, c'est l'usage de nombreux objets-documents qui se différencient par leur nature (texte, tableau, graphique et carte, objet statique ou dynamique, fichier et objet audio, fichier et objet vidéo, etc.), leur format (html, xml, epub) de conservation, d'affichage, de diffusion, et des interfaces dans lesquelles les objets de développement privilégient le contrôle et l'affichage visuels, plus que les autres formes d'interaction auditives ou haptiques qui semblent rester des « accompagnements » de la vision.

Notre point de vue provient de deux constats :

Constat 1 : Au lieu de faire évoluer les technologies d'adaptation et d'assistance aux utilisateurs aveugles, les choix technologiques ont été de s'adapter et d'adapter les sites web à la lecture d'écran par des logiciels (Jaws, VoiceOver, NVDA).

Constat 2 : Au lieu de créer des interfaces de dialogues exploitant la reconnaissance vocale, la synthèse vocale et la multimodalité haptico-auditive, fondées sur des scénarios pédagogiques (relation pédagogique ou auto-formation, réalisation d'exercices pour application ou évaluation, travail en groupes, etc.), les choix technologiques ont privilégié la mise en place de la lecture simple vocale et la fabrication d'objets 3D permanents figés au lieu de l'affichage haptique éphémère 3D

permettant l'exploration fine d'objets complexes.

2 Un logiciel pour aveugles sur la base d'agents virtuels

Une équipe du laboratoire CHArt-THIM (EA 4004) a développé depuis quelques années un logiciel pour aveugles fonctionnant par agents virtuels proposants et dialoguants, s'appuyant sur des « traces » d'actions ou d'états et fondés sur le déroulement de scénarios, plus que sur la mise à disposition éclatée de fonctionnalités.

La conception de ce logiciel s'appuie sur une approche par agents virtuels et par activités des pages web par un aveugle. Dans ce logiciel, la lecture d'écran n'est qu'une des tâches possibles d'un agent spécialisé qui s'appelle le « lecteur ». En tant que lecteur spécialisé, il est plus qu'une simple synthèse vocale. Basé sur des programmes de logique floue à base de réseaux de neurones, il fait de l'analyse de contenus et permet par exemple une navigation sémantique rapide. Ce logiciel comporte d'autres agents virtuels, tels que le « secrétaire » qui propose des tâches à accomplir par délégation ou sous contrôle de l'utilisateur. Dans ce logiciel, une page web n'est plus seulement et uniquement une page d'informations reliée à d'autres pages d'informations mais elle est surtout un lieu d'activités potentielles mises à la disposition de l'utilisateur dont l'une des activités peut être l'acquisition de connaissances sous une forme symbolique ou graphique, mais également, un lieu d'actions, de ressources multimodales, de partages, d'échanges, de co-opérations, d'actualisations d'informations ou d'outils, et surtout un lieu-étape dans un enchaînement de scénarios multiples.

3 Un logiciel d'histoire bimodal, haptique et auditif

Le projet Archives 3D est un projet réalisé avec les Archives Nationales France qui consiste à créer des sessions d'apprentissage de l'histoire de la période médiévale en France à travers l'exploration de sceaux numérisés explorables par bras à retour d'efforts avec déclenchement d'informations historiques et techniques et incorporées dans une application en sessions pédagogiques planifiables par des éducateurs (médiatrice du service d'éducation des Archives Nationales France).

Ce logiciel a été mis au point avec le concours du service des médiations des Archives Nationales France pour des sessions de formation destinées à des enfants aveugles.

Chaque nouveau scénario ou action possible à réaliser avec les agents fait l'objet d'un maquettage et est expérimenté auprès de personnes aveugles. L'accompagnement de la main du sujet vers une zone de l'objet permet une sortie multimodale en synthèse de parole, la possibilité d'effacer ou de rendre saillant certains éléments, de les déformer temporairement, etc. C'est toute la dimension dynamique et interactive des processus de découverte qui est ainsi accentuée.

Figure 1. Projet Archives 3D.

4 Un logiciel pour la lecture et l'écriture express pour les personnes dys

Au-delà de toutes les propriétés visuelles propres à tous les logiciels pour dys, le logiciel développé par l'équipe THIM de l'Université Paris 8 est fondé sur une approche renversée :

Tous les logiciels pour dys s'appliquent à utiliser la lecture oculaire accompagnée par de l'audio. Le choix est ici de privilégier une navigation purement auditive visuellement accompagnée. Tout peut se faire les yeux fermés, seulement avec ses oreilles.

Pour la lecture, il s'agit de faciliter la lecture accélérée, le balisage rapide durant cette lecture et l'extraction facilitée pour effectuer des résumés, des pointages, des classements ou des partages.

Pour l'écriture, outre un "écho logique", un filtre de correction spécifiquement conçu par rapport aux fautes des dys a été réalisé: sur la base d'analyses d'un corpus de phrases écrites par des dys (de 20 à 37 ans) représentant plus de 5000 mots et fourni par un réseau d'orthophonistes, l'équipe a analysé, classifié

les fautes et a développé les algorithmes cherchant à optimiser leur correction (approche par logique floue, comparateur phonétique dissymétrique, analyse contextuelle, segmentation des mots, etc.).

Le développement est encore en cours, mais les résultats montrent que le correcteur offre de meilleurs résultats que les correcteurs les plus fréquemment utilisés par les dys (Antidote ou Cordial). La conception de ce correcteur orthographique permet de le chaîner à Antidote ou Cordial pour obtenir une synergie corrective particulièrement efficace.

Le logiciel pour dys se nomme ADELE-TEAM (Aide Directe à l'Écriture et la Lecture Express-Technologies pour les Entreprises, les Administrations et le Management). Financé par l'Agefiph, il est réalisé avec le concours de la FFDys et de l'Anapedys. Il comporte une aide et un guide d'utilisation. Il est téléchargeable gratuitement à l'adresse suivante : www.adele-team.fr. Il est régulièrement téléchargé et nous demandons aux utilisateurs de nous faire des retours concernant l'utilisabilité des fonctionnalités développées et le développement de nouvelles fonctionnalités. L'ergonome de l'équipe effectue également des observations in situ directes chez les utilisateurs qui acceptent cette présence.

Figure 2. Copie d'écran du logiciel ADELE-TEAM

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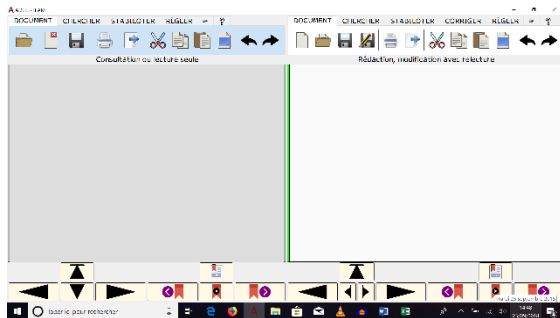
Language Navigation Patterns of Multilingual Screen Reader Users on Partially Localised University Websites

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Abstract

This paper summarises some of the findings from a web usability study conducted to investigate the impact of multilingualism and partial localisation strategies on the web navigation experience of screen reader users. More specifically, it reports on the language navigation patterns of 10 visually impaired individuals who browsed two multilingual Swiss university web portals. Although results are not conclusive, data gathered could serve as a starting point for discussion in future decision-making processes about how to design inclusive localised websites.

1 Introduction

In countries with more than one official language, multilingual websites should serve to ensure that the information needs of all citizens, regardless of their (dis)abilities, are met. In order to achieve that goal, localisation – understood as the process of linguistically, culturally and technically adapting web content– and accessibility best practices should be jointly implemented to guarantee an optimal web navigation experience for all. This is particularly relevant in the case of education-related web portals, as they are, for students, the first source of information about the existing academic offer.

Equality of opportunities in education for people with disabilities and specifically access to higher education is one of the aspects often advocated for in national and international legislation. While prior work has examined university websites from a localisation (Fernández Costales 2010) and an accessibility perspective (Acosta Vargas et al. 2016), both

areas have rarely been studied together. The usability study presented here is a first attempt to address that research gap by observing how visually impaired users browse two multilingual websites of that genre.

2 Usability Study

The overall goal of the study was two-fold: (i) to observe the interaction of multilingual screen reader users with partially localised websites, and (ii) to assess the impact of the users' language selection and the implementation of different localisation strategies on the overall usability of multilingual websites. In this paper, we will focus on one of the aspects studied in relation to the first goal. Specifically, we will address the following research question: *What are the language navigation patterns of screen reader users when browsing on partially localised websites?* By language navigation patterns, we understand the combination of preferences, choices, needs and actions, as well as the impact of those on the language(s) in which the browsing experience takes place.

2.1 Test Websites

Two university websites[12] were selected from a list of 98 websites previously examined in a Swiss Accessibility Study conducted by the foundation Access for All (2016). They fulfilled the criteria defined for our study; i.e. being partially localised, moderately accessible (as per the 5-point rating scale used by Access for All), and available in two or more Swiss official languages (French, German, Italian). At the time of the study (May-June 2018), the website of the Zurich University of Applied Sciences (hereinafter Website A) was available in German, English, French and Italian, although the content had been reorganised and only partially translated into the last three languages. The website of the Bern University of Applied

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[12] Screenshots and links available at
https://goo.gl/eBkovW

Sciences (hereinafter Website B) was available in German, French and English and offered a mirror structure in the case of the first two, even though some links, pages and PDF files were only available in German.

2.2 Design and Implementation

The call for participation targeting visually impaired speakers of Swiss official languages included a description of the scope of the study and a link to a recruitment form. It was drafted in German, French and Italian and sent via e-mail to associations all around Switzerland. After the recruitment period, the test sessions were conducted on-site, in a quiet environment and in the location chosen by each participant. During the test, instructions were read out aloud and participants were asked to complete three increasingly difficult tasks on both websites, as well as to answer some questions about their profile, language skills and navigation experience.

Given the fact that university Web portals tend to be more informative than interactive, the tasks designed mainly involved looking for specific information; for instance, finding the generic university e-mail address and telephone number, or looking for the date, time and location of the open days of a given BA. The level of difficulty assigned to each task depended on the availability of sufficient content in the desired language to accomplish the task and the degree of interaction required to complete the task successfully (i.e., number of sections to be visited, number of clicks, use of filters, etc.). Observation notes were taken during test sessions, which were also audio-taped. A more thorough description of the methodology followed in this study can be found in Casalegno (2018).

2.3 Participants' profile

A total of ten visually impaired screen reader users took part in the study. Five of them were native German (DE) speakers, three were native French (FR) speakers and two were native Italian (IT) speakers. Table 1 provides a summary of the language skills of the participants, including their native tongue (N) and their level of proficiency in the other languages available, as per the scale of the

Common European Framework of Reference for Languages (A1 to C2, here A to C).[13]

	German	French	Italian	English
01DE	N	A	C	B
02DE	N	C	C	C
03DE	N	A	B	C
04DE	N	B		C
05DE	N	B	A	B
01FR	B	N		A
02FR	A	N	A	C
03FR	B	N		B
01IT		A	N	A
02IT	A	C	N	C

Table 1. Participants' language skills

Three out of ten were accessibility experts, whereas the others were employees or students. They had all been using a screen reader for more than five years and were used to browsing the Web daily.

3 Findings

To shed light on the language navigation patterns adopted by the screen reader users who took part in the study, the abovementioned research question was broken down into four specific sub-questions: (1) *Which language did users instinctively choose?* (2) *How did users switch to their preferred language?* (3) *Why was the language changed during navigation?* (4) *What were the language skills of the users who voluntarily browsed in a different language?*

3.1 Language Preferences

Participants were free to choose their preferred language between those available. The language navigation pattern of native German-speaking participants (N=5, 50%) was very straightforward: when they inserted both addresses in the address bar at the top of the browser, they landed directly on the German homepages and did not change the language. French speakers (N=3, 30%) were positively surprised when they landed correctly on the French homepage of website B. For example, participant 01FR said '*Ok, en français : magnifique ! Comment ça se fait ? C'est peut-être mon adresse IP qui m'a mis directement en français ? C'est pas mal. Ça c'est un très bon point'.[14]* Yet, all of them changed the language

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[14] "*OK, in French. That's wonderful! How is that possible? Maybe it detected my IP address. Well, I think it is a good thing.*" Our translation.

to French when they landed on the German homepage of website A. Finally, the two Italian-speaking participants (N=2, 20%) had different reactions when they landed on the German homepages of both websites. User 01IT switched to Italian when it was available (website A) and to English when Italian was not an option (website B). Participant 02IT, who switched to French on both websites, declared he knew that Italian was available on website A, but he decided not to select it because French came first [the 'fr' language code link title was read before the 'it' one by the screen reader] and he was used to it, as he had been living in a francophone country for years.

Not surprisingly, these findings indicate that the vast majority of screen reader users choose to navigate in their native tongue whenever it is available and that perceived usability improves when they land directly on the preferred language version. However, living in a foreign country for a long time may change their language preferences.

3.2 Language Selector

A previous exploratory study by Rodríguez Vázquez (2015) on the main difficulties faced by screen reader users on multilingual websites and their coping techniques identified the language selector as a potential accessibility barrier. In the tested websites, the most common issues with the language selector that Rodríguez Vázquez found, such as embedded links or flags without the appropriate text alternative, were not present. For website B, 80% of the participants (N=8) were satisfied with the language version they landed on, as it was their native tongue, so they did not attempt to change the language. The two Italian-speaking participants (N=2, 20%) who landed on the German homepage, easily found the language selector while they were exploring the homepage, before beginning with the actual tasks. They did so by letting the screen reader sequentially read the list of links. For website A, only 50% of participants (N=5, 50%) landed on the preferred version. Four out of five non-German-speaking users (N=4, 80%) found the language selector by simply exploring the homepage and reading the content sequentially.

One participant (N=1, 20%) had to look 'fr' up in the link list provided by the screen reader. This may suggest that visually impaired users living in a multilingual country are used to language codes. Interestingly enough, this practice goes against the one preferred by localisation and internationalisation experts in terms of language selector design, which consists of introducing the official name of the language in full (in this case: français, Deutch, italiano) (W3C, 2016).

3.3 Switching Language as a Coping Strategy

We also explored the circumstances that led some participants to voluntarily change the language *during* the test session. Out of five non-German native speakers, two (N=2) voluntarily switched to German in the middle of the session. Participant 01FR did it on website A, after repeatedly finding himself on the German version while looking for information on the French version. He said: "*C'est ça que c'est chiant : j'arrive pas à ouvrir le champ de recherche ou alors il me refout en allemand*".[15] Participant 01IT also did it on website A, when he guessed that what he was looking for was not available in Italian: "*Non c'è nessun link verso la School of Engineering. Immagino sia una pagina non in italiano. Facciamo che ci mettiamo in tedesco*".[16] The localisation strategy used in website A (reorganisation of content on the translated version) seems, therefore, not to be satisfactory for screen reader users, as they tend to get frustrated when a page is not available or perceive that something is missing.

3.4 Language Skills

Finally, we tried to understand whether a correlation existed between the participants' language skills and their language navigation patterns. We were expecting that people with a higher level would more often change language as a coping strategy, but our hypothesis was not confirmed. In fact, participants 01FR and 01IT, who voluntarily switched to German, reported a B level and no knowledge of the language respectively, whereas participants 02FR, 03FR and 02IT, who did not voluntarily switch to German, reported a level that varied from A to

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[15] "*What's annoying is I can't use the search box without reverting back to German*." Our translation.

[16] "*There's no link to the School of Engineering, so I assume it's not in Italian. Let's browse in German then*." Our translation.

B (see Table 1). One possible explanation could be that switching to a foreign language depends on other subjective factors such as familiarity with multilingual websites, sense of initiative or problem-solving skills. However, data from a larger study would be needed to further investigate this hypothesis.

4 Concluding Remarks

The data collected showed that most screen reader users preferred to browse in their mother tongue. We also noticed that they were used to recognising the code of their preferred language when they heard it and that they were not keen on changing the navigation language to a foreign language, unless they were really stuck on a task - and sometimes not even then. These findings, although not generalizable due to the limited number of participants, provide insight into a new form of multilingual browsing experience that had not yet been studied in prior work. Future work could look at replicating the study with both sighted and visually impaired individuals, in order to see whether similar patterns are observed. It is also worth noting that the data presented in this paper is not sufficient to draw conclusions with regard to the usability of the two different degrees of localisation adopted in the test websites. For that, these data need to be interpreted in conjunction with the other observations made during the study in terms of the type and number of usability issues encountered by participants in both websites, and the scores of the usability questionnaire administered. The researchers plan to cover these aspects in a separate research paper in the near future.

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Problématique de l'image tactile, des potentiels à développer

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Résumé

En 2018, l'image demeure quasi absente de la documentation accessible aux non-voyants et malvoyants. Ces connaissances conceptuelles acquises comportent d'importantes carences formelles. Néanmoins, les aptitudes à spatialiser et à imager mentalement sont attestées même chez les aveugles de naissance.

Pour favoriser leur développement socioculturel, l'INSHEA (Institut national supérieur de formation et de recherche pour l'éducation des jeunes handicapés et les enseignements adapté) et Tactile Vision Italie ont mené une recherche en quatre axes sur l'image tactile comme support cognitif :
- Observation des stratégies de lecture tactile,
- Etude et aménagements perceptifs des conventions graphiques de registres d'images comme la projection orthogonale qui conserve les propriétés géométriques de l'objet représenté en 2D,
- Conduite de tests de seuils de sensibilité tactile,
- Expérimentation/évaluation de rendus techniques et méthodes de réalisations en relief.

Les résultats de ce projet de recherche ont été les suivants :
- Guide de l'acheteur public de produits graphiques en relief à l'usage des personnes déficientes visuelles (2001),
- Editions des Journaux Officiels (France),
- Elaboration d'un enseignement théorique et pratique de conception d'image tactile à l'INSHEA et Tactile Vision,
- Ateliers (gratuits), depuis 1998, d'initiation aux notions graphiques pour adultes handicapés visuels et accompagnateurs voyants,
- Réalisations graphiques tactiles scientifiques, techniques, artistiques en milieux culturels publics,
- Editions de collections de livres tactiles.

L'image tactile constitue un réel instrument de connaissance. Ces figurations doivent satisfaire aux critères de discrimination et codes de représentation manipulables en situation non visuelle. Ces nouveaux lecteurs doivent acquérir la culture graphique qui assure les fonctions d'iconicité sémantique.

1 Problématique de l'image tactile, des potentiels à developer

L'image tactile demeure un média peu présent dans la documentation dédiée aux personnes sévèrement handicapées visuelles.

Depuis l'ouverture de la première institution éducative en 1784 à Paris, l'essentiel de la documentation pédagogique, culturelle ou pratique emprunte toujours des formats essentiellement textuels écrits ou sonores quelles que soient les techniques de production et de restitution. Certes l'accès à l'écriture braille adaptée aux codages de multiples alphabets et notations mathématiques, musicales, scientifiques, informatiques a permis d'importantes ascensions socioculturelles… Les quelques images habituellement proposées sont des « schémas » très simplifiés cherchant à remplacer des zones colorées par des jeux de trames, ou de textures de matières.

L'information imagée ainsi traduite présente une grande faiblesse d'informations et ne s'applique qu'à quelques matières scolaires (géométrie, biologie, cartographie), et parfois à des plans de lieux, des productions pour des

enfants. Le nombre très restreint de représentations graphiques perçu depuis la scolarité et tout au long de la vie d'une personne aveugle ou très malvoyante s'élève approximativement à l'équivalent d'un film théorique de 4-5 minutes, soit 24 images/seconde comptabilisant au maximum 7200 images en incluant tous les doublons...

Cette pénurie de documents graphiques combinée à l'interdiction socioculturelle générale du toucher contribue au caractère conceptuel de la culture acquise en situation non visuelle.

Cependant, ces personnes exercent une autonomie pragmatique dans leur gestion quotidienne personnelle/scolaire/universitaire/ professionnelle/sociale... démontrant qu'elles disposent d'aptitudes à spatialiser et à géométriser.

Ce constat a incité deux équipes de pédagogues spécialistes de la déficience visuelle et des arts plastiques à produire chacune, de manière séparée, une recherche appliquée à l'image tactile en Italie et en France dès la fin des années 1980 : Rocco Rolli et Fabio Levi à Tactile Vision de Turin, Jean-Claude Morice et Michel Bris au CNFEI (actuel INSHEA) de Suresnes près de Paris avec ma participation via le département accessibilité de la Cité des Sciences et de l'Industrie.

Les deux équipes ont abouti aux mêmes conclusions et suivi la même méthodologie. Ils ont commencé par l'analyse des modalités tactiles-kinesthésiques permettant de percevoir les informations formelles de l'environnement en situation non visuelle.

Le toucher procède obligatoirement par contacts corporels; à l'opposé de la vision, toute distance est abolie, seul le schéma corporel du sujet qui observe tactilement sert de cadrage spatial permettant de référer la position latéralisée de l'objet, d'appréhender les formes, textures, consistances, température, poids qui le composent et dans quelles orientations et proportions ses singularités se déploient... Ainsi, les mouvements successifs et combinatoires des doigts, des mains, des bras et du corps détectent les faces et angles qui définissent la géométrie globale de tout objet palpé.

En somme, l'objet dicte sa forme suivant la chorégraphie suscitée dans son dialogue tactile.

Comme Denis Diderot l'a parfaitement décrit dans *La Lettre sur les aveugles à l'usage de ceux qui voient* (1749), « ce sont "les mouvements de son corps [...] les sensations ou points" [...] qui permettent à l'aveugle-né de se construire des idées, et des figures »...

L'image est une modalité de représentation mentale qui possède une similitude structurale avec la perception selon Michel Denis : *Image et cognition* (1989). Il ajoute que « du percept à l'image, il y a transformation, il y a codage, le codage a pour propriété de préserver l'extension spatiale des objets perçus ».

Ainsi, les deux équipes ont recherché des modes de conception d'images qui conservent l'isomorphisme structural des formes transmis lors de la perception tactile en absence de la vision. Si les règles de la perspective déformant l'aspect du réel dessinent ce que l'on voit, l'image tactile figure ce que l'on sait. Elle nécessite de préserver les qualités géométriques des éléments représentés afin de « conserver un degré élevé à l'égard de la perception » (Denis, 1989). Deux solutions graphiques de représentation tridimensionnelle offrent cette possibilité : le développé et le dessin technique.

Le développé présente un déroulé de toutes les faces d'un objet, ce qui implique un temps long de lecture. Le dessin technique condense en deux ou trois « vues » les données géométriques de chaque face de l'objet en maintenant leurs articulations tridimensionnelles. D'autres précisions peuvent être apportées par le recours aux différentes coupes internes. L'usage de ce type de dessin issu de la géométrie descriptive est privilégié par l'industrie, l'artisanat et les métiers de l'architecture car il transmet des données spatiales exactes.

Ainsi, les deux équipes ont procédé à de très nombreuses et amples campagnes de tests pour vérifier la validité de l'usage de la projection orthogonale dans la conception d'images soumises à des lecteurs handicapés visuels. Ces panels ont réuni des personnes aveugles et très malvoyantes de naissance et tardives, d'âges et de niveaux très variés.

Les deux équipes de recherche ont émis la même conclusion : la lecture des images tactiles permet aux personnes sévèrement handicapées visuelles d'élaborer des représentations mentales structurées avec justesse à partir du moment où elles maîtrisent le processus du

fonctionnement du dessin technique. L'étape pédagogique permettant de comprendre le codage appliqué à la conception des représentations d'objets est indispensable pour élaborer la figuration mentale tridimensionnelle. Généralement, l'acquisition du principe et du maniement de la projection orthogonale s'acquiert rapidement par ce public habitué à gérer l'espace sur des bases géométriques.

Contrairement aux personnes voyantes qui reçoivent un flot incessant d'images de tous types depuis leur prime enfance, ce qui favorise l'acquisition d'une culture graphique en grande partie implicite, les personnes handicapées visuelles n'accèdent qu'à de très rares documents graphiques, leur vécu phénoménologique de l'environnement étant surtout d'ordre tridimensionnel, auditif et olfactif.

Les travaux de cette recherche appliquée ont permis d'élaborer :

- une analyse des registres ou familles de dessins dans le but d'identifier et de recenser des typologies de conventions graphiques utilisées lors de descriptions d'objets, de l'expression d'illustration, de disciplines scientifiques, techniques, de la graphique (courbes, organigrammes structurant des masses d'informations).

- une réflexion ergonomique d'aménagement tactile de codes visuels habituellement utilisés ouvre le partage de documents pouvant être conçus en double lecture pour des usages universels. Ainsi, la production de supports bigraphiques, visibles et tactiles constitue un moyen d'inclusion efficace dans les lieux publics de circulation, de culture ou autres.

- une étude des seuils de sensibilité tactile a été menée sur un matériel graphique stable auprès d'un large échantillon de personnes handicapées visuelles. Les données recueillies ont permis de repérer les dimensions moyennes des traces graphiques ainsi que les vides à maîtriser pour satisfaire les critères de lisibilité des produits réalisés.

- un programme de l'enseignement pour la conception de dessins en reliefs dispensés à Tactile Vision (Italie) et à l'INSHEA (entité qui a succédé au CNFEI), aux enseignants spécialisés, à des transcripteurs ou aux graphistes voyants.

- la mise en place d'ateliers gratuits de communication graphique tactile sur divers thèmes depuis 1998 destinés aux personnes handicapées visuelles adultes et voyantes. Ces ateliers aux thèmes variés initient aux codes graphiques des participants répartis en binômes déficient visuel/voyant pour favoriser observations, échanges et questionnements…

- une synthèse de ces travaux, complétée d'un recueil de données techniques, ergonomiques et méthodologiques d'interprétation d'images visuelles en représentation tactile, constitue le contenu du *Guide de l'acheteur public de produits graphiques en relief à l'usage des personnes déficientes visuelles* (2001).

Ce guide téléchargeable indique notamment les critères de discrimination physiologique tactile indispensable pour gérer les vides de séparation, les propriétés géométriques des traces graphiques; les éléments constitutifs d'un dessin tactile doivent être discernables, comptables.

La signification du message graphique est aussi obligatoirement déterminée par la nature du code ou de la convention utilisée pour son expression.

Je peux personnellement témoigner du très vif intérêt de l'usage des images tactiles manifesté par les personnes handicapées visuelles. Non voyante depuis l'enfance, après des études universitaires en histoire, j'ai enseigné à l'Institut national des jeunes aveugles de Paris, puis j'ai développé l'accessibilité inclusive au public handicapé visuel à la Cité des Sciences de Paris (1986-2016). La maîtrise des codes de représentation enfin appliqués à l'image tactile m'a tout d'abord ouvert d'immenses champs de connaissances qui me restaient auparavant totalement fermés.

Le graphisme tactile m'a permis un fonctionnement professionnel actif avec les collègues et intervenants des métiers de la muséographie et de l'édition. Mes activités complémentaires d'enseignement et de médiation culturelle m'autorisent à indiquer avec force que les supports imagés tactiles assurent une réelle valeur fonctionnelle dans l'élaboration de la signification des contenus abordés par le public handicapé visuel de tous âges et de tous niveaux.

Aussi, nous avons voulu fournir à ce public des éditions de livres associant textes et images afin de favoriser la jonction des références concrètes

aux mots désincarnés des discours qui laissent les personnes handicapées visuelles en deçà de la culture matérielle en dépit du principe éthique déclaré de « l'intégration ». Il est urgent de prendre conscience du besoin des personnes aveugles et malvoyantes, de développer des compétences de figuration sémantique afin de limiter le paradoxe convenu que l'absence de la vision permet d'imaginer ce que les mots évoquent sans avoir à recourir aux références de leurs réalités même si celles-ci ne sont que structurelles...

Henri Focillon (2013) souligne que : « Non seulement toute activité se laisse discerner et définir dans la mesure où elle prend forme, où elle inscrit sa courbe dans l'espace et le temps, mais encore la vie agit essentiellement comme créatrice de formes ».

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Focillon, Henri. 2013. *La vie des formes*. Paris : Presse Universitaires de France (PUF).

Annexe

Liste de collections de livres tactiles [17] où l'auteure a participé comme coordinatrice ou co-auteure :

1) La **collection Sensitinéraires**, Editions du Patrimoine, Centre des monuments nationaux (CMN) : ouvrages audio-tactiles et livret contrasté, planches gaufrées en papier PACHIKA, papier japonais rare et plus robuste qui permet un gaufrage optimal.

Wachenheim, Pierre, Corvest, Hoëlle. 2007, *Le Panthéon,* Coll. Sensitinéraires*,* Editions du Patrimoine CMN. https://www.editions-du-patrimoine.fr/Librairie/Sensitineraires/Le-Pantheon-francais

Suaut, Jean-Pierre, Corvest, Hoëlle, 2009, *La Cité de Carassonne,* Coll. Sensitinéraires*,* Editions du Patrimoine CMN. https://www.editions-du-patrimoine.fr/Librairie/Sensitineraires/La-Cite-de-Carcassonne-francais

Maurice-Chabard, Brigitte et Corvest, Hoëlle. 2011, *L'Abbaye de Cluny,* Coll. Sensitinéraires*,* Editions du Patrimoine CMN. https://www.editions-du-patrimoine.fr/Librairie/Sensitineraires/L-Abbaye-de-Cluny

Perrot, Françoise et Corverst, Hoëlle. 2013. *La Sainte-Chapelle de Paris,* Coll. Sensitinéraires, Editions du Patrimoine CMN.

Leroi, Catherine, Corvest, Hoëlle, 2015, *La tenture de l'Apocalypse d'Angers*, Coll. Sensitinéraires, Editions du Patrimoine CMN. https://www.editions-du-patrimoine.fr/Librairie/Sensitineraires/La-tenture-de-l-Apocalypse-d-Angers-francais

En préparation :

Mallet-Stevens, Robert, Corvest, Hoëlle, *La Villa Cavrois,* parution fin 2018.

2) La **collection de la Cité des Sciences**, « **à voir et à toucher** » : [18] six ouvrages avec des planches illustrées en relief coloré.

Des clefs pour bâtir : planches illustrées en relief coloré (texte en braille et grands caractères).

Des dessins pour construire : ouvrage bilingue français et anglais ; planches illustrées en relief coloré avec livret en grands caractères et CD audio.

Formes de l'Univers : ouvrage bilingue français et anglais ; planches illustrées en relief coloré avec livret en grands caractères et CD audio.

Les Procréations : planches illustrées en relief coloré et texte grands caractères et braille.

Lagaffe Touch : dessins épurés en encre relief noire + CD audio bilingue, français ou anglais.

Le coffret Da Vinci Touch : ouvrage bilingue français et anglais avec planches gaufrées en papier PACHIKA + livret contrasté grands caractères + CD audio de textes approfondis.

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[17] Tous ces ouvrages respectent le recueil des recommandations pour la lisibilité tactile édité aux Editions Officielles en 2001 dans le *Guide de l'acheteur public de produits graphiques en relief pour les personnes déficientes visuelles* : Portail de l'Économie, des Finances, de l'Action et des Comptes publics, [en ligne] https://www.economie.gouv.fr/daj/oeap-archives-guide-lacheteur-public-produits-graphiques-en-relief-a-lusage-des-personnes (site consulté le 20 septembre 2018).

[18] http://www.boutiquesdemusees.fr/fr/boutique/produits/76 -livres-et-coffrets-tactiles (site consulté le 20 septembre 2018).

3) La **collection du Louvre** « **Un autre regard** » : [19]   cinq ouvrages avec images sérigraphiées (imprimées par thermogravure) en relief ; avec CD audio contenant l'intégralité du texte partiellement imprimé en gros caractères et en braille.

Gaborit Jean-René, Gouyette Cyrille, *Les Elans du corps : le mouvement dans la sculpture,* 2005, Louvre éditions.

Brunel, Sonia, Gouyette Cyrille, *Le nu féminin dans la peinture occidentale,* 2008, Louvre éditions. (comporte pour chaque page présentant la composition du tableau une page supplémentaire avec le gaufrage du personnage féminin).

Padel-Imbaud, Sophie, Gouyette Cyrille, *L'Idéal athlétique : images du corps dans les vases grecs,* 2004, Louvre éditions.

Faivre-Martin Évelyne, Gouyette Cyrille, *Les Hiéroglyphes : paroles des dieux dans l'Égypte pharaonique,* 2003, Louvre éditions.

Le Breton, Élisabeth, Gouyette Cyrille, *Du verbe à l'écrit : l'invention de l'écriture en Mésopotamie*, 2003, Louvre éditions.

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[19] http://editions.louvre.fr/fr/les-ouvrages/publications-pedagogiques/publications-pour-non-et-malvoyants.html (site consulté le 20 septembre 2018).

Storytelling and Cultural Heritage:
the #smARTradio Project

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Abstract

smARTradio is a pilot project by Radio Magica Foundation in collaboration with the Ca' Foscari University of Venice (Italy). The project aims to spread knowledge of Italian cultural heritage to a targeted audience of children aged 8-13, through audio and video stories penned by famous authors. In order to reach this goal, heuristics were created to allow authors to write simplified, accessible texts using storytelling methodology. The creation of texts was the primary point of the project. These texts were then converted into multiple formats (audio, video, video with Italian sign language, translations in multiple languages), which reduce communication barriers and lead a large audience on a journey, to discover the landscape and cultural heritage of the Friuli Venezia Giulia region of Italy.

1   Fondazione Radio Magica onlus

Launched in May 2012 from a Ca' Foscari University of Venice spin-off project, Fondazione Radio Magica onlus is one of the first digital non-profit organizations in Italy that applies the paradigm of open innovation to the field of children's education. In addition to a web radio broadcasting storytelling, music and other programs, the Radio Magica platform offers a designed-for-all multimedia library (with audio stories, video stories, videos with the Italian sign language, videos with symbols (AAC), and radio programs) to match different cognitive-level groups (fig. 1).

Figure 1. Web page with multimedia library

2   The #smARTradio project

The #smARTradio project was born in 2016 and it is currently at its third edition. It was inspired by the "History of the World in 100 Objects" by Neil McGregor (2012), director of the British Museum. At a time when it is more and more difficult to reach out to the younger generations, the project aims to promote the cultural heritage of the Friuli region through storytelling, thus stimulating children to enjoy the experience of discovery and making them active citizens. As Navracsics (2016) maintains, "bringing citizens closer to their heritage means to bring them closer to one another, and this is a fundamental step into a more inclusive society."

The #smARTradio project can be summarized in a sequence of actions, which chronologically include:

1.   Choice of the territory (city or more extended regional areas). In the different editions different cities were chosen. For instance, the first edition was dedicated to big cities like Udine and Pordenone, smaller cities with a relevant cultural heritage like Cividale del Friuli and Marano Lagunare and very small lesser known locations, which deserve special attention like Pesariis and Pradis.

2.   Choice of the objects. Contact with local primary schools allowed the children to

identify specific artwork, parks, characters, cultural sites, monuments and legends from the area where they lived. They were asked to compile a simple card, in which they indicated their favourite choices (fig. 2). Moreover, staff from local museums, cultural associations, and tourist offices helped provide the historical and scientific information necessary for any selected object.

Figure 2. Card for object selection.

3.   Texts writing. The writing phase has involved renown authors of Italian children's literature such as Roberto Piumini and Beatrice Masini. The authors visited the selected territories and were asked to write short texts, which described the objects using heuristics for a simplified language (see paragraph 4). Thanks to the narration technique, they were able to stimulate attention and to share knowledge and information through a non-didactic process.

4.   Accessibility tests. All authors received a *vademecum* as a guideline to write accessible texts *ex ante*, but the texts were also proof read by a scientific committee made up of phycologists, paediatricians, art historians, naturalists, and teachers, to assure accessibility of texts *ex post*. For instance, on the legend about the Aganes, the text originally was: "*they were human creatures, perhaps a little ugly, a mix of nymphs of the woods and those of the waters.*" The text was simplified as follows: "*they were human creatures, perhaps a little ugly, a mix of wood and water nymphs*" (Elena Commessatti, The House of the Aganes, 2017).

5.   Creation of digital outputs. Once the texts were ready, different digital materials were made to reduce communication barriers and expand the potential targeted audience (children aged 8-13).

6.   Measuring of text effectiveness. It will be very useful to measure the text clarity and comprehensibility thorough the user experience. This study is under way and it will be available in December 2018.

3   Project outputs

The #smARTradio project allowed the creation of different digital outputs, which included online materials such as:

-Audio stories. These were produced using the talent of well-known Italian actors (including Lella Costa and Giuseppe Battiston), who contributed to the beauty and accessibility of the products.

-Videos. Some stories were illustrated and became videos with or without subtitles.

-Videos with Italian sign language. Some stories became videos with Italian sign language (LIS) to further improve the barrier free communication.

-Audio and video translations. Some audio and video stories were translated into English and German languages.

The project also included offline materials such as:

-Live storytelling performances in theatres and schools.

-FM radio programs.

4   Heuristics for a simplified language

The project starting point and biggest challenge was in defining a set of criteria, which every author had to follow in order to create "simplified" texts. These texts were intended not just to convey simple basic information regarding a selected monument, which would most likely be uninteresting and insignificant for many people. They would instead be creative in order to tell a story, thus light and captivating at the same time. For instance, if we have to explain to a young audience that wolves are afraid of human beings, how effective would a paragraph like this one be: "*Those who are afraid of the big bad wolf raise their hands. Unfortunately, even today, many people are still terrified by this wonderful animal. Is Little Red Riding Hood's fault? Probably so, since the wolf only eats little girls and grandmothers in fairy tales. In actual fact, however, wolves are afraid of human beings and would never dream*

of attacking them" (Giuseppe Festa, The Wolf, 2018).

The definition of the boundaries between too simplified a text and a creative but simple and accessible text was not an easy task to achieve. A vademecum with heuristics was therefore created as a guideline for all authors, who participated in the project. In the vademecum the author is given an introduction on the project and he/she is asked to write a synopsis of the text. Once the synopsis is approved, the author starts the writing process, keeping in mind, among others, the following guidelines:

-the title should be short and effective;

-soon after the title there should be a short description of the object, with date and location.

-the text length should be between 2000-2300 characters;

-every text should describe just one object;

-the narrative style should be of high quality and should involve the reader emotionally;

-there can be limited fantastical elements such as a talking statue or a dream;

-there may be fictional descriptions of real events;

-the narrative style must not be too notionist;

In addition, the *vademecum* gives instructions for accessible writing through a list of heuristics for lexicon and syntax. Some examples are shown in table 1.

Further studies will have to measure the effectiveness of these texts by comparing different typologies (more simplified versus less simplified ones).

Lexicon	Syntax
Use of familiar words that belong to the basic language	Maintaining order in the subject-verb-complements structure
Do not use implicit subjects	Avoiding subordinate clauses or complex syntactical constructions
Avoid using synonyms	Avoid the passive form

Table 1. Screenshot from the video "Lo Zaino dei Cramars".

5 Other ways to expand the project accessibility

Along with the heuristics for a simplified text, the #smARTradio project offered different ways of measuring the appreciation of listeners. For instance, based on the user experience, it is clear that illustrations of video productions could be more effective if the drawing strictly followed the text, so that the image is used as a visual support to the audio description (see: http://www.radiomagica.org/portfolio-articoli/laltare-di-ratchis/). It has also been shown that among the different illustration techniques, the ink drawing or the monochrome drawing is more effective for partially sighted people. See for instance Figure 3.

Figure 3. Screenshot from the video "Lo Zaino dei Cramars".

And last but not least, when using the Italian sign language, would an interpreter be more appreciated if she appears on the video side or if she interacts with the text illustrations as in Figure 4.[20] All of these are still open questions, which deserve further study and research.

6 Results

Does a universal, common language really exist? In this ongoing project there are still many potential ways of embracing a wider public and reducing communication barriers. Although this research project does not allow coming up with an ultimate answer to this question, it has allowed exploring the potentials of storytelling,

[20] For a comparison between the two videos typologies see: http://www.radiomagica.org/portfolio-articoli/un-marciapiede-sullacqua/ and

http://www.radiomagica.org/portfolio-articoli/il-porto-di-aquileia/.

accessibility, and social inclusion. All of them seem to work very well together.

Figure 4. The Italian sign language interpreter is integrated in the image.

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« Apprendre à lire des images en relief quand on ne voit pas, est-ce possible ? »

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Résumé

La culture disponible pour les personnes déficientes visuelles, se présente essentiellement sous un mode «textuel ». Toutes les représentations : dessin, graphisme ou image, leur demeurent inconnus.

Malheureusement, toutes les personnes aveugles ne sont pas expertes en lecture d'images. Si les enfants déficients visuels scolarisés ont l'occasion de manipuler des images en relief, les personnes plus âgées n'ont pas bénéficié de cette éducation : les livres braille n'ont pas d'image… Elles doivent donc apprendre à les toucher (une image ne se touche pas comme un texte), apprendre à les décoder, à établir une correspondance entre leur expérience du monde en 3 dimensions et celui du dessin en 2.

Mais une image nécessite une légende, un contexte, des explications; il faut l'accompagner d'une bonne description pour permettre de créer une image mentale. Cette description sert de légende et surtout de guidage pour les mains. Guider une personne, l'aider à s'approprier une image : ajuster son commentaire s'apprend aussi. Les ateliers « lire les images en relief » regroupent ces deux publics, ceux qui apprennent à toucher et ceux qui apprennent à guider.

La Fédération des Aveugles de France anime des ateliers « **lire des images en relief** » depuis avril 2017. Ces ateliers, issus de l'expérience des ateliers conçus par Hoëlle Corvest de la Cité des Sciences et Michel Bris de l'Institut national supérieur de formation et de recherche pour l'éducation des jeunes handicapés et les enseignements adapté (INSHEA), ont poursuivi la recherche entamée depuis plusieurs années sur la meilleure manière de représenter un volume par le dessin pour une personne déficiente visuelle, celle du dessin technique.

Nous avons rapidement repéré les difficultés des personnes qui n'avaient jamais ou très peu pratiqué le dessin (comme lecteur ou comme dessinateur) ; elles avaient besoin de *faire correspondre* l'objet en volume et sa représentation en deux dimensions. Nous avons donc proposé à chaque séance un temps pour toucher et analyser des objets en volume en rapport avec le thème choisi.

Par exemple, nous avons sollicité **la cité de l'architecture** pour toucher leurs maquettes (arc en plein cintre avec clé de voute, croisée d'ogives, toit à redent, arcs boutants) pour illustrer les dessins en relief des albums audio-tactile de Cluny ou de Carcassonne.

Les bustes de la **galerie sensorielle du musée de l'homme** ont introduit la découverte ludique des expressions du visage par le dessin.

Les moulages d'animaux en volume du **muséum d'histoire naturelle** (nombreux à la cité des enfants) ont donné corps aux représentations animalières graphiques.

La thématique du corps en mouvement a pu se matérialiser au **musée Rodin**, à la galerie tactile du **Louvre** et lors d'une exposition d'un sculpteur contemporain qui souhaitait que ses œuvres soient touchées : André Hogommat.

Le thème de l'enluminure a pu aussi être abordé grâce au travail réalisé par la médiathèque de Troyes qui détaille tous les ornements d'une lettrine à travers 30 planches en relief.

Prochainement, le musée Picasso va nous accueillir pour leur exposition « chef d'œuvre » et ils créent, pour nous, des dispositifs tactiles illustrant les tableaux exposés qui profiteront aux futurs visiteurs.

Un temps est réservé à la pratique du dessin en relief par les personnes aveugles elles-mêmes à l'aide de la planche à dessiner. Certaines se sont découvert de vrais talents de dessinateur tout à fait insoupçonné.

Le choix de ces thèmes montre que les personnes aveugles sont avides de culture. Malheureusement, les musées visités n'offrent pas toujours des représentations adaptées à la lecture tactile. Pourtant un ouvrage recense les recommandations à respecter pour que l'image soit lisible avec les doigts.[21]

- Public concerné par ces ateliers : Les participants de ces ateliers sont en majorité des personnes retraitées, d'un bon niveau socio-culturel et qui ont très peu ou jamais pratiqué les images en relief.

- En milieu scolaire : Nous avons aussi organisé ces ateliers à l'Institut National des jeunes Aveugles en lien avec les professeurs d'histoire et d'arts plastiques et à l'IMPRO de Chilly Mazarin pour des jeunes en difficulté scolaire majeure qui nous sollicitent chaque année sur un autre thème : découvrir Léonard de Vinci ou Picasso ou lire des BD en relief ont été source de joie et éveil de leur curiosité.

Les images en relief manquent cruellement pour les étudiants et pour tout un chacun curieux de connaitre le monde qui l'entoure autrement que par des mots vides de représentation. La bibliographie ci-dessous des livres en relief de qualité montre qu'ils sont hélas trop rares.

- Le travail en binôme : Lors de ces ateliers nous proposons à des médiateurs culturels, à des professionnels du handicap et à des accompagnants de travailler en binôme avec les personnes aveugles pour qu'ils puissent devenir des relais dans la découverte car ils sont souvent embarrassés pour décrire : quels mots utiliser, par où commencer ? Les images en relief ont aussi besoin d'un commentaire qui va aider à leur compréhension. En sollicitant les musées pour que s'y déroulent nos ateliers, nous faisons coup double ; valoriser les richesses des musées et former leurs médiateurs.

Annexe

A.   Bibliographie de livres en relief :

1) La **collection Sensitinéraires**, Editions du Patrimoine, Centre des monuments nationaux (CMN) : ouvrages audio-tactiles et livret contrasté, planches gaufrées en papier PACHIKA, papier japonais rare et plus robuste qui permet un gaufrage optimal.

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Suaut, Jean-Pierre, Corvest, Hoëlle, 2009, *La Cité de Carassonne,* Coll. Sensitinéraires*,* Editions du Patrimoine CMN. https://www.editions-du-patrimoine.fr/Librairie/Sensitineraires/La-Cite-de-Carcassonne-francais

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2) La **collection de la Cité des Sciences, « à voir et à toucher »** :[22] six ouvrages avec des planches illustrées en relief coloré.

Des clefs pour bâtir : planches illustrées en relief coloré (texte en braille et grands caractères).

Des dessins pour construire : ouvrage bilingue français et anglais ; planches illustrées en relief coloré avec livret en grands caractères et CD audio.

Formes de l'Univers : ouvrage bilingue français et anglais ; planches illustrées en relief coloré avec livret en grands caractères et CD audio.

Les Procréations : planches illustrées en relief coloré et texte grands caractères et braille.

Lagaffe Touch : dessins épurés en encre relief noire + CD audio bilingue, français ou anglais.

Le coffret Da Vinci Touch : ouvrage bilingue français et anglais avec planches gaufrées en papier PACHIKA + livret contrasté grands caractères + CD audio de textes approfondis.

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[21] Cours dessin en relief *Recommandations pour la transcription de documents,* Michel Bris, 11, 2003 INSHEA.

[22] http://www.boutiquesdemusees.fr/fr/boutique/produits/76 -livres-et-coffrets-tactiles (site consulté le 20 septembre 2018).

3) La **collection du Louvre « Un autre regard »** :[23] cinq ouvrages avec images sérigraphiées (imprimées par thermogravure) en relief ; avec CD audio contenant l'intégralité du texte partiellement imprimé en gros caractères et en braille.

Gaborit Jean-René, Gouyette Cyrille, *Les Elans du corps : le mouvement dans la sculpture,* 2005, Louvre éditions.

Brunel, Sonia, Gouyette Cyrille, *Le nu féminin dans la peinture occidentale,* 2008, Louvre éditions. (comporte pour chaque page présentant la composition du tableau une page supplémentaire avec le gaufrage du personnage féminin).

Padel-Imbaud, Sophie, Gouyette Cyrille, *L'Idéal athlétique : images du corps dans les vases grecs,* 2004, Louvre éditions.

Faivre-Martin Évelyne, Gouyette Cyrille, *Les Hiéroglyphes : paroles des dieux dans l'Égypte pharaonique,* 2003, Louvre éditions.

Le Breton, Élisabeth, Gouyette Cyrille, *Du verbe à l'écrit : l'invention de l'écriture en Mésopotamie,* 2003, Louvre éditions.

4) L'imagier sensoriel du **musée du Quai Branly** :[24] 16 œuvres (4 par continent) reproduites en couleur, et retraitées en planches gaufrées en relief + CD d'audio description

B.   Ouvrages sur les livres et images tactiles :

Yvonne Eriksson. *Images tactiles : 1784-1940 Représentations picturales pour les aveugles,* Collection Corpus Tactilis, Éditeur Les Doigts qui rêvent 1998.

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Interpreting into Plain Language: Accessibility of On-site Courses for People with Cognitive Impairments

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Abstract

This paper aims to show a way to eliminate or, at least, to diminish barriers to higher education for people with cognitive impairments. By 2016, only 3 persons with Down syndrome had obtained a university degree. To really include this population group in educational, professional and social life, it is necessary to offer suitable communication aids, such as plain language, simultaneously delivered, not only in the form (ex post) of written translations. It is therefore necessary to develop a new variant of interpreting: simultaneous interpreting into plain language. This article first shows existing non-scientific approaches, but also the challenges and possible further development.

1 Introduction

The UN Convention on the Rights of Persons with disabilities (CRPD) of December 13th 2006 was opened for signature on March 30th 2007 and has been ratified by 177 Nations (United Nations, undated). This Convention also should smooth the way to (higher) education for persons with cognitive impairments (United Nations. Undated). While a wide range of measures to support people with reduced mobility and sensory impairments have already been implemented, people with cognitive impairments still seem to have extremely limited access to universities.

Meanwhile, it has been shown that people with cognitive impairments, especially persons with Down syndrome, have a solid capability for learning and can reach good levels of education, if they have the opportunity. They just have learning difficulties and/or difficulties in decoding complex and abstract processes of thinking and very often have an IQ within the normal range of 70 to 130 (Down Syndrom Regensburg, undated).

The main problem seems to be that persons with cognitive impairments need a special way of communicating in order to be able to participate in secondary and higher education along with other students.

Pablo Pineda, the first European with Down syndrome to have graduated from university, says that his learning ability is reduced by approximately 30% (Welt 2009).

So, communication aids such as information in plain language persons could be needed by persons with Down syndrome, which, up to date, is almost only – if at all – available in written texts (translations).

In Germany, a lot of efforts are being made in order to bring people with learning difficulties on the so-called "first labor market" and not let them spend their lives in sheltered workshops. Education is the best way to achieve that, as was pointed out in several national and international conferences recently, such as the European Conference on inclusion "Inklusion – Wege in Gute Arbeit" (Inclusion - ways to good jobs) in Berlin at the beginning of September 2018.

In order to take part in face-to-face courses in real-time, people with learning difficulties would rather need real-time communication in plain language, which makes simultaneous interpreting necessary.

2 Current Situation

Currently, there is an increasing demand for simultaneous interpreting into plain language, a discipline that, according to university curricula, does not even exist.

While translation from standard into plain language has been known since 1974 in the USA (People First, undated) and spilled over to

Germany in the 1990s, interpreting from standard into plain language is still widely unknown.

Anne Leichtfuss, an online-editing professional, wrote her BA thesis on Plain Language on the Internet. She had previously worked as a translator into Plain Language, when – in 2013 – she was asked whether it would be possible to offer simultaneous interpreting for persons with cognitive impairments in order to achieve real inclusion.

So, she became the first (autodidactic) simultaneous interpreter for plain language, a service that apparently has been well received. As, being the only person offering this service, she had to work alone in the booth – unconceivable for professional conference interpreters – she started to offer several workshops to train other colleagues, which, due the lack of professional expertise, including, but not limited to the use of interpreting strategies, is quite questionable.

The fact that only 3 of the participants (one of whom – the author – is an active professional conference interpreter, another is a master student of conference interpreting towards the completion of her studies) have started so far to offer simultaneous interpreting into plain language shows that there are enormous challenges to master and that this kind of workshops might not show the intended effects.

To date, no requests have been received from universities, but governments and other public institutions have ordered simultaneous interpreting into plain language, and there is an increasing demand for it.

3   Target groups

As outlined above, the main target group for simultaneous interpreting into plain language is persons with learning difficulties.

But also persons with a migratory background, or international students who are not 100% proficient in the country's or courses' language, could eventually benefit from plain language, which would not prevent them from improving their language skills, as plain language is supposed to be grammatically correct, but reduced in complexity.

Another possible target group (for speech-to-text interpreting into plain language) are deaf persons, whose first language is sign language and who are not fluent in written or spoken languages.

4   Practical application in university settings

Different possible variants of interpreting can be taken into account:

4.1   Simultaneous Interpreting (SI)

The first choice, of course, would be simultaneous interpreting (speech-to-speech), being a "natural" setting. The best way to provide SI is using a booth for the interpreters and the corresponding transmission system. Of course, this is not easily provided, due to the high costs and not inconsiderable space requirements.

A tour guide system could be a solution for some kind of classes, where the lecture hall is big enough not to disturb the other students and the lecturer, and in addition, an induction system would need to be installed to make sure that the interpreters' auditory perception was good enough to deliver a good interpretation.

4.2   Speech-to-text interpreting (STTI)

Another possibility could be speech-to-text interpreting into plain language: For intra-lingual STTI, university settings are well known already – provided by speech-to-text interpreters in Germany, Austria and Switzerland in different settings (on-site, remote and hybrid forms) – and have proven to be technically feasible.

Of course, for STTI into plain language, such as for SI into plain language, there is no professional training available by now.

5   Challenges of SI and STTI into plain language and how to face them

The big difference between interlingual and standard to plain language interpreting is that it is not about transcoding from one language to another, but rather within a language from one variety to another.

According to the author's experience, there is a big great temptation to use the same words and similar syntactic constructions in the target text, when it is really all about avoiding repetitions that maintain a similar complexity and/or difficulties.

For plain language, the interpreter has to apply the rules for Plain Language – of course with the limitation of not having a control group in the same way as in the case of written translation that confirms comprehensibility – and needs to deliver the target text in real time, without time to try out different variants. Feedback on comprehensibility can only be obtained ex post. Furthermore, he or she has to explain contextually important "difficult" expressions; therefore, there will be additional text, not included in the source (speech).

This is even more complicated to handle, as the interpretation should be spoken slowly, in a steady rhythm, so as to be easy to understand.

The way the author attempts to face these challenges is mainly applying Danica Seleskovitch's (2002) "theory of sense": to hear, analyze, "deverbalize" and produce a new text without sticking to the source text. Although in SI, this theory has been criticized, in SI into plain language, it can be very helpful.

Even more challenging than SI into plain language is STTI into plain language, as the written target text must appear according to the rules of Plain Language – to give but one example, one sentence per line – and has to be monitored and corrected in case of typing, editing or recognition errors.

In consequence of the above stated, the high demands of SI and STTI into plain language require an appropriate interpreter training. Furthermore, little scientific research is available on this topic, which makes it difficult to develop such training.

6 Approach to teaching SI and STTI into plain language

SI into plain language is very challenging, as described above, but it could be a tool – if offered professionally – to meet UN CRPD's requirements. Therefore, SI and STTI into plain language should be included in curricula of translation studies to train interpreters for this field of application.

There are two basic requirements: a deep knowledge of the different sets of rules for Plain Language – such as Forschungsstelle Hildesheim (Maaß 2015), Netzwerk Leichte Sprache (2013) and Capito – and a very good command of interpreting strategies and their correct application in SI and/or STTI.

It could be part of the curriculum for conference interpreting, which is the setting where SI into plain language is being used at present, or for community interpreting.

STTI is just at the very beginning of forming part of translation studies – with a handful of bachelor and master's thesis and only one doctoral dissertation at the University of Vienna (Platter 2015) and another one in progress at London's Roehampton University. STTI into plain language could therefore be an interesting topic to be developed within translation studies.

A lot of research is needed to establish SI and/or STTI within translation studies and consequently to offer professional services in this field to a wider public. One of the first steps could be a study on interpretation delivered into plain language and based on the findings originating from those studies to work on a standardization of SI into plain language.

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Studying Translation from the Perspective of Blind Students in Poland

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Abstract

The purpose of this paper is to present the experiences of blind and low sighted students of translation in Poland across several decades. The piece is based on in-depth interviews with Polish translators and interpreters conducted by the author. It is argued that modern technologies demand more skills and abilities from blind students of translation than before and, due to their inaccessibility, still do not live up to all the expectations.

1 Introduction

Although there have been many successful blind and low sighted translators and interpreters, virtually no attention has been devoted to the challenges they have to face when studying translation (Kellett Bidoli 2003). This situation has recently been changing, with growing interest from scholars (e.g. Hagemann 2016, Rodriguez Vazquez and Mileto 2016) and blind translators themselves (Barhordari and Yousufi 2015).

The past few decades have witnessed many changes for persons with visual impairments in Poland. Not only has there been an ongoing technological revolution, but also a state system of support for persons with disabilities has been re-organised. Last, but certainly not least, Poland has ratified the UN Convention on the Rights of Persons with Disabilities (United Nations 2006) which promotes human rights and social model of disability. The latter concept denotes a relatively new, in Polish conditions, understanding of disability as barriers that the society erects on the pathway to inclusion of persons with disabilities (Bernes and Mercer 2000).

It is in this perspective that I will try to understand the experiences of blind students of translation. In addition, I will use the theory of capitals, as conceived by Pierre Bourdieu (1986).

Bourdieu, in addition to economic capital, distinguishes cultural and social capitals. The cultural form of capital can present itself in embodied, objectivized or institutionalized states. The embodied state is understood in Bourdieusian terms as those dispositions that agents acquire over their lifetime. Thus, the acquisition of cultural capital in its embodied state requires time and effort and cannot be delegated (Bourdieu 1986). The ability to read Braille code is an example of this state of cultural capital. The objectivised state of cultural capital is represented by objects possessed by agents. These may include, in the context of the discussed study, Braille devices, specialised software for the blind, scanners, etc. It is important to stress that without the stocks of embodied cultural capital the volume of its objectivised state will not be effective. In other words, it is not enough to own a Braille note taker. One must know how to write and read Braille code in order to be able to effectively use the note taker. Finally, the institutionalised forms of cultural capital are those recognized titles or degrees that flow from possessing stocks of embodied and objectivised cultural capital.

The social form of capital, in turn, is "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu 1986). In other words, it is the potential to mobilise a network of contacts for the benefit of the agent. This process acts as a leverage on the agent's volumes of cultural and economic capitals, multiplying their efficacy.

2 Methodology

This study is of exploratory character. Therefore, the decision was taken to use

qualitative methods, and specifically the technique of in-depth interviewing, to collect data. The interviews were conducted in person, according to a detailed guide. The latter included the following sections: introduction, demographic data, education, working conditions, and recommendations. This paper will focus mainly on data related to the education of blind translators.

All the interviewees expressed their informed consent to participate in the study before the start of the interview.

In this paper every quote is followed by the fictitious code name assigned to the respondent, gender, main working language of the respondent, and their age at the time of interview.

3   Sample

Fifteen in-depth interviews were analysed. The respondents were 30 to 71 years old at the time of the interview. Eight were men, and seven were women. Most of them (13) worked with English as either their second or third language. Many respondents worked with two and some even with three foreign languages. Most informants (9 out of 15) graduated from the Institute of Applied Linguistics or its predecessor, Higher School of Foreign Languages at the University of Warsaw. Only two interviewees did not have a degree in languages. Some respondents completed postgraduate courses (e.g. in interpreting or literary translations) or were enrolled in doctoral programmes. All the respondents reported having good or excellent computer skills and seemed to be advanced or very advanced users of assistive technologies.

As for their disability, the interviewees represented a very homogenous group. All had certified severe degree of disability, meaning they were legally blind according to the Polish law. All were congenitally blind or low sighted. Five respondents declared that they were low sighted or had light perception. Although only two out of these were able to access printed materials (in large print). The other three respondents reported only light perception, with no possibility of using printed materials. Therefore, this homogenous group can hint mainly at experiences of congenitally blind persons who had to cope with their disability throughout their educational careers. It is a

matter of course that this set of respondents is by no means representative of persons with visual impairments at large. Therefore, it is impossible to generalise results. However, they can contribute to our knowledge about challenges that language professionals with visual impairments have to face during their education.

4   Results

The working methods of respondents during their university studies have been revolutionised by modern technologies. Thus, three periods have been isolated according to the availability of assistive technologies:

1. Analogue period (until the beginning of 1990s);

2. Transitional period (c.a. 1990-2005);

3. Digital period (from 2005 onwards).

Those interviewees who studied in the 1960s (the analogue period) would use Braille slate and stylus for taking notes. It was indispensable to have sighted peers or paid assistants (the state provided subsidy for this purpose) who could read the necessary materials. This situation started to change with the advent of personal computers at the beginning of 1990s. This not only meant that blind students could write essays (and then take notes) on a computer, but also it transformed the way in which they accessed literature or dictionaries. Further technological progress allowed blind students of translation to use such technologies as portable scanners with optical character recognition (OCR), digital Braille note-takers or digital voice recorders. However, it also meant that they had to have more such devices and had to be more skilful in e.g. touch typing than their sighted peers. Also, the very process of transition from analogue to digital and from DOS to Windows operating system proved to be slow and difficult, as this comment suggests:

"Windows 3.11 was spreading at that time, but it was not accessible. So everybody switched to Windows and we were left with DOS. We were stuck there and we couldn't get out. We were sending documents in RTF. And that was a problem, because they would not accept it. They would say: 'What? We don't need it this way. We need it in Word'" (Aneta, female, English, 43).

As for classes in translation, the respondents faced different types of challenges. The low sighted interviewees who studied translation required materials in large print (both low sighted respondents studied at the end of 1990s). The key support for blind students who studied in the 1960s and 1970s was to have the source text recorded (or transcribed into Braille) in advance. However, this meant that any departure from previously arranged class structure caused considerable problems for blind students, as reported by this respondent:

"He told me he would do this and then he would do something else that I hadn't noted down. It happened sometimes. And then I would do things with a delay" (Franciszek, male, French, 71).

Also, it was impossible for them to use printed textbooks since they could not transcribe them into Braille. Any texts for exam purposes had to be read aloud, written down in Braille and then the outcome had to be read aloud by the student. Another challenge was to obtain dictionaries in Braille, which, even if available, took a lot of space:

"For example, I could borrow from the library, or even purchase, the Grzebieniowski dictionary. It was a tiny dictionary which had six volumes in Braille. It was senseless, I didn't wat it at home, I wouldn't know where to keep it" (Antoni, male, English, 69).

These problems have been somewhat mitigated by the spread of digital technologies. However, it was (and still is) necessary to send any written materials to blind students in advance and in accessible format (such as DOC). The need for assistance did not disappear, as all scanned documents must be proof read, which requires sighted assistance:

""To scan is one thing, but then but then to correct, describe pictures or split tables is quite another thing. This caused major problems and one could not always cope on one's own with it" (Arkadiusz, male, 32).

Additionally, pictures must be described, and tables need to be properly formatted. Thus, the interviewees had to mobilise their peers, teachers or university staff to support them.

Neither did modern technologies allow blind students to work as fast as their sighted peers. They still needed to spend extra time on catching up with classes

"Despite having it [exercises] all on my BrailleSense, that Braille note-taker, they [teachers] would go so quickly that I had to decide if I wanted to take notes or read the contents of an exercise" (Alicja, female, English, 33).

Additionally, even with all the available modern technologies, it was difficult for the respondents to work fast in a multilingual context (e.g. switching from one synthetic voice to another or from one Braille table to another takes time). The interviewees also reported that not all electronic dictionaries were accessible. However, the respondents stressed that they had a proactive attitude and always tried to solve any problems by talking about them directly with their teachers.

None of the respondents has reported any substantial cases of positive discrimination during translation courses. Many interviewees stressed that they strove for equal treatment and that the reason for this was that market conditions in translational professions are equal for all.

5 Discussion

In Bourdieusian terms, the social capital seemed to play a key role during both secondary and tertiary education. Large stocks of social capital enabled the respondents to acquire volumes of the embodied (e.g. fast touch-typing, Braille contractions) and objectivised (e.g. accessible dictionaries, adaptation of printed materials) states of cultural capital related to disability. Thus, the higher volumes of social capital and cultural capital in its embodied state the respondents had, the more chances they had to acquire cultural capital in its objectivised and institutionalised states. It must be noted that the volumes of embodied and objectivised cultural capital that are necessary for persons with visual impairments to study translation are growing in parallel with the growth of digital technologies. It seems that in the future the demand for volumes of objectivised and embodied states of cultural capital related to disability will continue to grow. And the amount of economic capital required to convert it into the objectivised state of cultural capital will probably remain high.

Therefore, if one wants to level the playing field for blind students of translation, a constant collaboration between sighted and blind peers is

required. Teachers should also be collaborative and sensitised to the limitations of the software that blind students use to access computers. Additionally, in order to lower the required volume of social capital, the assistance for blind students of translation should be available on demand. This is especially true due to the complete inaccessibility of all the main CAT tools. Such assistance would enable more thorough participation in classes (and, for that matter, in professional activity) by blind students of translation. These assistants should be the eyes of the blind, meaning that the latter should grasp, for example, how does a CAT tool work and instruct the sighted assistance what to do with it. This would thus give a (real) sense of control over the material to the blind student which would help levelling the inaccessible playing field.

Implementing this set of recommendations, together with forcing software developers to make CAT tools accessible, seems to constitute what the UN Convention on the Rights of Persons with Disabilities (United Nations 2006) describes as "reasonable adjustments" that allow the inclusion of persons with disabilities in the society.

It seems that despite their transformative potential for blind students of translation, at present modern technologies do not live up fully to their potential benefits. On the one hand this is because of inaccessibility of special purpose software for translators (CAT tools. But on the other hand, it is because of those very same expectations. Whereas modern technologies can support blind students of translation, even if these technologies are completely accessible (which some of them are not at present), we will still need support of human assistance. The idea, thus, would be to educate students in accessible modern technologies, but also to give them choice whether they want and are able to use them on their own or would require the support of sighted assistance.

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Software-based Audio Description with Frazier

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Abstract

This article [25] gives insight into how audio described films with synthetic audio description voices are received by blind and visually impaired people. A survey was conducted with the target audience to evaluate the quality and identify the future prospects of synthetic audio description voices. Results show that synthetic voices offer the opportunity to make audio description more widely available.

1   Introduction

Against the background of the UN Convention on the Rights of Persons with Disabilities (UN 2006), and within the paradigm of social inclusion and participation, audio description (AD) enables blind and visually impaired people to experience a variety of visual media (Benecke 2014).

The conventional method for the production of audio descriptions – i.e. in a team of three people and without any supporting software, as employed by many television companies – is extremely costly and time-consuming (Jekat/Oláh 2016). This hinders the audio description of large volumes of (internet) videos.

Current technology allows to produce audio description by means of synthetic voices. *Frazier* is a web-based software application with integrated text-to-speech technology.

The main goal of this study is to develop the unique selling proposition of *Frazier*'s beta-version. Furthermore, it is investigated whether blind and visually impaired people consider synthetic AD voices as an acceptable alternative to conventional human AD voices.

In particular, this work aims to answer the following questions:

-        What is the target audience's assessment of the quality of synthetic AD voices?

-        Can a preference be identified for either the synthetic or human AD voice?

-        Does the knowledge transfer in an audio described film with synthetic AD voices take place in the same way as in an audio described film with human AD voices?

-        What are the future prospects of audio described films with synthetic AD voices?

2   Frazier

Frazier was developed by the Berlin start-up VIDEO TO VOICE GmbH. *Frazier* is a web-based software application for AD production which employs synthetic voices for the immediate implementation of the descriptions. Its beta-version is not yet available to the public; I was granted permission to test it for research purposes.

VIDEO TO VOICE claims that *Frazier* allows a simple, fast and efficient AD production (VIDEO TO VOICE o. J.). The user-friendliness of the software was confirmed in this study. The production process was intuitive and simple to implement.

3   Method

In order to address the above-mentioned research questions, the synthetic AD of the short film *Wie immer* (Sethna 2010) was created with *Frazier*. This allowed to make a comparison between the synthetic and human AD of the same film. In addition, a survey was conducted with the target group (blind and visually impaired people) and a comparison group (sighted people).

Half of the respondents were first shown the audio described film with synthetic AD voices and, subsequently, the audio described film with human AD voices. The other half was presented with the two AD versions in reverse order. After each listening session, the groups were asked to answer questions regarding the quality of AD voices, the film content, and to make a comparison between the two AD versions.

4 Results and discussion

4.1 Quality

The majority of blind and visually impaired people was pleasantly surprised by the good quality of the synthetic AD voices and by the considerable progress that this technology has made in the recent past in terms of sound, intonation and prosody, emphasis on individual words and fluency of speech. The target group predominantly rated the synthetic AD voices as positive.

4.2 Preference

The target group tended to prefer the human AD voice of the audio described film Wie immer (Sethna 2010). Especially in films where the listening experience is of primary importance, the target group prefers a human AD voice. However, synthetic AD voices will certainly go through further technical development and, according to the target group, will also be conceivable in entertainment films in the future.

4.3 Knowledge transfer

The results of the content questions showed that both the synthetic and human AD voices performed equally in terms of knowledge transfer, i.e. they had a comparable impact on the respondents' comprehension of the film.

4.4 Future potential

This study suggests that synthetic AD can certainly be an alternative solution to human AD, as well as an opportunity to make AD more widely available while, at the same time, saving on production costs. The range of audio described videos can thus be easily extended to include, in particular, Internet or YouTube videos. In addition, the use of synthetic AD voices is suitable in educational contexts, where synthetic AD allows lecturers and/or students to produce their own barrier-free films with a minimum of time and expense.

Overall, synthetic AD represents a significant contribution towards the accessibility of teaching materials for blind and visually impaired people.

5 Conclusion

This study indicates that the human voice will not be replaced completely by synthetic AD voice in the near future. A human voice is preferred by the target group especially for films where the listening experience is the first priority. The use of synthetic AD voices seems particularly suitable for educational films or YouTube videos. However, this technology will certainly advance over the coming years and it is conceivable that it will also be used in feature films in the future.

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La communication administrative dans le contexte plurilingue de la Suisse : Une analyse préliminaire de l'accessibilité linguistique des mémentos de l'AVS et AI

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Résumé

Une communication administrative sans obstacles est cruciale pour que tout citoyen puisse satisfaire à ses obligations et faire valoir ses droits. Pourtant, l'étude préliminaire présentée montre que les textes administratifs destinés à l'information du public ne répondent souvent pas aux exigences d'une communication compréhensible et « proche du citoyen ». A l'aide de divers outils computationnels ainsi qu'une analyse qualitative manuelle, il est possible de mettre en évidence une série de lacunes en termes d'accessibilité.

1   Introduction

L'accès à l'information pour tous est au cœur de l'actualité dans le monde politique, dans la vie sociale et dans le monde du travail, et aussi dans le domaine juridique et administratif. Différents termes sont utilisés selon les auteurs, en fonction du domaine ainsi que du degré de simplification linguistique et du contenu visé. Né dans les années 70 aux Etats-Unis, le « Plain Language movement » avait pour but de rendre plus claires et compréhensibles les dispositions légales, entre autres avec l'objectif d'une administration plus rentable et efficace (Baumert 2016). Au fur et à mesure, le mouvement s'est étendu au niveau international et dans de nombreux domaines de la vie sociale. Partant du terme anglophone *plain language,*

dans le monde germanophone le terme de langage simplifié, *Einfache Sprache*, s'est établi décrivant une simplification linguistique sur différents degrés et indépendamment du domaine (Bock 2014). Dans le cadre des initiatives pour une administration publique plus accessible, un deuxième terme, également issu du monde germanophone, a apparu, celui de langage administratif « proche du citoyen » (*bürgernahe Verwaltungssprache*) (Antos 2008). Mais à la différence du langage simplifié, le langage administratif accessible garde un lien de parenté étroit avec le langage de spécialité juridique même s'il présente un moindre degré de spécialisation et d'abstraction (Schubert 2013 ; Griebel 2013). Le langage administratif accessible ou proche du citoyen peut donc être défini comme la réduction d'une langue de spécialité juridico-administrative et qui reste toujours institutionnalisée. Ces deux variantes simplifiées du langage courant ou de spécialité consistent surtout en une réduction de la complexité linguistique sans réduction ou explication du contenu et elles s'adressent à un grand public non spécifique[26]. Dans le contexte plurilingue de la Suisse, la communication écrite des autorités ainsi que des organismes assimilables, comme les organismes de sécurité sociale, est publiée en général dans les trois langues officielles. Malgré de vastes démarches pratiques et des recherches scientifiques sur la simplification de la législation (p.ex. Cortelazzo 2015, Höfler et al. 2017, Rossat-Favre 2017), l'accessibilité des informations et instructions des organismes de l'Etat directement adressées

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[26] A l'autre extrême d'un continuum de simplification progressive, se trouve une troisième variante de réduction, celle du langage facile à lire et à comprendre, FALC. Contrairement aux deux variantes mentionnées ci-dessus, cette forme de réduction linguistique et textuelle ainsi que du contenu s'adresse à un public très spécifique mais en même temps très diversifié présentant des capacités réduites au niveau intellectuel, un handicap ou des problèmes de compréhension de types divers. Vu les

exigences spécifiques, les textes en FALC ne sont souvent pas des réductions ou des quasi-traductions de textes existants (Bock 2014), mais ils font plutôt objet d'une rédaction de texte selon des règles définies (Inclusion Europe 2014). Il s'agit donc de textes d'une technicité variable selon le public cible et présentant un haut degré de normalisation (Bock 2014).

aux citoyens dans les trois langues officielles ne se trouvent pas encore au centre de l'attention scientifique. Le langage administratif reste souvent opaque pour le non-expert, voire pour le lecteur qui présente des difficultés de compréhension.

2   Le langage administratif accessible

Vu la juridicité sous-jacente de toute communication administrative, toute simplification du langage risque souvent de modifier le sens juridique de l'énoncé. Pourtant l'intelligibilité immédiate du message directement ou indirectement adressé est cruciale pour que tout citoyen puisse satisfaire à ces obligations et faire valoir ses droits.

2.1   Les genres de textes administratifs

Müller (2017) regroupe les textes administratifs selon leur fonction. D'une part, ils peuvent revêtir une fonction juridiquement contraignante comme des notifications formelles; des directives et règlements avec effet direct sur le citoyen ; etc. D'autre part, ils peuvent être non-contraignants comme les lettres et communications simples et sans effet juridique à contenus divers; informations, brochures; textes publiés sur l'Internet, mémentos; etc. Pourtant, même les textes non contraignants contiennent des informations avec un contenu juridique aidant à la compréhension ou permettant le retour correct de textes contraignants.

2.2   Simplification et accessibilité

Les règles de simplification correspondent en général à celles du plain language. Ainsi il est recommandé de former des phrases courtes, d'utiliser des mots courts et fréquents, de choisir la forme active, de minimiser les négations, etc. (Langer et al. 1974 ; Bredel et Maaß 2016 ; Piemontese 2000). Schubert (2013) y ajoute l'application d'un style non-discriminatoire et non-condescendant qui cherche aussi à atténuer le déséquilibre du pouvoir entre l'autorité et le citoyen.

3   Etude linguistique préliminaire : méthodologie

L'étude préliminaire applique une approche inductive sous forme d'analyse qualitative et manuelle de divers mémentos d'information de l'AVS et de l'AI suisses dans les trois langues officielles (DE, FR, IT)[27].

Le but principal est d'analyser, à l'aide d'outils computationnels et d'une analyse linguistique qualitative, l'application des recommandations sur le langage accessible dans les trois langues et de vérifier si la traduction (surtout dans le cas de l'italien et du français) comporte une simplification.

Les indices de lisibilité ont été le point de départ en raison de leur vaste application dans les études sur la simplification linguistique. Toutefois, les trois langues requièrent des outils différents sur la base de leurs différences structurelles : *Flesch* pour l'allemand, *Gunning Fog* pour le français et *Gulpease* pour l'italien[28]. Ces indices, qui se basent sur la longueur des mots, le nombre de caractères ou syllabes par rapport à la longueur des phrases permettent une première appréciation du niveau de difficulté des textes. L'une des critiques formulées à l'égard de ces indices est que les phrases longues ne sont pas forcément des phrases difficiles à comprendre (p.ex. une phrase active et verbale en allemand est plus facile à comprendre qu'une phrase nominale) (Hansen-Schirra et Neumann, 2004). Il n'en reste pas moins que dans les textes de spécialité avec un contenu juridique, des phrases longues sont souvent un des paramètres de difficulté auquel s'ajoutent le style nominal, les termes et phraséologies de nature juridique, les groupes nominaux ainsi qu'une structure profonde complexe des phrases. Afin de détecter plus aisément ces différents facteurs de complexité, nous avons analysé dans un deuxième temps les textes à l'aide d'outils de contrôle : Acrolinx (DE, FR)[29]; DyLan TextTools v2.1.9 (IT)[30] qui ont extrait les phrases plus complexes d'un point de vue syntaxique. Cette complexité a été

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[27] https://www.ahv-iv.ch/fr/M%C3%A9mentos-Formulaires

[28] Nous avons utilisé les outils gratuits suivants : https://www.fleschindex.de/; http://textalyser.net/; http://www.ilc.cnr.it/dylanlab/apps/texttools/?tt_user=guest

[29] https://www.acrolinx.com/

[30] Outil développé par l'Institut de Linguistique Computationnelle de l'Université de Pisa et portant exclusivement sur la langue italienne. Il consiste de plusieurs outils d'analyse syntaxique (POS, tokenization, mais aussi d'une fonction de contrôle syntaxique qui signale les difficultés linguistiques dans chaque phrase (http://www.ilc.cnr.it/dylanlab/apps/texttools/?tt_lang=it&tt_tmid=tm_readabilityprojection).

ultérieurement exploitée en analysant quantitativement, à l'aide de TreeTagger, la présence de certaines parties du discours (POS) dans les trois langues. Le nombre de conjonctions de coordination et de subordination, la présence de certains signes de ponctuation (par ex. majorité de point ou virgules), les phrases prépositionnelles et le type de verbes utilisés constituent un autre banc d'essai pour détecter la complexité syntaxique des énoncés. Ces données (principalement les conjonctions et la ponctuation) représentent un point de départ pour la dernière étape de notre analyse, celui de l'investigation qualitative manuelle qui vise à annoter la complexité linguistique à un niveau supérieur, celui de la textualité. Nous estimons en effet que la longueur des phrases et des mots, l'emploi du passif ou de la forme active ne sont que des premiers indicateurs de complexité linguistique. Dans plusieurs cas, et surtout dans les textes de spécialité administratifs et juridiques, il est aussi important d'intervenir sur l'ordre des mots dans la phrase, sur les liens de cohésion et sur les relations logiques qui soutiennent la structure du message.

3.1 Le corpus

Dans le cadre de la présente étude préliminaire, nous avons appliqué les outils d'indexation de lisibilité sur un corpus de 41 mémentos de l'AVS et de l'AI dans les trois langues officielles (143 textes). Ensuite nous avons effectué les analyses qualitatives et syntaxiques sur un échantillon de 10 mémentos choisis à l'intérieur corpus initial (30 textes).

3.2 Problèmes communs aux trois langues

Malgré des résultats divergents selon l'outil utilisé et les différences linguistiques propres à chacune des trois langues, les analyses font apparaître des problèmes communs comme par ex. une syntaxe complexe (phrases trop longues, plusieurs compléments du verbe principal); de nombreuses subordonnées et syntagmes prépositionnels; un ordre des constituants non logique; de nombreux groupes nominaux (enchaînés), une structure informationnelle trop complexe; le manque de cohésion et de cohérence; l'emploi fréquent du passif. La présence mineure ou majeure de l'un ou de l'autre dépend essentiellement des différences structurelles entre les trois langues et la traduction ne semble pas favoriser la simplification. Au contraire, en ce qui concerne

l'italien, qui est toujours un produit de la traduction, on remarque de nombreux traits rédactionnels typiques du *burocratese* (emploi de l'impersonnel, manque d'allocution directe vers le destinataire etc., séries de phrase complexes, même s'il s'agit de phrases plus simples en allemand).

Les résultats montrent la complexité de tous les textes analysés qui se trouve bien au-delà du seuil recommandé pour le langage simple.

3.3 Exemples de difficultés et propositions de simplification

L'exemple suivant dans les trois langues illustre les difficultés d'accessibilités rencontrées.

DE: *Leistungen (SUJ) bei Beendigung eines mehrjährigen Arbeitsverhältnisses sind für jedes ganze Kalenderjahr, in dem Arbeitnehmende nicht in der beruflichen Vorsorge versichert waren, bis zur Höhe der im Zeitpunkt der Auszahlung geltenden halben minimalen monatlichen Altersrente vom massgebenden Lohn ausgenommen.*

Il s'agit d'une phrase au passif dont la lisibilité est entravée par la juxtaposition d'une série de syntagmes prépositionnels à complexité et fonction syntaxique différentes et une subordonnée relative enchâssée.

FR: *Les prestations allouées (SUJ), lors de la cessation de rapports de travail, pour toutes les années civiles complètes durant lesquelles l'employé n'avait pas de prévoyance professionnelle ne sont pas prises en compte dans le salaire déterminant tant qu'elles ne dépassent pas la moitié de la rente de vieillesse mensuelle minimale au moment du versement.*

La phrase est au passif et comporte des groupes nominaux prépositionnels complexes, dont un englobe une subordonnée relative. Elle se termine par une subordonnée consécutive et temporelle introduite par une reprise anaphorique au moyen du pronom « elles » qui renvoie au sujet « les prestations ».

IT: *Le prestazioni versate (SUJ) dal datore di lavoro al termine di un rapporto di lavoro pluriennale sono escluse dal salario determinante per ogni anno intero in cui il salariato non era assicurato nella previdenza professionale, fino a un importo pari alla metà della rendita di vecchiaia minima mensile vigente al momento del versamento.*

La phrase est également au passif, suivie par deux syntagmes prépositionnels et par une phrase relative. La virgule avant «fino» sépare la partie de la phrase qui suit, ce qui complique son interprétation (exclusion du salaire déterminant).

4 Conclusions

A l'heure actuelle, nous sommes encore loin d'un langage administratif accessible pour « tous les citoyens ». L'analyse préliminaire nous montre que les mémentos analysés sont très proches du langage juridique et technique bien qu'il s'agisse de textes destinés à l'information du grand public. Les indices de lisibilités indiquent un haut niveau de difficulté qui est confirmé par les analyses de contrôle subséquentes. Les obstacles à l'intelligibilité se manifestent au niveau syntaxique, lexical et textuel, mais aussi au niveau du contenu. Une simplification entraîne le risque d'une modification du contenu et par conséquent des dispositions de valeur juridique. Des propositions de simplification et d'annotation sur la base des résultats des analyses sont en phase d'élaboration. Dans les étapes futures, le corpus analysé sera élargi à d'autres domaines, comme par ex. les droits des patients, ainsi qu'à d'autres genres de textes complémentaires comme les sites web des administrations cantonales et organismes assimilés.

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Status Quo of Inclusive Access to Higher Education. A Focus on Deaf and Hearing-impaired Individuals in German-speaking Switzerland

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Abstract

As numbers of graduates with impairments are actually decreasing, higher education access and study conditions are in need of improvement for students with sensory impairments in Switzerland[31]. A survey was carried out in order to determine the status quo in higher education for Swiss deaf, blind, visually and hearing-impaired individuals. The current paper presents the survey, discusses methodological and technical issues and points out preliminary results concerning Swiss-German deaf and hearing-impaired individuals.

1 Research Background

Hearing and sighted individuals from the majority society often remain unaware of the hurdles that deaf, blind, visually or hearing-impaired individuals encounter in the Swiss school and education system. This lack of understanding with regard to existing hurdles blocks possible pathways to higher education for deaf, blind, visually or hearing-impaired individuals and renders it still hardly attainable.

A project launched jointly by the Zurich University of Applied Sciences and the University of Geneva tackles this situation with a focus on barrier-free communication. Sensory impairments entail specific communicative needs that can be met both linguistically and technologically. Consequently, inclusive access to tertiary education requires sophisticated combinations of linguistic support and technological tools.

The initial phase of the project involved determining the target group's experience with linguistic support and technical aids in their educational path up to their professional occupation [32]. A Swiss-wide survey was designed and carried out in 2017-2018. The goal was to document where and how inclusive access already is in place for the target groups, to describe the status quo of assistance practised in the Swiss education system, technological aids and linguistic support and to determine which kinds of barriers they are facing when progressing from obligatory through secondary to tertiary education.

2 The Survey

2.1 General Aspects

A Swiss-wide study targeting individuals with sensory impairments must take in cosideration specific communication needs in designing, implementing and distributing the survey. The objective was to reach the deaf, blind, visually and hearing-impaired in all Swiss language regions, and to gather their experiences with the educational system, with learning, studying and working life. In addition, the survey was directed at those involved in educating and supporting sensorily impaired students, e.g. relatives, staff members, sign language teachers and students, in order to better understand challenges involved in accessible and inclusive tertiary education. Questionnaires were prepared for nine profiles (§2.3), all Swiss language areas (GE, FR, IT), their associated

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[31] Swiss Federal Statistical Office, BFS 2017: Bildungsstand von Menschen mit und ohne Behinderung: Tertiärstufe.

[32] For the BFC project cf. https://bfc.unige.ch/en/project/research-areas/

sign languages (DSGS, LSF-CH, LIS-SI), and in English.

2.2 Designing an inclusive survey

Taking into account studies on educational outcomes for deaf/hearing-impaired individuals, barrier-free online questionnaires were developed using SurveyMonkey. [33] For Sign language users, all questions were introduced as sign language (SL) videos combined with the corresponding Swiss official languages. Due to technical limitations, they could not answer through self-recorded videos. For that reason, SL users were asked to respond and comment in the corresponding written language included in their SL version questionnaire (i.e. either German, French or Italian). An English version without accompanying sign language videos was offered for participants feeling more comfortable in that language.

Depending on the profile of the participants, a maximum of 59 questions (profile A) was asked. The questionnaire included open-ended and closed questions and allowed for additional comments. Since inclusion was paramount in preparing the questionnaires, stakeholders from deaf and visually impaired target groups, as well as educational institutions were asked for comments. Adaptations were made in order to render the questionnaires – as much as possible – barrier-free.

2.3 Range of participants and procedure

The survey was conceived so that relatives, members of organisations, SL teachers, students and interpreters could be included via different profiles. Emails in all official languages introducing the study and research team, with survey links to all seven language versions, were sent to 118 Swiss institutions, individuals and organisations. Addressees were asked to spread the survey. Reminders were sent after two weeks, and data were collected once after 30 days, and finally after 60 days, on April 19, 2018.

A total of N=210 valid responses distributed over the target groups' nine profiles were gathered:

A.   Deaf and hearing-impaired individual (N=92)

B.   Blind and visually impaired individual (N=12)

C.   Relative of deaf/hearing-impaired individual (non-deaf) (N=23)

D.   Relative of blind/visually impaired individual (N=1)

E.   Staff member of organisation supporting the deaf/ hearing-impaired (N=47)

F.   Staff member of organisation supporting the blind/visually impaired (N=10)

G.   Sign language interpreter (N=4)

H.   Sign language teacher (N=9)

I.   Sign language student/learner (non-deaf) (12)

While six profiles (A, C, E, G, H, I) were concerned with the situation of the deaf and hearing-impaired, three profiles (B, D, F) were directed at the blind and visually impaired. Profiles reflect a larger gap in knowledge on the first target group and a different linguistic situation they are in: deaf and hearing-impaired individuals using a sign language are bimodal, bilingual and often L2 speakers of the majority (official) language. For that reason, linguistic support by educators, interpreters and translation tools are crucial to their educational process.

3   Preliminary Results

3.1 Outcomes in general

The distribution of N=138 valid responses in Swiss-German/DSGS, N=66 in French/LSF-SR, five in Italian/LIS-SI and one in English, reflects well Swiss regional differences in demography and size. Overall turnout was strongest in profile A for deaf and hearing-impaired individuals (N=92), suggesting that the number of questions (59) did not discourage a highly motivated target group. Profiles C (relatives: N=23) and E (staff: N=47) associated with the deaf/hearing-impaired had high turnouts compared to those relating to the blind/visually impaired (D: N=1; F: N=10); only a small number of SL teachers (H: N=9), SL students (I: N=12) and SL interpreters (G: N=4) took part. Rather low turnouts in all profiles concerning the blind and visually

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[33] Cf. Boyes Braem et al. 2012, Napier/Leeson 2016 for educational and sociocultural issues regarding sign languages.

impaired may reflect a higher degree of accessibility already in place for this target group. Noticeably larger numbers of higher education graduates among the visually impaired compared to the deaf and hearing-impaired seem to support this view. For the German-speaking part of Switzerland, profile A (N=75: 47 deaf, 28 hard of hearing) contrasts sharply with profile B (N=9: blind/visually impaired).

3.2 Focus on Swiss-German deaf / hearing-impaired respondents (Profile A)

Respondents (N=75). 60% of the deaf or hearing impaired respondents were female, 36% male and 4% did not disclose their gender. The age group with most respondents was that of 36-45 year olds (25.3%, 19 individuals); the age groups from 26-35, 46-55, 56-65 and 66+ were evenly distributed between 16% and 18.7% (12-14 individuals). Only the age group of 18-25 year olds was underrepresented with 5 individuals (6.7%).

Experiences in school and higher education (N=75). 88% of those who answered these questions commented specifically on primary school experiences, ranging from SL not being allowed in the classroom to inadequate technical aids and infrastructure in order to accomodate multiple pupils with different needs, large and noisy classes, integration classes without SL interpreting, to teachers being insufficiently competent in SL and dominance of spoken language as a medium of instruction.

Named as crucial obstacles both in *secondary school* and **tertiary education**, were <u>inadequate forms of instruction</u> (*49*;**38** responses), a <u>lack of interpreting services</u> (*34*;**34** responses), and <u>non-inclusive teaching</u> (*35*;**29** responses); qualitative analyses on additional comments (*37*;**35**) are under way. Results seem in line with Rodríguez Vázquez et al. 2018.

Among the Swiss-German deaf and hearing-impaired respondents (N=75), a high number (41.3%) have been or are studying at university level. This proportion is not representative of that target group's actual numbers of individuals succeeding in tertiary education. Rather it reflects a need to share experiences and possibly improve the situation by those who have suceeded.

Career prospects (N=75). 13.3% report negative experiences when applying for an apprenticeship, 17.3% when applying for a job position, 50.6% feel that perspectives on the job market are unsatisfactory, and 57.3% of the respondents feel discriminated against in not being able to pursue a desired career path.

Linguistic and communication issues (N=75). While 49.3% (37) are users of Swiss German sign language, 30.6% (23) rely on gestures accompanying spoken language and 20% state they use neither, which means they were trained in spoken languages only. Multilingualism scores high, with 49 respondents (65.3%) using three or more languages, 20% being bilingual and only 14.6% monolinguals. Bilingual bimodality with SL and spoken language as simultaneous L1 was experienced only by 8 respondents (10.6%). This linguistically diverse picture leaves many questions unanswered.

Reliance on SL interpreting (N=75). Even though only 49.3% are using SL (DSGS), 66.7% indicated their reliance on SL interpreting or translation services; 33.3% have never used such a service. The situations named most frequently for interpreting or translation services are professional (57%) and educational situations (school, vocational training, university, 62%). 57.3% of the respondents have experienced a situation in which an interpretation or translation service was missing or insufficient. The frequencies of such situations are given in Table 1.

Regularly (e.g. almost every time I encounter public services)	9.3
Often (e.g. at least once a month)	10.7
Sometimes (e.g. a few times a year)	17.3
Rarely	17.3
Never	2.7
No answer	42.7

Table 1. Frequency of missing language services (SL interpreting, translation with accompanying signs, in %).

3.3 Preliminary Conclusions: Inclusive Access to Swiss Higher Education?

Based on the preliminary results, it appears that deaf and hearing-impaired individuals experience vast disadvantages during

obligatory and higher education. Linguistic barriers are created by a situation where an inclusive bilingual-bimodal education is still not in place.

The reasons seem to be as much a lack in technological aids as in insufficient numbers of SL interpreters, as well as too few teachers using sign language in the classroom. Other services too, e.g. speech-accompanying signs, class room arrangements for lip-reading or provisions for delayed reception with auditory devices in class rooms appear to be largely unsystematically employed. Inclusive access thus remains a lofty goal at the status quo of higher education.

Questions with regard to learning opportunities, specific linguistic issues and accessible tools will have to be dealt with more concisely. A follow-up qualitative evaluation by the help of sign language interviews is needed in order to gain a closer insight.

3.4 Feedback and Open Issues

Feedback from deaf and deaf-blind users pointed out problems of inclusiveness in the survey. We were aware of possible accessibility hurdles for deaf-blind users and for those using sign language as their principal medium of communication. 'Universal design' could not be implemented for technical reasons. Video-reply was not possible, and the written language remains an L2 for many signers. For that reason, in-depth semistructured, narrative interviews in all Swiss sign languages are planned in order to gain deeper insights. Qualitative evaluation will be employed in order to determine ways of changing curricula, the teaching praxis and learning environments.

Low numbers of responding SL interpreters were probably due to reservations on the part of the SL interpreters' organisation in Switzerland concerning professional ethics. Since SL interpreters are an important professional support on which SL users rely on, especially in school and higher education, their responses would have been valuable.

Schools and teaching staff engaging with deaf and hearing impaired students did not participate in sufficient numbers in our survey, even though we tried to reach all schools and educational institutions known to us. Possibly another way of engaging educators and sampling their experiences needs to be thought of. A more inclusive access to higher education for deaf and hearing-impaired individuals in Switzerland may be ascertained only with the help of all stakeholders involved in providing support and services.

Acknowledgements

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Intra and extradiegetic Translation of the Linguistic Barrier in Works of Fiction. The Case of Sign Language in the Comedy *La Famille Bélier*

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Abstract

This communication presents a study aimed at evaluating the representation and reception of the linguistic barrier in fiction works, specifically audiovisual works. A detailed analysis of several scenes from the comedy *La Famille Bélier* (Lartigau, 2014), a multilingual film that frequently exploits the linguistic barrier created by sign language and its translation in its story line, demonstrates the complexity and narrative possibilities, including those of humorous kind, of the inclusion of this phenomenon in a work's plot. The aim of this report is to provide evidence that situations of multilingualism can also be caused by visual languages and also to give value to the work of sign language experts and translators in making cinema accessible to everyone: those who need oral language subtitling and those who need visual language subtitling.

1   Research background

As we have found in previous research (Cuéllar Lázaro, 2016; idem, in press), (Hurtado Malillos, 2017), access to the audiovisual media for the deaf and hard of hearing has evolved significantly in recent decades. The advances in legislation in different countries (see: the *Gemeinsame Untertitelrichtlinien für den deutschen Sprachraum* in Germany, Austria and Switzerland, the *Charte de qualité relative au sous-titrage à destination des personnes sourdes et malentendants* in France, the *Code of* Guidance on Standards for Subtitling in the United Kingdom or the standard UNE-153010:2012 in Spain), together with the development of new technology (dual-subtitle track for hearing and non-hearing public in DVD products, subtitling options integrated in TV and video equipments) have provided solutions for many of the existing obstacles, although some still remain.

In the same way, the rise of multilingualism or presence of several languages in audiovisual works, both in products that combine several hearing languages (e.g. English, French, German), (Corrius and Zabalbeascoa, 2011) and in products that use hearing and visual languages (sign language), (Krentz, 2006), (Bauman, 2006) as well as their academic interest is growing.

2   Method and analysis description

Following the classification scheme proposed by the experts in audiovisual translation Cronin (2009) and O'Sullivan (2011), who in turn base their research on Genette's narratological model (1983), when translating the linguistic barrier posed by the presence of these languages, the audiovisual medium has two main options: the translation by a fictional character within the diegesis (interpreter, cases of self-translation) or the translation of this segment at an extradiegetic level through subtitling. However, so far there are no specific studies on productions that mix both options in order to translate the same case of language barrier.

In this report, we aim to sketch a new research path by analysing several scenes from the film *La Famille Bélier* (2014), in which this combined resource is used to produce a humorous effect in the audience. We carried out a descriptive-qualitative study of the audiovisual work following a contrastive approach. First, we created a catalogue of all the sign language interpreter interventions present in the film. A filtering criterion was then applied to select those cases in which there was a contradiction between the subtitled sign language message and the message delivered

orally by the interpreter. Once the definitive corpus of scenes was established, a comparative analysis of the intradiegetic and extradiegetic translations of the message and its variation was carried out, which ultimately led to the appraisal of the effects that this translation technique has on the spectator's story reception.

More specifically, the subcorpus of scenes that have been selected for analysis in this study and will be commented on in the presentation are the following:

In scene no. 1 (Figure 1), the current mayor M. Lapidus goes to the Bélier family's market stall to ask how the electoral campaign is going and wish them luck, hinting indirectly that M. Bélier is not a candidate at his level. M. Bélier's angry response in sign language: *"Quelle petite merde!, Je vais te défoncer, Je vais te péter les deux jambes"* is softened by his daughter in order to maintain good manners with the mayor and preserve her father's reputation as *"Il vous remercie. Il vous demande si ça va"*. Although, ultimately, his rival's facial expression of enmity makes M.Lapidus suspect that the supposedly polite message is not such.

Figure 1. Dispute between current mayor M. Lapidus and candidate M. Bélier in the market in the context of elections, min. 24:53.

In scene no. 2 (Figure 2), when a TV set comes to the family's home to record an interview on M. Bélier's project for the municipality candidature, his daughter, tired of her father's obsession and sickly dedication to the election campaign, interprets M. Bélier's answers to the journalist into oral language in a very shortened form and unwillingly, thus distorting his message and reducing his possibilities of being elected. Paula's oral interpretation for the journalist's question "M. Bélier, vous avez décidé de vous présenter aux élections municipales de Lassay, pourquoi?" is "Je veux donner un nouvel élan à Lassay", when his father had actually gone into much more detail

in the answer "Depuis quelques années, nos commerces ferment. Nos jeunes s'en vont. Il n'y a plus de médecin et l'école est à l'abandon. Vous pensez quoi? Que je vais laisser faire la fatalité? En se mobilisant, on va redynamiser Lassay et lui donner un nouvel élan". The same thing happens when he is asked if the condition of being deaf could be a problem to serve as the city's mayor, Paula answering a simple "Non". M. Bélier, realizing that something is not working, asks his daughter to stop interpreting and, as a nod to the viewer, requests that the recording be later subtitled as it actually happens on the film's DVD.

Figure 2. Local TV interview with M. Bélier about his project as electoral candidate, min. 48:50.

In scene no. 3 (Figure 3), the situation changes and now the communicative barrier for Paula's parents is acoustic. At the end of the school performance, the music teacher reprimands the woman's parents for not supporting her in her facet as a singer and helping her to develop her full potential. Knowing that this is a subject that her parents do not accept, as they do not want her to leave the family and go to Paris to continue her career in music and performance, Paula interprets the reproaches of her teacher "Voilà, votre fille a une voix exceptionnelle. Alors, je comprends pas, au lieu de l'aider à la portée, vous êtes en train d'enfoncer là" as a "Merci d'être venus" in sign language, forcing both conversation parties to say goodbye and leave.

Figure 3. Conversation between the music teacher and Paula's parents about their daughter's skills at singing, min. 01:22:05.

3   Outcomes assessment and conclusions

Paula, the film's protagonist and only hearing family member, acts as an interpreter for her deaf parents and brother. This family bond often causes her interpretations to be influenced by the relationship that exists between them, either by protecting them or by trying to sabotage them.

The analysis carried out shows how the film director and scriptwriter opted to provide the viewer with two simultaneous and mutually contradictory translations of the original sign-language fragments emitted by the characters: a non-faithful interpretation by the natural interpreter orally at an intradiegetic level and a proper correct interpretation of the message visually, through subtitling, at an extradiegetic level. When the viewer realizes that the two translations differ and the double intention that the young woman has, a comedic situation arises.

With this analysis, we will demonstrate that these situations, in which a change of point of view takes place and it is now the hearing viewer who needs subtitles, are cases of multilingualism too and that can also cause barriers to communication. At the same time, we will study the functional possibilities offered by these situations of communicative distance as a narrative and stylistic resource in fiction.

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A Reception Study of Descriptive vs. Interpretative Audio Description

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Abstract

In the German-speaking world, guidelines for Audio Description (AD) of feature films vary, often in a contradictory fashion. In this study, [34] a test was carried out to compare the audience's reception of two AD styles, i.e. descriptive vs. interpretative. Respondents (n=25) were asked to evaluate two different AD scripts of the short feature film "Wie immer" (Sethna 2010). The test results suggest that descriptive AD was not unequivocally preferred by recipients. On the other hand, interpretative AD facilitated the transfer of information and allowed for the audience's better participation in the filmic experience. These results seem particularly significant in the German-speaking world, where the public broadcasting stations of ARD, ORF, SRF, ZDF have committed themselves to descriptive AD. These preliminary results need to be further investigated, ideally in collaboration with heterogeneous target groups.

1 Definition

Audio Description (AD) transfers the visual images and sound effects of feature films and other visual media into spoken language. Together with the original soundtrack, an audio described film or programme provides an additional voice-over narration track intended primarily for blind and visually impaired people. The combination of the two soundtracks generates the audio film (or *Hörfilm*, cf. Jekat and Oláh 2016), i.e. a verbal version of the visual content.

2 Guidelines for AD

In the German-speaking world, guidelines and methods for Audio Description of feature films are based on specifications derived from practical experience (Dosch and Benecke 2004; Benecke 2014, which were incorporated into ARD et al. 2015). Benecke (2014) argues that no interpretations should be provided in AD and that audio description should rather allow visually impaired consumers to interpret for themselves. For instance, when describing characters, interpretative segments should be avoided (e.g. "she is beautiful") and objective descriptions of the characters' features should be used instead (e.g. "she has long shiny black hair and big brown eyes").

In contrast to Benecke's recommendations (2014), Fix (2005) and Fryer (2016) advocate a subjective or interpretative AD, which, they argue, is legitimate and no longer to be regarded as subjective if it is provided by the film's scriptwriter ("auteur description", Fryer 2016: 54). Interpretation in AD is, in fact, a long-standing contentious issue in Europe as well as across the Atlantic, which may never be fully resolved (Mazur and Chmiel 2012). Mazur and Chmiel (2012) propose that instead of the binary opposition of objective versus subjective, AD practitioners and researchers should rather be working within a continuum between objectivity and subjectivity.

3 The AD dilemma

AD should be provided only during speech pauses and should not interfere with the original soundtrack of the film. This requirement alone illustrates the so-called audio description dilemma (Benecke 2014). Often, descriptive ADs may not be succinct enough to fit into relevant sound breaks. Furthermore, it is

essential that the AD script should not interfere with the film script (SBV 2017).

Recent research on AD concerns itself with the question of how essential information can be effectively audio described in documentaries and educational films despite the AD dilemma (Gzara, forthcoming; Lintner 2018; Cámara and Espasa 2011). A crucial issue to be investigated is, therefore, what AD style may facilitate the target audience's comprehension of the content of a film.

4 The study

Our reception study aimed to examine the influence of two AD styles, i.e. descriptive vs. interpretative, on the recipients' comprehension of the short film "Wie immer" (English title "The usual", Sethna 2010). In addition, the study also aimed to elicit feedback about the recipients' AD preferences. This analysis served as the basis for identifying strategies that (a) may facilitate the acquisition and understanding of factual information by visually impaired recipients, and (b) can potentially be applied to AD of documentaries and educational films.

"Wie immer" is a short film that featured at numerous film festivals and was rated "wertvoll" (lit. valuable) by the German Film and Media Evaluation Board (FBW). [35] "Wie immer" has also been labelled as an educational film, for instance by the Goethe Institute. The film addresses the issue of early-stage dementia: Gerda Beckert, a cheerful old lady, leads an independent life but is daily confronted with her gaining memory loss.

A descriptive AD based on Benecke (2014) was first created and produced. This was successively enriched with evaluative adjectives, more complex syntax and subjective descriptions of, for instance, facial expressions to develop an alternative AD, i.e. an AD script with a higher degree of subjectivity. This level of interpretation required a closer analysis of the original film and, in particular, of the characters' physical and behavioural properties (cf. Margolin 2007, in Vercauteren 2014). The requirement that AD should not interfere with

the original film soundtrack was observed for both versions.

Table 1 shows our translation from German of two AD segments describing the opening scene of the film and compares a descriptive style (left column) with an interpretative one (right column):

Descriptive AD	Interpretative AD
Outside the front door of a house. An old lady locks the door.	The film begins at the door of a brick house. Mrs. Beckert, an old lady with beautiful brown eyes, locks up.

Table 1. Descriptive vs. interpretative AD of the opening scene of "Wie immer" (Sethna 2010).

The test was attended by 24 persons without visual impairments and by 1 blind person – all recruited via the ZHAW (Zurich University of Applied Sciences). All respondents were highly educated and between 20 and 40 years of age. They were divided into four groups:

a) Group 1 (7 respondents) listened to and answered questions on the descriptive AD of "Wie immer";

b) Group 2 (6 respondents) listened to and answered questions on the interpretative AD of "Wie immer";

c) Group 3 (5 respondents) listened to both ADs of "Wie immer" (first descriptive AD, then interpretative AD) and was asked to make a comparison between the two;

d) Group 4 (7 respondents, of whom 1 was blind) listened to both ADs of "Wie immer" in reversed order (first interpretative AD, then descriptive AD) and was asked to make a comparison between the two.

In order to test the effectiveness of either style on the respondents' comprehension of the film, study participants in Groups 1 and 2 were asked to answer eight open-ended questions (e.g. Question 4 of Questionnaire 1: "How would you describe Gerda Beckert, the main character of the film? Please consider appearance, clothing, character, etc."). Additionally, respondents in these two groups were presented with three true/false questions. For instance, Question 9 of Questionnaire 1 asked them to

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[35] Cf. https://www.fbw-filmbewertung.com. Accessed July 12, 2018.

decide whether the following statements were true or false:

	true	false
Gerda Beckert has a hairdresser's appointment at 11.40 am.		
Gerda Beckert arrives at the appointment on time.		
Gerda Beckert has made a note of the date.		
Hairdresser Martina takes care of Gerda Beckert right away.		

Table 2. Question 9 of Questionnaire 1.

Respondents in Groups 3 and 4, on the other hand, were asked to compare the two ADs through a set of five open-ended questions aimed at eliciting feedback about user preferences (e.g. Question 2 of Questionnaire 2: "Which AD made you feel closer to the film, and why?"). Two out of five questions referred to tangible differences between descriptive and interpretative AD, and to the use of filmic language in AD (e.g. Question 4 of Questionnaire 2: "Do you think that the camera perspectives should be included in the AD script (e.g. *The water is heading towards us* or *The camera is panning towards the house*)?".

5 Results

The evidence drawn from our study confirms earlier conclusions by Jekat et al. (2015), who show that visually impaired people's perception of character traits, as conveyed through a strongly interpretative audio described film – i.e. AD presenting interpretative elements in a syntactically prominent position (e.g. *Blissfully she bikes away*) – is virtually congruent with the perception of the same character traits by people without visual impairments who watch the original film. Similarly, our study suggests that the information transfer is indeed enhanced through the interpretative AD (28 correct, 5 incorrect and 3 blank answers in Group 2, as opposed to 21 correct, 6 incorrect and 15 blank answers in Group 1). Although Group 2 has one fewer respondent, it has a higher number of correct answers, and significantly fewer incorrect and blank answers (8 in total) than Group 1 (21 in total). This trend is also evident in the answers given by the blind respondent. Although s/he emphasises that s/he prefers the descriptive AD, s/he states that the transfer of information is far better conveyed by the interpretative version of the AD (e.g. "The choice of words leads to crucial information").

As far as the open comprehension questions are concerned – since they cannot be considered as plainly "right" or "wrong" – Group 1 gives fewer or partially inaccurate details of Gerda Beckert's physical appearance (e.g. "brown hair" instead of *brown-grey hair* in the AD, "long hair" instead of *chin-length hair* in the AD). Furthermore, two test questions were aimed to elicit descriptive responses on Gerda's early signs of dementia (i.e. "Why does Gerda Beckert take her garbage bag to the hairdresser's?" and "Why is Gerda Beckert walking back to the hairdresser's?"). Only one respondent in Group 1 places his or her answers in the right context (i.e. "Maybe because she's confused"). On the other hand, the terms "Alzheimer/Dementia" are explicitly mentioned by one respondent in Group 2.

The direct comparison between descriptive and interpretative AD in Groups 3 and 4 confirms the above-reported trend. All respondents in Group 3 feel closer to the interpretative AD and believe that the information is better transferred through the interpretative version of the AD. Answers are not as clear-cut for Group 4 respondents, who consistently point out the advantages of both descriptive and interpretative ADs.

Overall, these results suggest that interpretative AD does facilitate the transfer of information and may allow for the audience's better participation in the filmic experience. These findings are also in line with earlier studies (cf. Walczak and Fryer 2017; Jekat et al. 2015; Mälzer-Semlinger 2012) which argue against strict objectivity in AD and advocate a more complex syntax that takes better account of the narrative and aesthetic elements of the original film. Finally, these results seem all the more significant in the German-speaking world, where the public broadcasting stations of ARD, ORF, SRF, ZDF, as well as Deutsche Hörfilm gGmbH, Hörfilm e.V. and audioskript, have committed themselves to descriptive AD (cf. standard 4 in ARD et al. 2015).

6 Discussion

We fully acknowledge the limitations of this small-scale reception study. Visually impaired people, who are regularly exposed to audio described visual content and can compensate

for their lack of sight with enhanced hearing or other sensory abilities, may process scripts very differently than people without visual impairments. This study presents, therefore, preliminary results that need to be confirmed in further studies, ideally in collaboration with heterogeneous target groups (including congenitally blind and late-blind people, and people with various forms of visual impairments and different levels of education, age, gender, etc.).

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Traduction, localisation et accessibilité du Web au Canada

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Résumé

Cette communication portera sur la localisation et l'accessibilité du Web au Canada, soit dans un contexte bilingue.

Nous présenterons les résultats de notre analyse de la qualité de 12 pages Web bilingues (six en français, six en anglais) de municipalités. Nos observations concordent avec celles de nos pairs s'étant intéressés à la localisation et à l'accessibilité du Web en Europe.

Finalement, nous proposerons la création d'un cours portant exclusivement sur la localisation et l'accessibilité du Web afin de sensibiliser les étudiants dans les universités à l'importance d'inclure tous les genres d'internautes lors de la création et de la localisation d'un site Web.

1 La communication

1.1 Introduction

Trop peu de chercheurs se sont intéressés à la traduction et à la localisation du Web. Pourtant, le Web est au cœur de nos vies que nous soyons étudiants, professeurs ou chercheurs, que nous soyons une personne handicapée ou non. En fait, le Web est le lieu même de toutes les traductions (Folaron, 2012, p. 25), « c'est-à-dire que la traduction est nécessaire pour que le Web demeure universel tout en conservant ses particularités locales ». (LeBlanc, 2018, p.1)

Notons que parmi ce cercle restreint de chercheurs, quelques-uns se sont intéressés à l'accessibilité du Web pour les personnes aveugles et amblyopes dans un contexte traductologique bilingue (LeBlanc, 2018) ou multilingue comme en Europe (Rodríguez Vázquez et O'Brien, 2017).

Nous aimerions, dans un premier temps, vous soumettre les résultats de notre recherche, *Sites Web municipaux dans un Canada bilingue : évaluation de la qualité de la traduction, de la localisation et de l'accessibilité*, pour ensuite vous présenter ce que nous prévoyons faire afin de rendre le Web plus accessible à tous les types de cybernautes qu'ils soient Canadiens, Burkinabés ou Slovènes.

Il est primordial de souligner que le gouvernement du Canada, sous l'égide du ministère Emploi et Développement social Canada, élabore actuellement une loi fédérale sur l'accessibilité.

Des consultations ont été menées partout au Canada auprès des personnes à qui profiterait cette loi, soit les personnes handicapées, leurs familles et, entre autres, les organisations qui les appuient et les aident. Notons que certains « […] participants ont affirmé qu'ils en avaient assez d'avoir à se battre pour faire tomber les obstacles et qu'ils étaient frustrés que ces obstacles les empêchent souvent de jouer un rôle actif ». (EDSC, 2017) « Les intervenants ont aussi manifesté le souhait que tous les ordres de gouvernement travaillent ensemble dans l'intention de rendre l'accessibilité vraiment universelle. Ils ont également relevé qu'il était nécessaire d'appliquer la loi rigoureusement et de prévoir des sanctions si sa mise en application n'était pas respectée. » (LeBlanc, 2018, p. 19)

Nous présumons que cette nouvelle loi canadienne aura une incidence sur les règles, les standards et les lois en matière d'accessibilité du Web en vigueur dans les provinces canadiennes. C'est-à-dire que les principes d'accessibilité du Web mis de l'avant par le World Wide Web Consortium (W3C), dans le cas présent, ne s'appliquent qu'aux organisations gouvernementales et qu'aucune sanction n'est prévue si ces principes ne sont pas respectés tant qu'on fournit à l'internaute aveugle ou amblyope un numéro de téléphone pour joindre un fonctionnaire qui lui transmettra de vive voix l'information recherchée et inaccessible sur le site Web.

1.2 Méthodologie

Les critères d'évaluation linguistique, de l'adaptation culturelle et de l'accessibilité du Web de notre grille sont tirés des travaux de House, Pym, Reiss, Esselink, Jiménez-Crespo, Rodríguez Vázquez et du W3C.

Afin de nous assurer de la pertinence de nos critères d'évaluation de l'accessibilité du Web, nous avons procédé à des entrevues semi-dirigées auprès d'internautes aveugles et amblyopes bilingues (FR et EN) a qui nous avons au préalable expliqué les rudiments de la localisation et qui avaient aussi pris connaissance des pages Web de notre corpus.

Une fois nos critères bien établis, nous avons évalué les pages Web choisies.

1.3 Résultats

Nous croyons que le laxisme en matière de législation au Canada à propos de l'accessibilité du Web explique peut-être pourquoi les principes et les règles de l'accessibilité du Web sont majoritairement omis. Aucune des six pages en français et aucune des six pages Web en anglais présentant le mot du maire (ou ce qui s'y rapproche le plus) des villes d'Ottawa, de Montréal, de Sherbrooke, de Québec, de la Région Administrative Kativic et de Moncton que nous seule avons évaluées ne respecte les règles afin de rendre les images et les graphiques accessibles aux personnes aveugles. En d'autres termes, les textes alternatifs sont manquants ou rédigés médiocrement et ils sont, par conséquent, mal traduits. Nous avons aussi remarqué que les principes d'accessibilité pour les cybériens amblyopes, soit le ratio de contraste (4,5 : 1) et le redimensionnement (200 %) du contenu textuel dans le cadre de la fenêtre de consultation, ne sont que rarement respectés.

Nos observations en ce qui a trait à la localisation sont elles aussi évocatrices d'un manque de rigueur : quatre sites Web sur cinq[36] n'offrent aucun lien d'évitement et seulement deux sites Web sur cinq [37] ont appliqué les règles de l'internationalisation, c'est-à-dire que les pages Web répondent aux exigences des conventions linguistiques et culturelles sans

avoir à être recodées comme, par exemple, le respect des règles d'écriture pour les signes monétaires ou les formats de date et d'heure.

Finalement, les règles de grammaire et la sémantique de la langue de la minorité (le français au Canada anglais et l'anglais au Québec) sont malmenées. Nous laisserons cet aspect de côté pour la suite de notre communication puisque la traduction fait l'objet de nombreuses recherches.

1.4 Analyse

Ainsi, les résultats que nous avons obtenus lors de l'évaluation de la qualité des pages Web que nous avons testées concordent avec les conclusions que Rodríquez Vázquez et O'Brien ont soulevées lorsqu'elles ont interviewé 15 employés de six grands cabinets de localisation afin de découvrir si l'accessibilité du Web faisait partie de leur offre de service. Les données qu'elles ont recueillies suggèrent que l'accessibilité du Web n'est toujours pas une préoccupation pour l'industrie de la localisation. (2017, p. 246)

Nous croyons que les localisateurs ont leur lot de responsabilités lorsqu'il est question de l'accessibilité du Web. D'abord, parce que nous avons remarqué que les critères d'évaluation de la qualité de la localisation et de l'accessibilité du Web que nous avons retenus lors de la création de notre grille d'évaluation testaient les mêmes caractéristiques, soit la cohérence de l'interface visuelle, l'extratextualité et la convivialité des images en usant d'une terminologie différente pour parler des mêmes caractéristiques. Ensuite, parce que les localisateurs professionnels participent activement au développement du Web. Rodríguez Vázquez et O'Brien (2017, p. 240) soulignent que lorsqu'un site Web est localisé, il est réécrit et adapté culturellement pour les besoins du public cible par une tierce entité (le localisateur). Dans les circonstances, les créateurs du site Web de départ ne perçoivent pas le clone qui se décline dans une autre langue comme le leur. Qui plus est, Rodríguez Vázquez (2013) rapporte les résultats d'un sondage qu'elle a mené auprès d'experts de l'accessibilité du Web qui suggèrent que les

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[36] Ce critère d'évaluation ne pouvait s'appliquer au site Web de la Ville de Montréal puisque la page évaluée était trop courte pour contenir un lien d'évitement.

[37] Ce critère d'évaluation ne s'applique pas à la Ville de Sherbrooke puisque leur site Web ne présente pas suffisamment de pages traduites pour déterminer si ce critère est respecté.

professionnels de la localisation sont jugés responsables de la qualité de l'accessibilité d'un site Web au même titre que les designers et les webmestres.

Néanmoins, nous ne pensons pas que seuls les localisateurs sont responsables de l'accessibilité du Web, mais ils devraient connaître les règles et directives du W3C. Par ailleurs, lorsqu'un traducteur découvre des erreurs dans un texte de départ, il ne se demande pas s'il doit en parler ou non à son client. Bien au contraire, il lui est fortement recommandé de transmettre ces informations au client qui s'empressera d'apporter les corrections au texte de départ. Alors, pourquoi est-ce que les localisateurs ne font pas de même lorsqu'ils sont face à des règles ou à des principes de l'accessibilité du Web qui ne sont pas respectés? En fait, si les localisateurs faisaient lors de la gestion de projets la promotion des règles et des principes de l'accessibilité du Web, ils participeraient à l'éradication d'une discrimination qui touche et touchera de plus en plus de cybernautes.

1.5 Conclusion

Comment sensibiliser les localisateurs de demain et ceux qui travaillent au moment présent en cabinet? Nous croyons que les principes et les règles de l'accessibilité du Web devraient être enseignés dans les cours de localisation du Web offerts dans les programmes universitaires de traduction de premier cycle.

Nous avons exploré les programmes de traduction donnés dans les universités canadiennes pour déterminer si l'accessibilité du Web faisait partie des cursus. C'est avec surprise que nous avons découvert que la localisation n'est enseignée que dans le cadre du baccalauréat Spécialisation en traduction de l'Université Concordia. Il est ici question de la localisation au sens large, c'est-à-dire que les caractéristiques de la localisation des logiciels, des applications, des jeux vidéo ou du Web, omniprésent dans nos vies, ne sont pas détaillées à la relève. Il faut, pour se familiariser avec ces domaines d'études, suivre une formation universitaire de cycle supérieur ou s'inscrire à un ou des cours dans une discipline connexe comme les sciences du Web.

De fait, l'objet de notre projet de recherche doctorale se penchera sur la création d'un cours de 45 heures qui sera axé sur la localisation du Web où les principes et les règles de l'accessibilité pour les internautes aveugles et amblyopes seront au cœur de l'enseignement.

Nous considérons comme Rodríguez Vázquez (2014) que la création de ce cours, dans un contexte où l'accessibilité universelle devient une préoccupation sociale, est plus que nécessaire. Après tout, l'accès au Web dans un format accessible pour tous devrait être un droit fondamental.

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Annexe

Grille d'évaluation de la qualité de la traduction, de la localisation et de l'accessibilité.

Linguistique (traduction)				
Critère	*Passable*	*Bien*	*Très bien*	*Solution*
Valeur informative et communicative				Modifier le texte de départ ou le texte d'arrivée
Respect des règles d'écriture				Corriger
Simplicité du discours				Corriger

Accessibilité du Web			
Critère	*Oui*	*Non*	*Solution*
Contraste : 4,5 : 1			Modifier la feuille de style
Redimensionnement (200 %)			Corriger le code source
Interface clavier			Corriger le code source
Titres dans les pages (H1, H2, etc.)			Corriger le code source
Navigation cohérente ▪ copie conforme (SD vs SL)			Corriger le code source
Identification cohérente (terminologie) ▪ intégrité des menus (SD vs SL)			Corriger le code source
Analyse syntaxique du code source			Corriger le code source

Numérique (localisation)			
Critère	*Oui*	*Non*	*Solution*
Extratextualité			
Hyperlien(s) fonctionnel(s) ▪ hyperlien(s) d'évitement ▪ formulaire de recherche			Corriger le code source
Internationalisation ▪ Accents			
Convivialité des images			
Texte alternatif pertinent			Rédiger et/ou traduire
Traduction du texte alternatif			

Naming and Describing Characters
in Audio Description of Documentary Films

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Abstract

This study is based on my Master's thesis, which aimed to identify strategies to name and describe characters in audio description (AD) of documentaries. Since existing AD guidelines were mainly designed for feature films (Jekat and Oláh 2016: 76), my thesis examined whether those guidelines can be successfully applied to AD of documentaries. Firstly, the AD of trust WHO (Franck 2017) was analysed and strategies to name and describe characters were identified. A test was then carried out in order to assess the consumers' understanding of the film as well as the adequacy of AD. The test was attended by persons both with and without visual impairments. The results showed no significant differences between the two groups' reception of the film. Participants with visual impairments rated the AD as positive. Hence, the strategies used to name and describe characters can be evaluated as suitable for trust WHO. However, given the complexity of the film genre under investigation, the application of existing AD guidelines to documentaries requires further research.

1 Introduction

This paper [38] represents a summary of my Master's thesis, which deals with audio description (AD). In AD, visual elements of films, theatre plays, operas and other events are verbally described in order to make them accessible for blind or visually impaired people (VIP) (Benecke 2014b: 109).

AD is becoming increasingly important. On the one hand, due to legal and political advances, such as the Convention on the Rights of Persons with Disabilities (UN 2006), on the other hand, because of the demographic development, i.e. a steadily increasing ageing population (Habekuss 2017).

According to Jekat and Oláh (2016: 69), existing AD guidelines in German-speaking countries (cf. NDR 2015) were mainly designed for fiction films. Similarly, AD guidelines in other countries set a stronger focus on fiction and tend to neglect non-fiction films (Cámara and Espasa 2011: 418). The British ITC guidelines point out that documentary films benefit less from AD than fiction films as information in non-fiction films is mainly conveyed through the auditory channel (ITC 2000: 6). However, this rather generalising statement can be brought into question considering the numerous and various forms of documentary films currently available (cf. Wulff and von Keitz 2016: n.p.). In addition, fiction films and documentaries differ in various aspects (cf. Sponsel and Sebening 2009) and thus, according to Jekat and Oláh (2016: 71), it still has to be examined whether the existing AD guidelines can be successfully applied to AD of documentaries. One example that can be mentioned is the different role that film characters play in fiction and non-fiction productions (Eder 2008: 64). While fiction films characters are narrative or fictional, non-fiction films primarily document real people (cf. Fryer 2016: 112). It can be assumed that this and other differences have to be taken into account when audio describing documentaries.

Benecke (2014c: 141) states that audio describers have to consider two aspects pertaining to film characters: "how and when to name the characters and how and when to give

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a longer description of the appearance of a person". According to AD standards in German-speaking countries, the name of a character should be mentioned in AD only if it has been mentioned in the film beforehand; this standard aims to provide VIP the same film experience as sighted people (Dosch and Benecke 2004: 23). As long as the name of a character in the film is unknown, Benecke (2014a: 56) suggests the Interim Character Fixation for AD, whereby characters are "tagged" with significant attributes (e.g. physical attributes, e.g. the man with the beard). By contrast, in Great Britain, the characters are usually introduced in AD with their names right from their first appearance in the film (Benecke 2014c: 141f.). According to Benecke (2014c: 141) the naming of characters in AD "is still quite a controversial issue in the existing AD guidelines". Character descriptions, however, are considered "vital to effective AD" (Benecke 2014c: 142) in most guidelines. Regarding the AD of documentary films, however, Fryer (2016: 112) states that the physical appearance of characters in documentaries "is likely to have little bearing on our understanding of the subject matter" and should thus be regarded as less important. Similarly, the Interim Character Fixation, as proposed by Benecke (2014a: 56), could also be regarded as rather irrelevant to AD of documentaries.

In view of the above-mentioned considerations, the aim of my Master's thesis was to examine whether the existing AD guidelines in the German-speaking countries – as pertaining to the naming and describing of characters – can be successfully applied to AD of documentary films.

2 Methods

In order to answer the research question, three methods were applied. This methodological triangulation made it possible, on the one hand, to identify strategies for naming and describing characters in AD of documentaries and, on the other hand, to assess the adequacy of the applied strategies. First, the object of investigation, i.e. the documentary film *trust WHO* (Franck 2017), was analysed. Second, an analysis of the AD in terms of naming and describing characters was conducted. And third, a written test was carried out to assess the recipients' understanding of the film as well as the adequacy of the AD. For this

study, the AD script, the AD as audio file and the original film without AD were available.

2.1 Analysis of the source material

In a first step, the source material (i.e. the documentary *trust WHO*) was analysed in order to create a holistic understanding of the film, which seemed to be an important basis for the contextualisation of the following analysis. Since AD is mainly considered a product of translation (cf. e.g. Benecke 2014a: 43), the analysis of the film was based on a model from translation studies: Nord's model of source text analysis (Nord 2009). The analysis was restricted to the extratextual factors proposed by Nord (2009: 40) as they provide information about the communicative function of the source material. Due to time and scope restrictions, no detailed analysis of the source text material could be conducted, which is why the analysis is based on a statement by the film's director as well as on various film reviews.

2.2 Analysis of the AD

The analysis of the AD was based on an existing scientific analysis of the linguistic means used in the naming and describing characters in the AD of a feature film (cf. Hämmer 2005). The analysis aimed to identify the linguistic means and, secondly, to systemise them according to their semantic features (Hämmer 2005: 88). Following Hämmer's analysis, all persons appearing or acting in *trust WHO* were identified. Then, all persons who appear in the AD, along with the linguistic means by which the persons are named or described, were identified and classified according to their semantic features (based on Hämmer 2005). In addition, all linguistic means used for the first introduction of the persons in the AD were filtered out. In doing so, the strategy of how persons were introduced in the AD of *trust WHO* could be determined.

2.3 Test

Finally, a test was carried out in order to examine the object of investigation from a VIP's perspective. The test aimed to examine the participants' understanding of the film and to assess the adequacy of the AD of *trust WHO*. The test was carried out with four VIP (hereafter group 1), one participant (PN) being congenital blind, two PNs being late blind and one PN with visual impairment and four people without visual impairment (hereafter group 2). This pool

of participants allowed me to make a comparison between the understanding of the film of the two groups and to draw conclusions about the adequacy of the AD of *trust WHO*.

Group 1 was shown the audio described version of the film, whereas group 2 was shown the original film without AD. Successively, the PNs were asked to fill out the written test. For each of the two groups, a different questionnaire was designed. Both questionnaires contained questions on the objective and subjective understanding of the film as well as questions on the personal opinions of selected persons appearing in the film. Both closed and open-ended questions were asked. As mentioned above, the questionnaire for group 1 contained additional questions on the AD of *trust WHO*.

3 Results

A summary of the results is presented below and discussed under Section 4 (complete analyses and results are presented in Lintner 2018).

3.1 Analysis of the source material

The analysis of the source material has shown that director Lilian Franck aims to shed light on the acting of the World Health Organization (WHO) and thus intends to inform her audience. On the other hand, in the film Franck assumes the role of a responsible mother who is worried about her daughter's future. This personal element can, for instance, be identified through numerous images of playing children shown in the film, including her daughter. This suggests that Franck's goal is not only to raise awareness but also to reach her audience on an emotional level.

3.2 Analysis of the AD

Ninety-three persons appearing in *trust WHO* were identified, 76 of whom are also mentioned in the AD. Compared to the analysis conducted by Hämmer (2005: 89), which identified 25 characters, this is a relatively high figure.

The majority of the persons in the AD (46 out of 76) are introduced in the AD by the Interim Character Fixation suggested by Benecke (2014a: 56); 23 persons are introduced in the AD with their name right from their first appearance in the film; 17 of these persons were also previously introduced by name in the film (original soundtrack or fade-in). The remaining 6 persons who were not previously introduced

by name in the film are exclusively public figures (e.g. Angela Merkel, Barack Obama).

The remaining 7 persons were introduced indirectly, e.g. Ed Miliband to David Cameron: "in the British House of Commons:…".

A look at the determined semantic features (based on Hämmer 2005) shows that the persons in the film are described in a very differentiated way. The linguistic means for the Interim Character Fixation mainly contained personal information about the people (sex, age, etc.) but also information about their physical appearance (hair colour, clothing, etc.).

3.3 Test

As far as the film comprehension is concerned, group 1 (VIP) performed slightly better than group 2, although group 2 considered their subjective understanding of the film to be better. However, a comprehensive assessment of the PNs' understanding of the film requires a more extensive and detailed study.

With regard to the personal opinion of the selected persons appearing in the film, no differences could be found between the two groups. Moreover, no statements can be made as to whether the assessments of group 1 can be traced back to the descriptions in the AD; this could also be the object of further research.

All PNs from group 1 (VIP) evaluated the AD of *trust WHO* positively. However, it was noted from one PN that the complexity of the film makes it impossible to produce what the PN considers a "very good AD" for *trust WHO*. Aspects mentioned with respect to the complexity of the film were, for instance, the large amount of people, some of whom appear only very briefly and speak different languages, the resulting high number of different voices as well as the fast and frequent scene changes. Nevertheless, all PNs in group 1 stated that they were able to follow the audio described film well. However, all PNs stated that throughout the film it was not always clear for them which person was talking. Only one PN stated though that he or she could have followed the audio described film better if the persons had been named in the AD at their first appearance in the film. One PN expressed the wish for more detailed character descriptions.

4   Discussion

The analysis of the AD showed that the persons appearing in the film are introduced and described in the AD using strategies that correspond to the AD standards in the German-speaking countries (see Section 3.2). The persons in the AD are mainly introduced by the Interim Character Fixation proposed by Benecke (2014a: 56). It can be assumed that large numbers of characters could pose a challenge for the production of AD scripts, as numerous characteristics should be worked out in order to enable the recipients to clearly differentiate between the characters. In the test carried out, some PNs noted that the large number of persons and the resulting high number of different voices had a negative impact on their understanding of the film.

The semantic classification of the linguistic means used to introduce and describe the persons in the AD, showed that the latter are described in a rather differentiated way. This observation contradicts Fryer's statement (2016: 95) that descriptions of characters in documentary films seem less important (see Section 1).

Following Fryer's argument, it could also be argued that the descriptions of the children who repeatedly appear in *trust WHO* are not relevant, since they do not contribute to the conveyance of information. However, if we consider that the director not only intends to inform but also to reach her audience on an emotional level (see 3.1), the descriptions do seem to be important. Hence, if a documentary film aims to reach its audience on an emotional level, the description of the characters can make a significant contribution to this purpose. It is therefore to be concluded that descriptions of persons appearing in documentary films are more or less important depending on the film's dramaturgical elements.

It was also noted that the PNs from group 1 (VIP) referred more frequently and in more detail to the children appearing in the film than the PNs from group 2 (people without visual impairment). Whether this can be attributed to the numerous descriptions of the children in the AD cannot be assessed. However, if this is the case, it could also be concluded that consumers of audio described films comprehend films in more detail.

This was also noticed when analysing answers on the film comprehension. There were no significant differences in the results between the two groups. However, group 1 performed slightly better than group 2 and group 1 also answered some of the open-ended questions in more detail.

5   Conclusion

Based on the positive feedback on the AD from PNs with visual impairment, it can be assumed that the strategies used to introduce and describe persons in the AD of *trust WHO* – which correspond to the German AD standards and which were mainly designed for the description of feature films – have proved to be suited for the film under investigation. This could be due to the presence of the above-mentioned dramaturgical elements of *trust WHO*. No statements can be made as to whether such differentiated descriptions of the characters are also suitable for AD of other forms of documentaries – e.g. for documentaries which clearly focus on information transfer or for documentaries with only few dramaturgical elements. If this were to be confirmed in further research, it could be considered that documentary films are classified on the basis of their dramaturgical elements. Depending on them, the production of the AD script could be oriented more or less strongly to the AD guidelines, which are mainly designed for feature films. The strategies for naming persons in AD could be redefined for documentaries with a strong focus on the transfer of information.

In addition, more detailed research on the linguistic means used to introduce and describe persons could provide insights into the extent to which linguistic means influence the film perception of the audience.

The large number of people appearing in the film has proved to be problematic both in the AD analysis and in the test. The analysis of the AD has shown that due to the numerous conversations held in the film, only few or short pauses were available for descriptions. Therefore, not all persons appearing in the film could be introduced in the AD. In this respect, a closer cooperation with filmmakers could facilitate the production of AD scripts, for instance by including as much visual information as possible in the original

soundtrack (e.g. for fade-ins), as suggested by Jekat and Oláh (2016: 76).

In view of the increasing number of audio described documentaries (cf. e.g. DOK Leipzig 2017; Linder n.d.; ORF n.d.), the development of specific guidelines for documentary films would be desirable. These are essential for quality assurance as well as for the development of training courses for film describers. As Cámara and Espasa (2011: 417) state: "AD has been addressed in non-fiction documents only as an exceptional case". However, as I tried to demonstrate in this paper (cf. Lintner 2018), documentaries as a film genre are very complex and pose numerous specific challenges for AD.

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EASIT: Easy Access for Social Inclusion Training

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Abstract

This paper presents EASIT, an Erasmus + funded project that aims to define the skills of a new professional profile in Easy Reading (ER) and to develop innovative training materials. The focus in the EASIT project is on audiovisual content and on the hybridization of ER with other existing access services such as subtitling.

1   Introduction

Easy Reading (ER) is an access service that creates or adapts texts so that they are easier to read and understand (Tronback 1996, García Muñoz 2014, Maass 2015). Originally focused on printed texts and addressed to persons with reading difficulties or cognitive disabilities, ER can actually benefit all types of users. It can also be expanded to other formats, such as audiovisual content, by importing or adapting ER guidelines into other access services and formats (Bernabé and Orero forthcoming).

Open source training materials in ER are scarce and the professional profile of the experts involved in ER is not yet fully established across Europe, hence the EASIT project was born. EASIT aims to define the skills of the new professional or expert in ER, to design a curriculum in ER and to develop innovative educational materials, while approaching certification. To define both the professional skills and the content of the open educational resources, it will be necessary to define current practices and analyse how they can be transferred into the audiovisual realm.

The project, led by Universitat Autònoma de Barcelona, involves partners from different backgrounds and countries: Spanish, German and Italian universities (Universidade de Vigo, Sprachen und Dolmetscher Institut Munchen, Stiftung Universität Hildesheim, Università degli Studi di Trieste), Swedish and Slovenian associations (Dyslexiförbundet, Zavod RISA), and a broadcaster (RTV Slovenija).

This paper aims to provide a wide overview of the project, which started in September 2018 and will last three years, highlighting the work done in its initial stages.

2   Understanding current practices

There are existing guidelines and recommendations at European and national level on ER (Inclusion Europe 2009, IFLA 2010, Accessible Working Group 2011), with specific work in areas such as health and social care services (Mencap 2013), to put just one example. An experimental standard has also been developed in Spain (UNE 2018), and a proposal for a standard at ISO is currently being discussed. However, a better understanding of ER practice and training needs to be achieved, in order to identify shared practices across Europe. This will be achieved in the EASIT project by means of an extensive survey. Additionally, since our interest lies on audiovisual content, it is crucial to discuss with professionals involved both in ER and audiovisual media accessibility how ER could be merged with other existing access services such as audio description, subtitling or audio subtitling. This aim will be achieved by means of focus groups or interviews with audiovisual access service experts, who will discuss how ER guidelines could be transferred to audiovisual content. The design for the survey, for the focus group protocol and for the semi-structured interview is currently being developed in a collaborative way by all project partners, and will then be translated into the project languages.

3   Profile and curriculum definition

Based on the input received from the previous steps in the project, a skills card for the new professional profile will be developed. This new professional will be able to create ER content

from scratch or adapt existing content, two of the current possible scenarios. The project will also consider the possibility of defining the profile of the users validating the ER content. Finally, the project will also evaluate how additional skills could be added to already existing profiles developed as part of the projects ADLAB PRO (on audio description) and ILSA (on subtitling). This aspect is highly innovative as it proposes to merge already established skills with new ones, improving the professionals' employability.

The next step in the project will be to design a curriculum to train the experts in ER, by defining learning outcomes, curriculum and course structure, and number of credits. In this regard, it would be interesting to consider also both situations indicated above, namely professionals who are trained on ER but also professionals who have already been trained in other audiovisual access modes and want to expand their skills. All this process will be carried out taking into account certification procedures available at European level in order to guarantee the project sustainability and impact.

4   Creating educational resources

The central part of the EASIT project will be the creation of multilingual training materials both for standard ER and for hybrid services in which ER may be integrated (easy-to-read subtitles, easy-to-read audio description, etc.).

Following Europe's open access agenda, materials will be openly available and will allow both for self-learning and for their inclusion in existing courses. In other words, the aim is not to create a finished and closed course, but to generate open access materials that can be used in different educational settings.

Although ER includes many language-dependent features, the focus on the current project will be on multilingual generic content that can be shared across Europe. The content will be created first in English and then translated into different languages (Catalan, Galician, German, Italian, Slovene, Spanish, and Swedish), representing Europe's multilingual nature.

When creating training materials on an access services such as ER, accessibility features will be taken into account. This is why EASIT has a dedicated Accessibility Manager who will take care of accessibility issues by suggesting the best strategy when developing materials. In this regard, accessibility will not be considered an afterthought but will be part of the content development itself.

5   Conclusions

Generating content which is easier to read and easier to understand is much needed in many areas of our society. All users, regardless of their capabilities, should have access to information in a clear and understandable format. However, in order to provide high quality content that diverse users can understand, more training opportunities are needed. Providing the tools and resources for such training to be a reality across Europe is the ultimate aim of the project, which will not stay only in the academic sphere but will also involve end users and relevant stakeholders. In this regard, EASIT follows the slogan "nothing for us without us" and puts users at the center of its methodological design, by involving user representatives together with broadcasters, trainers and researchers.

Credits

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Configuration et évaluation d'un système de prédiction de mots au sein d'un logiciel de Communication Améliorée et Alternative (CAA)

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Résumé

Cet article présente la configuration et l'évaluation d'un système de prédiction de mots ainsi que d'un logiciel de Communication Améliorée et Alternative (CAA) pour les personnes handicapées. En plus d'avoir une mobilité réduite, ces utilisateurs ont un usage de la parole altéré qui doit être compensé par une aide technologique proposant des modalités de saisie adaptées à leurs capacités et permettant d'améliorer leur vitesse de communication. Le paramétrage de prédicteurs statistiques a été évalué par un simulateur et testé par une personne handicapée. Les résultats montrent qu'un modèle de langage lissé trigramme construit à partir du corpus Google Books Ngram permet d'économiser plus d'une saisie sur deux, les performances de ces systèmes variant en fonction de plusieurs paramètres.

1 Introduction

Dans une société où la circulation de l'information et de la communication est devenue un réel enjeu, l'écart avec les personnes en situation de handicap qui connaissent à la fois de sévères difficultés pour se déplacer et communiquer pourrait s'avérer davantage problématique. De nombreuses recherches sont néanmoins menées depuis des années dans le domaine du handicap et des aides logicielles. Certaines d'entre elles aboutissent à des prototypes opérationnels qui sont parfois commercialisés. Les personnes paralysées dont la communication est altérée ont désormais la possibilité de se procurer ces Communications Améliorées et Alternatives (CAA). Disponibles sur ordinateur ou tablette, elles permettent à l'utilisateur de communiquer en utilisant un clavier virtuel associé à une prédiction de mots (Antoine and Maurel 2007; Garay-Vitoria and Abascal 2006) afin d'améliorer leur vitesse de saisie souvent réduite en raison de leurs capacités motrices. Le message peut alors être synthétisé.

Nous présenterons d'abord le système de prédiction Presage et l'interface ACAT (section 2), nous décrirons ensuite notre méthodologie (section 3), nos résultats (section 4) ainsi que certaines perspectives (section 5).

2 Presage et ACAT

Les deux outils que nous avons configurés et évalués ont été conçus de manière indépendante et sont tous les deux open source.[39] Nous avons testé la version 0.9.1 (2015) de Presage et 1.0.0 (2016) d'ACAT.
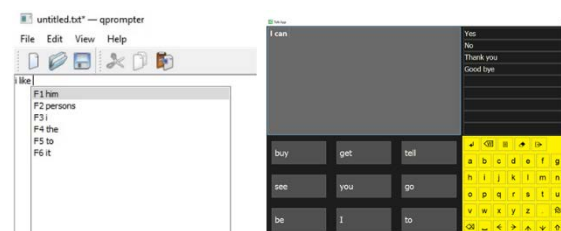

Figure 1. Interface de Presage et ACAT.

Presage (anciennement Soothsayer) est un système de prédiction de mots développé par un chercheur dans le cadre de sa thèse (Vescovi 2004). Il est constitué de plusieurs prédicteurs statistiques ou modèles de langage n-grammes. Presage fonctionne à partir de corpus encodés sous la forme de base de données. Il propose une liste de mots les plus probables à l'utilisateur.

Assistive Context-Aware Toolkit ou ACAT est l'interface utilisateur développée par Intel

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[39] Presage est disponible en ligne sur SourceForge (http://presage.sourceforge.net/) sous la *GNU General Public License version 2.0* et ACAT (https://01.org/acat) sur GitHub (https://github.com/01org/acat) sous l'*Apache License version 2.0*.

Corporation et initialement conçue pour le physicien Stephen Hawking atteint d'une sclérose latérale amyotrophique (Denman et al. 2016). Presage est inclus par défaut dans la version adaptée au public. ACAT est un système de CAA en anglais qui comprend deux modes (*Talk* ou *App*) ainsi que plusieurs claviers virtuels accessibles via différentes modalités de saisie. Le système de défilement permet à l'utilisateur qui ne peut pas se servir d'une souris de sélectionner les caractères et les mots à l'aide d'un détecteur de mouvements des sourcils, des joues ou de la bouche via une webcam. En raison des caractéristiques du handicap de notre utilisateur de test, nous ne l'avons pas utilisé. Le logiciel étant libre, des packs de langue sont disponibles sur GitHub.

3 Méthodologie

L'objectif était d'évaluer diverses configurations de Presage afin d'analyser leur efficacité et leurs performances en termes d'amélioration de la communication. Nous avons étudié l'impact de plusieurs paramètres : le corpus, le modèle de langage n-gramme, le nombre de prédictions lexicales à afficher, mais aussi l'interaction et la satisfaction de l'utilisateur concernant l'interface. Pour ce faire, nous avons procédé à des évaluations quantitatives et qualitatives.

3.1 Configuration

Par défaut, Presage est basé sur un modèle de langage trigramme lissé, entraîné à partir d'un livre libre de droit. Nous avons donc d'abord constitué des corpus d'entrainement et de test. Nous avons employé la version française de Google Books Ngram[40] (Michel et al. 2011) de 2009 que nous avons tokenisée et traitée (46 786 461 uni/bi/trigrammes). Nous avons testé deux autres corpus d'entrainement : l'un était constitué du livre À se tordre d'A. Allais (38 123 mots) et l'autre de textes Perso représentant l'idiolecte de potentiels utilisateurs (18 337 mots), c'est-à-dire composés d'une interview et de plusieurs articles de blog écrits par deux personnes handicapées. Le corpus de test consistait en une centaine de phrases simples ne faisant pas partie des corpus d'entrainement, mais issues de diverses sources et destinées à refléter différents usages.

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[40] Le corpus sous forme de n-grammes est disponible (http://storage.googleapis.com/books/ngrams/books/datas

3.2 Simulations

Afin d'évaluer le système de prédiction de mots, trois métriques ont été utilisées : le *Keystroke Saving Rate*, le taux d'économie de saisie qui ne prend pas en compte l'interface et le *hit ratio*.

$$KSR = 1 - \frac{ki + ks}{kn} * 100$$

où ki est le nombre de saisies réalisées, ks le nombre de saisies nécessaires pour sélectionner la suggestion (dans notre étude ks = 1 par mot) et kn le nombre de saisies qui auraient été nécessaires pour composer le texte sans utiliser le système prédictif. Le taux d'économie est similaire au KSR, mais ks n'est pas calculé.

$$Hit\ ratio = \frac{nombre\ de\ mots\ prédits}{nombre\ total\ de\ mots} * 100$$

Le *hit ratio* désigne le taux d'utilisation de la prédiction.

3.3 Test utilisateur

Afin d'évaluer Presage intégré à ACAT, nous avons effectué un test utilisateur avec une personne handicapée ayant une Infirmité Motrice Cérébrale (IMC) athétosique. D'après un premier questionnaire, elle utilise régulièrement des systèmes de CAA intégrant la prédiction de mots. Le participant était un adulte qui ne parle pas, ne présente pas de déficience intellectuelle et a un bon niveau de français. Nous lui avons demandé de recopier une vingtaine de phrases issues du corpus de test et d'utiliser la prédiction dès que le mot correct était affiché dans la liste.

Figure 2. User experience.

Il avait aussi la possibilité d'utiliser certaines abréviations grâce à un mécanisme de désabréviation automatique. Pour sélectionner les caractères et les prédictions, il a utilisé la souris avec ses pieds (Figure 2) car la crispation de son visage ne permettait pas d'utiliser la reconnaissance de mouvements. Après l'expérience que nous avons enregistrée avec

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l'outil Morae, nous lui avons envoyé un questionnaire et l'échelle du *System Usability Scale* ou SUS (Brooke 1996) a été utilisée. Les paramètres de Presage ont été déterminé en fonction des résultats théoriques obtenus avec le simulateur.

4   Résultats

Les simulations ont montré que le modèle de langage trigramme lissé avec interpolation linéaire entrainé avec le corpus *Google Books Ngram* obtenait les meilleures performances et permettait d'économiser plus d'une saisie sur deux en proposant 5 prédictions (Table 1).

	Google Books	*À se tordre*	*Perso*
KSR	**57.932%**	39.617%	39.020 %
T. d'économie	**75.052%**	54.705%	53.181 %
Hit ratio	**90.094%**	79.402%	74.528 %

Table 1. Résultat par corpus.

Nos résultats ont aussi montré que le modèle trigramme entrainé avec *Google Books Ngram* était meilleur que le modèle unigramme ou bigramme (Table 2). En l'associant avec un modèle trigramme utilisateur, nous avons également observé une amélioration de 1 à 2 %.

	Unigramme	*Bigramme*	*Trigramme*
KSR	43.800%	54.108%	**57.932%**
T. d'économie	60.382%	71.287%	**75.052%**
Hit ratio	87.264%	**90.408%**	90.094%

Table 2. Résultats par nombre de n-grammes.

Toujours entrainé avec *Google Books Ngram*, nous montrons que plus le nombre de prédictions est grand, plus les résultats sont élevés (Table 3).

	1	*5*	*9*
KSR	45.354%	57.932%	**61.458%**
T. d'économie	60.501%	75.052%	**78.996%**
Hit ratio	79.716%	90.094%	**92.295%**

Table 3. Résultats par nombre de prédictions.

Ces différents tests ont permis d'identifier les paramètres à implémenter dans ACAT pour le test utilisateur, c'est-à-dire le modèle de langage trigramme lissé, entrainé à partir du

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[41] Tous les fichiers relatifs à cette étude sont disponibles en ligne
(https://github.com/Galami/WordPrediction_AAC).

corpus *Google Books Ngram,* associé à un modèle utilisateur et proposant une liste de 9 prédictions.

Les vidéos du test utilisateur[41] ont montré que la personne évaluée ne sélectionnait pas toujours la prédiction correcte dès qu'elle apparaissait dans la liste. Le participant qui avait l'occasion d'utiliser les abréviations préalablement encodées dans ACAT n'en a employées que quatre sur les dix occasions. Le score obtenu avec le SUS était de 70 % donc presque bon (73 %).

Durant l'*user experience*, nous avons observé que plusieurs propositions étaient mal contextualisées, que des mots étrangers, inexistants ou des sigles (qui ne seront probablement jamais utilisés) étaient proposés. L'utilisateur a reporté avoir été confronté à quelques bugs, mais a reconnu avoir été satisfait des systèmes et des prédictions.

5   Conclusion

Cet article a montré qu'entrainé avec un modèle trigramme et le corpus *Google Books Ngram*, Presage permettait d'économiser plus d'une saisie sur deux. Nos résultats liés au nombre de n-grammes et de prédictions ont confirmé ceux trouvés dans la littérature (Wandmacher 2008). Le test d'ACAT par une personne handicapée était centré sur l'étude de l'interaction et de la satisfaction d'un potentiel utilisateur.

Nous pouvons conclure que ces deux systèmes offrent des possibilités intéressantes. Notre étude s'est limitée à un test utilisateur. Néanmoins, elle a permis de relever une charge cognitive élevée, certains problèmes ergonomiques, mais aussi de compléter l'évaluation du système de prédiction. Il serait intéressant d'évaluer d'autres utilisateurs handicapés et de contribuer à l'amélioration ainsi qu'à l'accessibilité de ces systèmes *open source*.

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Making Immersive Media Environments Accessible: The Immersive Accessibility Project

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Abstract

The goal of Immersive Accessibility (ImAc), which has been funded by the EU in the frame of the H2020 programme, is to explore how accessibility services can be integrated with immersive media. This article will describe the new deployment methods for these accessibility services: Subtitles, Audio Description, Audio Subtitling, Sign Language in immersive environments.

1 Introduction

The European Commission has a clear policy towards media accessibility. It is framed within the United Nations Convention on the Rights of Persons with Disabilities[42] (CRPD). The CRPD is the fundamental instrument and sets the context worldwide from where to develop accessibility plans and strategies. CRPD is legally binding and sets minimum standards for the rights of people with disabilities. It is the first human rights convention having the European Union as a party. The Council of the European Union (EU) adopted the Decision for the conclusion of the Convention[43] on 26 November 2009. For the EU, the CRPD entered into force on 22 January 2011. This means that nowadays all the EU countries have signed the Convention. There is also an Optional Protocol which out of the 27 EU countries 23 have also signed, and 21 have ratified[44].

The CRPD aims to guarantee that people with disabilities can enjoy their rights on an equal basis with all other citizens, and it sets out minimum requirements for safeguarding a full range of civil, political, social, and economic rights. The convention reflects the EU commitment to building a barrier-free Europe for the estimated 80 million people with disabilities that will live in the EU in 2020, as set out in the European Commission disability strategy[45], which in the case of media also joins the European Digital Single Market[46].

This is especially evident in a multilingual Europe, where 100% of EU residents require translation (or language accessibility) at one point. As a result of these policies funding for media accessibility in Europe in broadcast has had a proactive approach. When Europe was changing from analogue to digital TV the EC funded DTV4ALL[47], to secure accessibility services in the new digital format. Years later Europe has developed its own broadcast standard for both broadcast and broadband named HbbTV. Accordingly the EC funded the project HBB4ALL[48] to secure mature accessibility solutions in the new hybrid and connected broadcast scenario.

The new immersive media context and its mainly application for learning also posed a challenge to accessibility. ImAc[49] was funded by EC to establish accessibility solutions in this new media format.

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[42] https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

[43] https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

[44] http://europa.eu/rapid/press-release_IP-11-4_en.htm

[45] http://europa.eu/rapid/press-release_IP-10-1505_en.htm?locale=en

[46] https://ec.europa.eu/digital-single-market/en/policies/shaping-digital-single-market

[47] http://www.psp-dtv4all.org

[48] http://pagines.uab.cat/hbb4all/

[49] http://www.imac-project.eu

2   The challenge

ImAc decided to move away from the constraints of the current technology, into a hyper-personalized environment where the consumer can fully customize the experience to meet his personal needs (Mas and Orero forthcoming).

The key action in ImAc is to ensure immersive experiences are inclusive across different languages, addressing the needs of those with hearing and vision loss, learning difficulties and the aged.

The project departed to solve expected challenges (Agulló and Orero 2017), such as designing accessibility editors for 360º content (subtitling editor, audio description editor, sign language editor and accessibility content manager) or how to signal speaker directionality in subtitling or sign language interpreting (Montagud et al. 2018 a, 2018b, Agulló et al. forthcoming).

3   Immersive subtitles

This project is also looking at how the end user will access the content. This was not taken into consideration in previous projects such as DTV4ALL or HBB4ALL that focused only in the accessibility to media content, disregarding how the end user would access it.

Designing a user interface was one of the first tasks, and to this aim the icon shown in Figure 1 in the red square was used.

Figure 1. Icon for user interface.

The next screen is the menu with all the possibilities on offer to define accessibility features, as can be seen in Figure 2: Languages, Easy to Read, Position, Background, Size, indicator and Area.

Figure 2. Hyper personalization menu options.

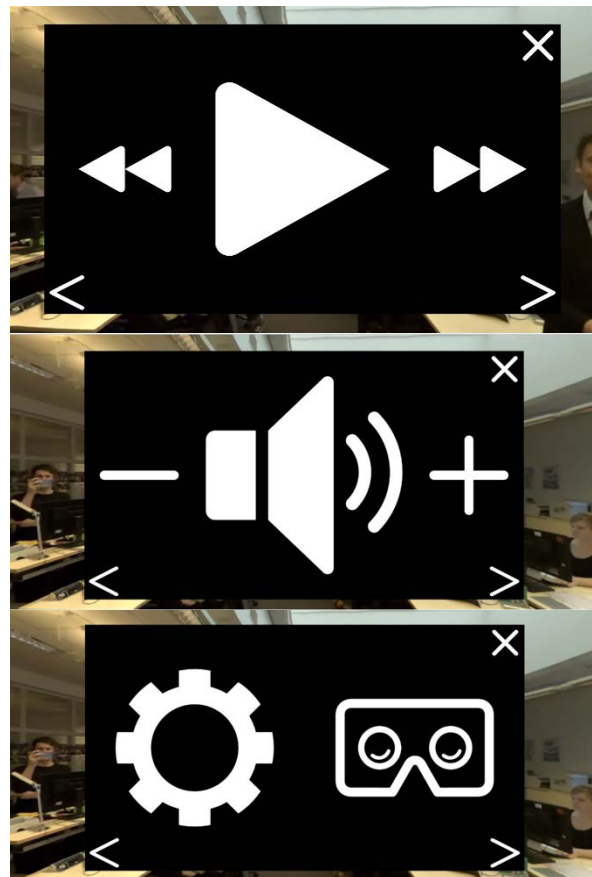Then the player itself had to be designed with icons which are standard as in Figure 3 icon for play.

Figure 3. Icons for the player.

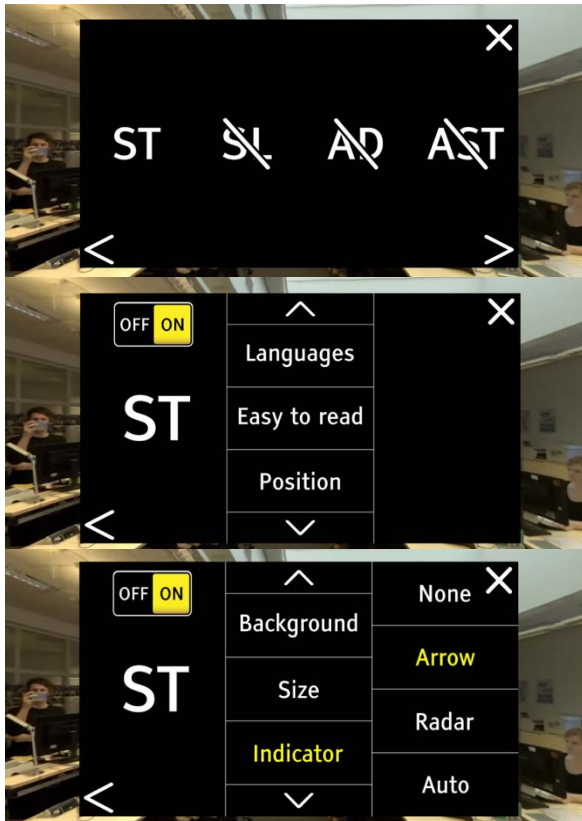And new ways of interaction such as those in Figure 4 for services.

Figure 4. Menu for services.

It was also important to design the presentation modes for guiding the end user towards the speaker, as can be seen in Figure 5, with an arrow, or with a compass.

Figure 5. Icons for presentation modes.

All the above user interaction possibilities have been designed following a bottom up approach. This is performing focus groups with end users who defined the best way. These presentation modes will now be piloted towards finding the best solution.

4 Omnidireccional Audio Description

Audio description in 360º media presented new challenges also. What was not expected was the effect of 360º sound possibilities on audio description (AD) (Bernabé and Orero forthcoming, Fydika and Matamala forthcoming). This opened the door to new AD writing styles depending on the type of sound used (Orero et al forthcoming). Three options have been defined. The first is what has been defined by Orero et al (ibid) as "Voice of god", that is when the sound source surrounds the listener. The second possibility, allowed by sound object technology, is to locate the sound to the place where the action is taking place. In this case the AD is enriched by the information offered by the sound location and direction, and this is reflected in the AD script. Finally, another immersive AD possibility is the one where you can have the AD delivered related to the consumer enjoying the content. In this case the AD is drafted as if it was someone speaking to the end user, and in relation to the end user dynamic position.

ImAc has now finished defining the accessibility features to be developed for the services: subtitling, audio description, sign languages, and audio subtitling. System and technology requirements have been drawn following a user centered approach (Matamala et al. 2018), in which users have been consulted through a series of focus groups and one-to-one interviews.

The current step in the project is a pilot in which the actual developments, in their first iteration, are implemented in different types of content and are tested by end users using the ImAc accessible player. Two types of users will be involved in the testing: on the one hand, professionals testing the production tools and, on the other, end users testing the actual accessibility services and the interface that gives access to the accessibility services.

5 Conclusions

ImAc aims to research accessibility services in immersive environments putting the users at the center of the research design and considering accessibility as part of the process. Accessibility should not be regarded as an afterthought: rather it should be considered throughout the design, production and delivery process, and this is the approach that the ImAc project has taken.

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Challenges and Solutions Towards Accessible MOOC Content: The ACT MOOC

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Abstract

Designing a MOOC on accessibility poses many challenges. It is also a great platform to test what the MOOC preaches: media accessibility. This article presents the challenges and solutions taken when an accessible MOOC for Coursera was designed and launched.

1   Introduction

Designing an accessible MOOC is a challenge (Iniesto et al. 2014; Pascual et al. 2014; Seale 2014). Accessibility requirements (Sánchez-Gordón and Luján-Mora 2016) should be met in terms of the platform services, user interface, learning content and resources, and learning assessment activities. While much literature focuses on the platform interaction (Iniesto and Rodrigo 2016) and user interface requirements (Ngubane-Mokiwa 2016) little is dedicated to the content or assessments (Sánchez-Gordón and Luján-Mora 2014) and user experience (Sánchez-Gordon and Luján-Mora 2015). This difference is probably due to the nature, field of knowledge, and format of the learning content (Orero and Tor-Carroggio 2018). It is not the same to access mathematical formulae or statistics as it is to read a music score or follow any of these as a PowerPoint presentation or a movie. A multiplicity of topics and formats defy unified solutions or guidelines following a mainstreamed Universal Design approach (Ngubane-Mokiwa 2016). The following sections describe the challenges and solutions posed when designing MOOC on accessibility

for Coursera at the Universitat Autònoma de Barcelona (UAB). The objective of the course is to make cultural venues and cultural content or production accessible to all citizens, and especially to persons with disabilities, with the idea of mainstreaming accessibility so all people have equal access to culture.

2   Challenges

The first challenge was very early on in the development of the MOOC, which presented itself in the first meeting with Coursera representatives at UAB, the university which would host the course on Accessibility to the Scenic Arts[50]. This MOOC was the outcome of the ERASMUS + EU funded project ACT[51] led by UAB. Taking the course accessibility requirements to the UAB Coursera team before starting to design the course content made us realise that our expectations were far too demanding for the Coursera platform. The list of specifications started with a multilanguage option, since course content could be developed in any of the four languages of the ACT project (Catalan, Dutch/Flemish, English, and German). The second request was to implement the three most common media accessibility services: subtitling, audio description and sign language interpretation. The last request was to have accessibility in the student/platform interaction. While we had their full attention with regards to our accessibility requirements, the UAB Coursera team was unable to offer any solutions beyond machine transcribed subtitles — irrespective of their quality.

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[50] https://www.coursera.org/learn/accessibility-scenic-arts

[51] http://pagines.uab.cat/act/

3 Solutions

Given the fact the course was on accessibility, it followed the United Nations Convention on the Rights of Persons with Disabilities[52] (CRPD) "nothing about us without us". To this aim persons with disabilities were part of the project from design to testing both the content and its accessibility.

For the first issue of multilingualism Coursera offered a monolingual approach. There was always the possibility of generating four identical courses in the four languages. Moreover, this possibility was reduced to two, since Coursera does not support either Catalan or Dutch/Flemish. This is an interesting situation since UAB has to offer courses in. The solution in this case was to use subtitles. Part of the aim of ERASMUS+ is to promote the wealth of EU languages, and reducing a course to English worked against this EU identified strength: multilingualism and multiculturalism. The ACT MOOC promoted the use of the different languages for instruction, with the use of quality purpose made subtitles in English.

The second challenge was the use of accessibility services, or at least the three most popular: subtitling, audio description and sign language interpreting. While the option of automatic same language automatic subtitling is offered by default, this was the only service available, Coursera being partial to quality. The possibility of adding audio description or sign language meant changes in the player. A petition was addressed to Coursera, and at the time of writing this paper we have had no reply.[53]

Offering sign language through a different but complementary platform was dismissed. Issues regarding parallel platforms with signed content was a choice, dismissed due to issues such as synchronisation of the signed content in one platform i.e. YouTube or Vimeo, and the course content in Coursera.

The other accessibility service is audio description. Audio description offers visual and audio information as a complementary audio narrative (Matamala and Orero 2016). From the interaction with UAB Coursera representatives it was clear that this service was not high in the list of implementations to the course platform. The inclusion of audio description would affect the player, and would also require the production of both the audio description and its delivery either by a human recorded voice or by text to speech technology (Fernández-Torné and Matamala 2015). The solution found was to apply Romero-Fresco's (2012) concept of Accessible Filmmaking "as a potential way to integrate AVT and accessibility during the filmmaking process through collaboration between filmmakers and translators." To this aim it was decided that all course material would integrate the audio description as part of the course content itself.

The MOOC structure was developed with a view to replicating the chronological order of a cultural event: pre-production, production, and post-production. Based on existing literature on MOOC design (Yousef and Wosnitza 2014; Salmon et al. 2016), it was decided to deliver the content by means of videos supported by PowerPoint presentations, tasks and assignments. Videos were presented by one of the instructors, who shared the screen as a talking head with a power point presentation. The audio description strategy was to create a self-audio description resembling an audio introduction (Fryer and Romero Fresco 2014). Regarding the PowerPoint content, it was agreed it would always be read by the instructor during the video. In this way the MOOC was not fully accessible, but it did offer at least two of the principal accessibility services: subtitling and audio description.

4 Conclusion

Designing an accessible MOOC poses many challenges. Access and interaction with the platform is of the greatest interest in academia (Bohnsack and Puhl 2014). The issue of accessibility to the content itself has rarely been studied (Orero and Tor-Carroggio 2018).

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present no MOOC platform offers the technology for the many accessibility services needed, such as sign language interpretation, audio description, or multilanguage options. In fact, the only accessibility service provided by most platforms is (automatic) transcription transformed into subtitles.

Adding accessibility services to any MOOC platform has direct implications in terms of the platform interaction, since new icons and player distribution will need to be designed and implemented. For this reason, adopting Romero Fresco's (2012) Accessible Filmmaking principles is a cheap and easy solution. Taking accessibility into consideration as a requirement from the very beginning of the MOOC design process allows for the requirements to be identified as the content is being designed. It helps to identify barriers at the same time as allowing for creative solutions.

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OPEN: the Belgian Expertise Centre for Accessible Media and Culture

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Abstract

The present paper presents a poster presentation for the 2nd Swiss Conference on Barrier-free communication, presenting a new Centre for Accessible Media and Culture, OPEN. The centre was established by the University of Antwerp and aims to raise the visibility of media and cultural accessibility in all its facets and contribute to the realisation of an inclusive society, by being a national point of contact for those who have questions about accessibility and by stimulating the exchange of experience and knowledge on accessibility in the media and cultural domains. This way OPEN hopes to contribute to bridging existing gaps and stimulate the transfer of knowledge. The poster presents the people and organizations involved, OPEN's mission statement, our areas of expertise and ongoing projects.

1 Introduction

Universal Design (UD) and the accessibility of culture and media more in particular have undergone substantial progress over the past decade(s). Accessibility for all is no longer just an aspirational idea, but it is slowly becoming a reality that increases social participation as tools and services are developed to make complex audiovisual products and events usable and enjoyable for an ever-growing and diverse target group. As Greco (2016: 11) argues, accessibility is to be seen as a proactive principle for achieving human rights; as an instrument that can increase access to a wide variety of human rights for all the citizens of a nation (the right to information, the right to culture, etc.).

Nevertheless, media and cultural accessibility remain work in progress and the field is still characterised by a high degree of fragmentation:

- in the types of accessibility services that are offered (certain services such as Subtitling for the Deaf and Hard of Hearing, SDH, are ahead of others such as Audio Description, AD, and Audio Subtitling, AST);

- in the degree of standardisation and the level of quality that is offered (some services are highly professional and can rely on local and European norms and guidelines, others mostly rely on volunteers and intuitive creation processes);

- in the degree of enforceability of accessibility legislation between countries (some countries enforce precise quota, others only stimulate the development of services);

- in research efforts across types of media accessibility and the comparability of research results.

In order to move beyond the current state of affairs, create a more coherent field and increase the adoption of Universal Design principles in media and culture, current knowledge needs to be consolidated. Key aspects in this process are transnational cooperation, interdisciplinarity and knowledge transfer, including training.

These keywords are clearly reflected in some of the most recent European initiatives in the field of Media Accessibility Studies, such as the EU-funded projects ADLAB, ADLAB PRO, ACT, HBBTV4ALL, ILSA, ImAc and the project of the conference organiser itself, the Swiss Centre for Barrier-free Communication. These studies put a strong focus on standardisation, knowledge-transfer and training.

It is against this background that the Faculty of Arts and the TricS research group (Translation, Interpreting and Intercultural Studies) of the University of Antwerp in Belgium have established a new Expertise Centre for Accessible Media and Culture called OPEN

(Expertisecentrum Toegankelijke Media en Cultuur in Dutch). The centre was launched in June of 2018, together with its Dutch website www.opentoegankelijk.be.

2 Aim of the project

OPEN aims to raise the visibility of media and cultural accessibility in all its facets and contribute to the realisation of an inclusive society. OPEN plans to do this by being a national point of contact for those who have questions about accessibility and by stimulating the exchange of experience and knowledge on accessibility in the media and cultural domains. We focus our activities within our own university and within the Dutch speaking regions in Europe, Flanders and the Netherlands, but aim to move beyond these borders and reach out to researchers and stakeholders in Europe as well. This way we hope to contribute to bridging existing gaps and stimulate the transfer of knowledge.

How do we aim to achieve these goals? By providing information and advice on accessibility, by entering into dialogue with users, service providers, government agencies and researchers who have complementary expertise, thereby building up an accessibility network, by translating research results into practical applications, by setting up research and demonstration projects, by organising seminars, workshops and training and by improving the accessibility of our own university.

3 Project Activities

Our activities currently focus on four domains:

- Stimulating excellence trough **training**;

- Contributing to new research by applying for and participating in **funded projects** and by realising **pilot studies** in cooperation with MA-students;

- Initiating **demonstration projects** to test and optimise new tools and services and stimulate the development of best practices;

- **Raising awareness** by offering information and advice to stakeholders, as well as the general public.

Examples of current activities in these domains, about which more information is provided on our Dutch website www.opentoegankelijk.be, are the following:

- Courses on Accessibility Management for the Scenic Arts (such as the MOOC "Accessibility to the Scenic Arts" developed by the ACT project and a local workshop at the University of Antwerp);

- A course on Audio Description for the theatre (building on the ADLAB and ADLAB PRO projects and a PhD project by Hanne Roofthooft);

- Tailor-made workshops for the industry (such as a workshop on TV Audio Description for the Flemish Public Broadcaster VRT, building on the PhDs of Reviers (2018) and Vercauteren (2016));

- A series of Masterclasses on specialist topics in the field of Media Accessibility.

- A pilot study on best practices for the accessibility of museums and exhibitions and the application of this knowledge in a demonstration project of an exhibition at the University of Antwerp entitled "Museum to Scale 1/7";

- A pilot study on the (semi-automatic) translation of Audio Description scripts for a greater accessibility of films and televisions series across Europe;

- Participation in the EU-funded projects ADLAB, ADLAB PRO, ACT and ILSA;

A pilot project aimed at making our university courses more accessible through live-subtitling (in cooperation with a project funded by the University's Fund for Educational Development and the EU-funded ILSA project).

Spreading the word, by developing a fully accessible website, by publishing scientific and non-scientific papers and by offering consultancy services to stakeholders.

4 Structure of the poster presentation

With the poster we are presenting at the Conference on Barrier-free communication, we want to contribute to the development of a strong European network of researchers in media and cultural accessibility, stimulate the exchange of knowledge, foster new cooperation and contribute to bridging the gap between research and practice.

The poster will contain the following elements:

- Title

- People and organisations involved: University of Antwerp, TricS research group, Prof. Dr. Aline Remael (initiator), Dr. Nina Reviers (Coordinator), Brecht Daneels (Administrative support), Management Comittee (prof. dr Reinhild Vandekerckhove, prof. dr. Isabelle Robert, dr. Sabien Hanoulle, Hanne Roofthooft, dr. Gert Vercauteren);

- Mission Statement of OPEN;

- Areas of expertise of OPEN (as described above);

- Overview of projects for each area of expertise;

- The partners of OPEN;

- Contact information.

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The EU-Funded Project "Content4all" and Its Options for Accessibility in Broadcast and Educational Settings

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Abstract

CONTENT4ALL is a European-funded project with the aim of developing in the long-term a solution which can offer an attractive option for broadcasters to have personalized content for deaf people. The solution offers the possibility of a human sign-interpreter inserted into existing content for the hearing, at a low cost and with no disruption of hearing viewers. The basis for this goal are low-cost remote studios, an inserted 3D model of sign-language interpreters and a database for automatic sign-language translation in structured use cases like weather or sports. This development can also be used in the long-term for the education market, because of similar structured use cases with specific limited vocabulary and technical terms depending on the subjects.

1   Content4all Approach

CONTENT4ALL is a European funded Horizon2020 (H2020-ICT-19-2017) Project with the project No. 762021.

Project partners are Fincons Group AG, Switzerland; University of Surrey, United Kingdom; Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany; Human Factor Consulting, Germany; SWISS TXT AG, Switzerland; R.T.I.S.p.A. – Mediaset, Italy

The long-term goal of the CONTENT4ALL approach is to develop a solution which can offer an attractive option for broadcasters to have personalized content for deaf people, where a human sign-interpreter is inserted into existing content for the hearing, at a low cost and with no disruption of hearing viewers.

This approach is based on three phases:

Phase 1: Develop a low-cost remote sign-interpretation and insertion service

This phase includes the development of a) a low-cost remote studio and b) the development of a system to capture and photo-realistically reproduce signs and facial expressions of the human interpreter via a 3D model of the interpreter ("Avatar" of a real person).

Phase 2: Collect, catalogue and analyse sign-language translations in a structured use case

In the short to medium term, data from specific TV programs (e.g. weather, sports etc.) will be collected in order to create a database of subtitles, sign-language manual (hand movement) and non-manual (body gestures and facial expressions) for automatic sign-language translation research.

Phase 3: Automatic sign-interpretation for a structured scenario

In the medium term, there shall be developed an automatic sign-interpretation technology for a limited/structured application scenario, to be developed for more generic scenarios in the long-term.

2   Project description

Improving the accessibility of television content for the Deaf community is an important goal for both EU governments and broadcast industry regulators across the EU. Although legislation is being used to coerce content producers and broadcasters. To do so, the cost of producing sign-language content (both sign-interpreted and sign-presented) and the negative impact of having a sign-interpreter appearing on the content for hearing individuals has relegated sign-language programming to late nights or a small number of sign-presented programs. A low-cost solution for personalized sign-

interpreted content creation can address both problems, leading to greater accessibility to media content for Deaf users.

CONTENT4ALL proposes such a solution to the problem in the short-term, and proposes innovations to technologies that can lead to automated sign-translation capabilities in the long-term. To this end, it builds upon the technologies and expertise demonstrated by the consortium partners in previous EU projects such as ACTION-TV, DictaSign and SCENE.

Here, as a first development, a remote signing apparatus (located off-premises of the television broadcaster) will be produced to capture a human sign-interpreter's signs, pose and facial expressions and to parameterize this information. Afterwards, it will be rendered photo-realistically as a 3D representation of the human sign-interpreter at the broadcaster for the production of the personalized stream for deaf users.

The photo-realistically 3D models have different advantages:

The high quality demanded in the TV sector usually requires very good lighting and a professional studio. This equipment is expensive and the production costs become very high. By using a photorealistic 3D model, instead of a conventional video insertion, these costs can be greatly reduced, Low cost remote studio equipment can be used instead of an expensive TV studio, because the light and the background doesn't have to be always the same.

Sign language is a three-dimensional language. The room, positions of signs and the direction of movement are important elements of sign language. Therefore, a 3D application can help deaf people in better understanding.

The users get familiar to the person who is displayed as the 3D interpreter model. It could have always the same figure and face if desired; even if there are different interpreters behind.

While this solution can be used commercially, the resulting datasets will provide a vast source of information for learning how to parameterize the sign information for translation purposes.

The second development of CONTENT4ALL will focus on advancing the algorithms and models used to do so, with the intent to create an open dataset for further research into automated signing.

SWISS TXT concentrates on the multimodal machine processing of speech using mechanisms of deep learning and AI. The continuous improvement process of the AI models within the framework of an eco-system is integrated into a central workflow system. This Hub records the data during the production process and automatically prepares it for the training of the AI systems. The Training material will automatically have handed over to the rendering engines for the new models.

Finally, CONTENT4ALL will demonstrate automated sign-translation applied to a real-world television broadcasting scenario, which is envisaged to lead to new approaches and innovations in the area in the long-run.

3   Use cases in educational settings

Even if the project itself aims to provide solutions for more accessibility in broadcasting, its results will offer a good basis for the education market.

Education is an area in which improved and comprehensive access for people with disabilities is required more and more.

Deaf students, apprentices and pupils have the right to accessible lectures and demand this, too.

The UN Convention on the Rights of Persons with Disabilities (short CRPD) drives the major market exploitation and corresponding business models for the whole EU & Switzerland.

The CRPD was adopted by the General Assembly of the United Nations on 13 December 2006 in New York. It came into force on May 3, 2008 and today it counts 177 States as Parties, with one peculiarity: it is the first international agreement to which the European Union has acceded. The convention is the first international special convention on the rights of people with disabilities.

The convention was ratified by Switzerland on 15 April 2014 and entered into force on 15 May 2014. By acceding to the Convention, each country committed itself to remove obstacles faced by people with disabilities, to protect them against discrimination and to promote their inclusion and equality in society.

The following articles of the convent are important to the C4A project.

Article 30

Participation in cultural life, recreation, leisure and sport

States Parties recognize the right of persons with disabilities to take part on an equal basis with others in cultural life, and shall take all appropriate measures to ensure that persons with disabilities:

Enjoy access to cultural materials in accessible formats;

Enjoy access to television programs, films, theatre and other cultural activities, in accessible formats;

Enjoy access to places for cultural performances or services, such as theatres, museums, cinemas, libraries and tourism services, and, as far as possible, enjoy access to monuments and sites of national cultural importance.

Article 21

Urging private entities that provide services to the public, including through the Internet, to provide information and services in accessible and usable formats for persons with disabilities; Encouraging the mass media, including providers of information through the Internet, to make their services accessible to persons with disabilities

including providers of information through the Internet, to make their services accessible to persons with disabilities

Article 24

"…States Parties shall ensure an inclusive education system at all levels and lifelong learning" to persons with disability. The state parties have to ensure the equal access to the general education system.

Sign language interpreters on site are currently being used to meet these requirements. However, this support is often organizationally complex and expensive. For this reason, many institutions that must pay for this as well as universities and schools are looking for ways to cost-effectively provide those services.

Technically the advantage of the education market is that there are structured scenarios, too. Each subject at university or school normally contains a limited vocabulary with specific technical terms. Here, too, ap-propriate data can be collected and processed. Via this approach it is possible to start with specific subjects

building up the data set for the automatic translation to apply this to more and more subjects in the future.

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Roadblocks to Inclusive Education and Career Development for People with Hearing Impairments in French and Italian Speaking Switzerland

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Abstract

At present, the penetration rate of deaf and hearing impaired students in tertiary education continues to be low in the French and Italian regions of Switzerland. This paper summarises some of the findings of a nation-wide survey, conducted to provide a better understanding of why that is the case. Data gathered seems to point at communication barriers during primary and secondary education as the main reasons for this lack of integration.

1 Research Background

In Switzerland, the number of students accessing tertiary education has doubled since 2000 (Swiss Federal Statistical Office, 2018). However, while national statistics show that the penetration rate of certain population groups, such as women and foreign students, has substantially increased over the past years, the percentage of people with disabilities reaching higher education has decreased considerably and remains extremely low when compared to non-disabled individuals (Swiss Federal Statistical Office, 2017).

The Barrier-free Communication (BFC) project aims at reducing this gap through the development of practical guidance and technological resources to facilitate barrier-free communication among three key stakeholders (students − with and without disabilities− , teaching and administrative staff members) in higher education institutions. The project places particular emphasis on the need to advocate for a more inclusive tertiary education for students with visual and hearing impairments in the country.

As part of the first stage of the project, a nation-wide survey was conducted in order to elicit data on the communication-related barriers that the aforementioned population groups are currently experiencing in Switzerland, from primary education to employment.

In this paper, we focus on the particular situation of deaf and hearing impaired individuals from the French and Italian speaking areas of the country, as perceived by representatives from these communities themselves and those surrounding them.

2 The Survey

2.1 Scope

The main goal of the survey was to identify the communicative and technological obstacles faced in educational settings by deaf, hearing impaired, blind and visually impaired individuals in Switzerland. However, the survey addressed not only these communities, but also their relatives and staff members of non-governmental organisations (NGOs) and any other type of institution offering support to these population groups. In addition, it also targeted sign language teachers, interpreters and learners. The rationale was to better understand the potentially different views and demands that these groups may have with regard to the same issues.

2.2 Design and Implementation

The survey, launched in seven languages (English, French, German, Italian, Swiss French

Sign Language (LSF-CH), Swiss German Sign Language (DSGS) and Swiss Italian Sign Language (LIS-SI)), was implemented through SurveyMonkey, an accessible online survey administration platform. [54] A 'snowball' sampling method was used to recruit targeted respondents, who were given eight weeks to complete the online survey. [55] It featured between 30 and 60 questions and covered six different dimensions, according to the respondents' profile: (i) communication barriers in education and training; (ii) obstacles to employment; (iii) communication practices at work; (iv) sign language learning; (v) use of sign language services; and (vi) use of technologies.

3   Top-Level Findings

This paper summarises the evidence found with regard to areas (i) and (ii) affecting deaf and hearing-impaired individuals. It focuses on the responses collected through the French, Italian and English versions of the questionnaire. Preliminary results concerning the German-speaking region of Switzerland are presented in Hohenstein et al. (2018), together with further details about the survey methods.

3.1 Respondents' Profile

A total of 210 usable responses were collected through all language versions of the survey: 138 German (DE), 66 French (FR), 5 Italian (IT) and 1 English (EN).[56] For the purposes of this paper, data from the last three groups will be presented collectively. The 72 respondents were distributed per profile as follows:

- *Profile 1: Deaf and hearing impaired individuals* (N=17, 24%; 8 male, 9 female): All of Swiss nationality, with the majority of them (88%) ranging between 36 and 65 years (2 were in the age range 18-35). Twelve (N=12, 71%) were deaf and 5 (29%) hard of hearing. Only two deaf respondents listed LSF-SR or LIS as

their mother tongue and 8 (67%) as L2 or L3.[57] Five (29%) had reached tertiary education.

- *Profile 2: Relatives* (N=9, 13%; 4 male, 5 female): All respondents from this group were Swiss and the age range was quite diverse (from 18 to 65 years). Two of them indicated that LSF-SR was their native language (as their parents were deaf) and three others marked it as L2.

- *Profile 3: Members of institutions* (N=25, 35%; 3 male, 21 female, 1 non-disclosed): Nationalities included Swiss (80%), Italian (8%), French (4%), Belgian (4%) and American (4%). English was the mother tongue of one respondent, although the majority had French as their single native language (N=19, 76%). The rest considered French at the same level as that of German (N=1), Italian (N=2) or English (N=1). Almost half of the respondents from this group added sign language as L3. More than half worked in the educational sector (N=13, 52%), 5 (20%) in a community-related centre, 4 (16%) in the private sector and 3 (12%) in the medical domain.

- *Profile 4: Sign language (SL) interpreters and teachers* (N=6, 8%; 3 male, 3 female): All of Swiss origin, with ages between 46 and 60.

- *Profile 5: Sign language learners (SL)* (N=10, 14%; 1 male, 9 female): All young adults (9 Swiss, 1 Swiss-Italian nationality), with French (N=6), Portuguese (N=1) and Italian (N=3) as dominant languages.

The remaining 5 respondents were 2 blind and 3 members of blind-related institutions, but these profiles fall outside the scope of this paper.

3.2 Major roadblocks to education

-Primary school. Regardless of the participants' profile, data suggest that the main obstacle faced is the lack of awareness about the communication needs of deaf and hearing impaired communities. According to the

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[54] The survey is available for download in PDF, in all four languages, at https://goo.gl/wX6CeA Last access: 20 September 2018.

[55] The original call for participation is available at the BFC project website:
https://bfc.unige.ch/en/news/calls/survey-education/ Last access: 20 September 2018.

[56] (i) The number of responses per language is proportional to the language distribution in Switzerland. See https://goo.gl/b4efm6 Last access: 20 August 2018.

(ii) The respondent who chose to participate using the English language version did so under *Profile 3*. The distribution of the five participants who used the Italian version was the following: *Profile 1* (N=1), *Profile 3* (N=1) and *Profile 5* (N=2). The fifth respondent chose a profile related to the blind community, so the data were not considered for the present paper.

[57] In language learning contexts, we say L2 and L3 to refer to an individual's second language or third language, respectively.

respondents, this can be observed both among hearing peers and teachers. The lack of social awareness is often translated into lack of patience, as well as insufficient attention and time investment. Deaf children are more and more integrated in non-specialised schools, but the general belief is that these are not yet prepared to successfully accommodate their needs. Teachers lack basic sign language skills and interpreting services are scarce, which makes it difficult for children to connect with the classroom and their peers. A common desire for a full bilingual solution to reduce isolation was observed.

-Secondary school. While the lack of social awareness is a predominant theme among all data collected, especially in the case of deaf respondents, the need for interpreting services seems to be more important in secondary and tertiary education. As courses become more complex, respondents complain about the lack of full interpreting services (sign language and cued speech). The community believes there are not enough professionals available and, therefore, the quality of the education they receive is low. Similarly, respondents consider that deaf students need to invest more time, cognitive and attentional efforts than hearing peers, a fact that teachers are not always aware of. For instance, respondent R26 states: « L'attitude de l'enseignant n'est pas toujours adaptée (son positionnement, sa vitesse d'élocution, etc.), ce qui ne facilite pas la communication avec l'enfant sourd. La disposition de la classe n'est pas forcément pensée pour accueillir des personnes sourdes (placement des pupitres). »[58]

-Tertiary education. Respondents consider that students with hearing impairments feel discouraged and do not reach university mainly due to (i) the poor level of education received before and (ii) the lack of national support (financial and political) to get interpreting services. A few respondents also mentioned the lack of accessibility during the enrollment process. Given the complexity of higher education courses and infrastructure (larger rooms, number of students), unidirectional communication seems inviable. A few non-deaf

respondents (SL learners) highlighted that the higher use of technology in tertiary education can bridge the communication gap (use of digital course materials, communication with teachers and peers via e-mail and forums) and reduce isolation.

3.3 Employment access

While the vast majority (87%) believe that they have less chances on the job market than their hearing peers, the hearing-impaired individuals and relatives did not show a high level of dissatisfaction when asked about their experiences with applications for an apprenticeship or a job position. Evidence seems to indicate that not having enough support to access higher education is not considered as a major cause for lack of employment. Respondents, however, showed frustration as they believe they are not always free to choose the career path they want due to the lack of state help to support them with the services they need at university.

4 Concluding Remarks

Overall, data collected shows a widespread discontent among the studied communities. Despite the relatively low number of respondents, the survey has provided insight into which are the major concerns of deaf and hearing impaired individuals in French and Italian speaking Switzerland with regard to their access to education in particular. Our findings seem to be in line with those presented in Hohenstein et al. (2018) in the case of German-speaking Switzerland.

The survey proved to be a very useful instrument to gather data on other dimensions of barrier-free communication not covered in this paper. One of them was SL teaching and learning. While a comprehensive data analysis process is still ongoing, in the short term the team plans to expand on the findings from the SignTeach survey [59], in which Switzerland representation was considerably low (9 respondents), with complementary data from our national survey.

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[58] *"The teacher's attitude is not always appropriate (e.g. positioning, speech rate, etc.), which makes the communication with the deaf child harder. The layout of the classroom is not necessarily designed to*

accommodate deaf students either (e.g. arrangement of desks)." Our translation.

[59] https://goo.gl/jAPyB7 Last access: 20 August 2018.

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Le projet BabelDr : rendre les informations médicales accessibles en Langue des Signes de Suisse Romande (LSF-SR)

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Abstract

This paper describes the methodology we used to create a first sign language version of the BabelDr project, a collaboration between the Faculty of Translation and Interpreting in Geneva and the Geneva University Hospitals. The project aims at developing a trustworthy medical speech translation system for emergency settings. We especially focus on our methodology, the translation issues and possible solutions adopted by our translators.

1 BabelDr

BabelDr (babeldr.unige.ch) est un projet collaboratif de la Faculté de Traduction et d'Interprétation de l'Université de Genève (FTI) et des Hôpitaux universitaires de Genève (HUG). L'objectif principal de ce projet est le développement d'un dispositif fiable de traduction du discours médical pour l'accueil et le tri aux urgences. Avec la crise migratoire, les services d'urgence en Suisse sont en effet de plus en plus confrontés à des patients qui ne partagent aucune langue commune avec les soignants. Cette situation pose des problèmes d'équité et de qualité des soins, bien mis en évidence dans la littérature (par exemple, Flores et al. 2003). Plusieurs études ont montré que ces problèmes concernent aussi les personnes Sourdes (Middleton et al. 2010).

En raison du contexte médical spécifique et de la nécessité de garantir une traduction toujours correcte et compréhensible pour le patient, BabelDr ne fait pas de la traduction automatique. Comme les traducteurs de phrases fixes Medibabble (https://bit.ly/2xz5b1k) et UniversalDoctor (https://bit.ly/1e6KpKv), il

repose sur un ensemble limité de phrases pré-traduites humainement (questions et instructions médicales), suivant les standards en traduction. La principale caractéristique du système est que le médecin peut poser sa question ou donner des instructions librement à l'oral, ce qui en améliore l'ergonomie (Boujon et al. 2018). Le système reconnait ce qui a été dit avec la technique de la reconnaissance vocale (Nuance). Le résultat de la reconnaissance est ensuite mis en correspondance avec la phrase la plus proche de la base de données avec des règles et des méthodes robustes dérivées des règles (par exemple « êtes-vous fiévreux », « avez-vous de la température », « est-ce que vous avez de la température », « voilà avez-vous aussi de la température », « fièvre » → avez-vous de la fièvre) (voir Figure 1). La phrase ne sera traduite et oralisée pour le patient que si le médecin approuve cette rétro-traduction (1), ce qui garantit la fiabilité de la traduction (Bouillon et al. 2017).
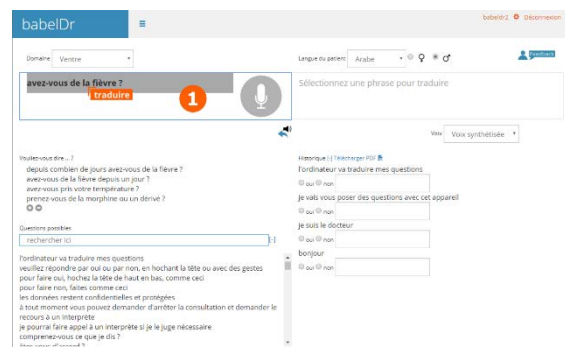

Figure 1. Le système BabelDr.

Plusieurs évaluations aux HUG ont montré que, même si les médecins se sentent limités dans la manière de poser les questions, ce type d'outil permet d'arriver à un diagnostic correct, avec moins d'erreurs graves que la traduction automatique (Google Translate) et une

satisfaction plus haute de la part des soignants (Bouillon et al. 2017 ; Boujon et al. 2018).

Le système a été conçu pour permettre l'ajout aisé de contenu (phrases sources et traductions), sous forme de règles paramétrées (phrases à trou). Celles-ci mettent en correspondance un ensemble de variations sources décrites avec des expressions régulières avec la rétro-traduction et cette rétro-traduction avec les traductions correspondantes dans les différentes langues cibles (Ahmed et al. 2017). La version actuelle contient environ 3'500 règles paramétrées, qui permettent de lier des milliards de variantes à plus de 20'000 phrases, réparties dans différents domaines (types de douleurs, accueil, et suivi) et qui constituent l'ensemble de phrases qui pourront être traduites par le système. La traduction peut se faire dans différents formats, traduction écrite qui sera ensuite synthétisée ou traduction orale, sous forme de fichiers sons ou de vidéos. La traduction écrite se fait sur base de segments paramétrés, avec une plate-forme de traduction conçue pour cette tâche (Gerlach et al. 2018) ; la traduction orale associe à chaque phrase un fichier son ou une vidéo. Pour simplifier la traduction, les traducteurs ont accès à des exemples de variantes sources, ce qui peut les aider à trouver la tournure la plus claire en langue cible.

Dans cet article, nous décrivons la méthodologie utilisée pour faire une première version professionnelle en langue de signes de Suisse Romande (LSF-SR) avec des vidéos et les problèmes de traduction rencontrés. L'utilisation de vidéos semble justifiée dans ce type de contexte où le nombre de phrases à enregistrer est limité. Elle convient aussi bien pour ce type d'interaction très délicate où les vidéos semblent préférées aux avatars par la communauté Sourde locale, notamment suite à un communiqué de presse de la Fédération Mondiale des Sourds (https://bit.ly/2xBpM4u, voir aussi David et Bouillon 2018). Cette version sera évaluée en janvier 2019 aux HUG avec des patients standardisés dans le but de voir si ce type d'outil améliore l'accessibilité dans les hôpitaux et la satisfaction des personnes Sourdes.

Dans la suite, nous présentons la plate-forme d'enregistrement en ligne utilisée pour les vidéos (Section 2), la technique de capture vidéo (Section 3), ainsi que les problèmes de traduction rencontrés et les processus traductionnels mis en place pour y répondre (Sections 4 et 5).

2   La plate-forme d'enregistrement

La plate-forme d'enregistrement a pour but de faciliter la gestion des traductions orales. Lors de la compilation du système, un fichier avec toutes les phrases à traduire est automatiquement généré à partir des règles de la langue source. Celui-ci peut alors être importé dans la plate-forme d'enregistrement en ligne, pour en faire une tâche d'enregistrement, qui est ensuite assignée à un utilisateur. L'interface d'enregistrement présente les phrases sous forme de liste, chacune avec un bouton pour activer et désactiver la capture par webcam (voir Figure 2).
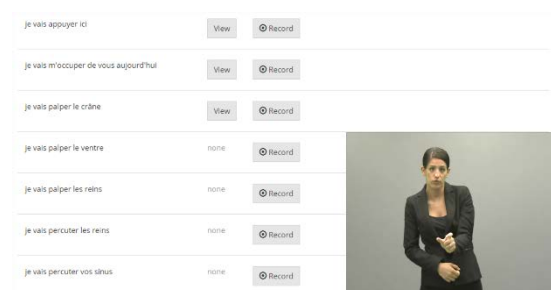

Figure 2. La plate-forme d'enregistrement.

En cours d'enregistrement, le flux capturé est affiché en temps réel sur une partie de l'écran afin que le signeur puisse contrôler le cadrage. Après l'enregistrement, chaque phrase dispose d'un champ vidéo permettant au signeur de vérifier le résultat directement dans la plate-forme. Lorsque la tâche d'enregistrement est complète, la plate-forme produit un dossier compressé contenant les fichiers vidéo, ainsi qu'un fichier de métadonnées dans le format requis pour l'importation dans BabelDr. Cette plate-forme a été initialement développée pour l'enregistrement de vidéos par webcam, permettant ainsi à des intervenants externes de contribuer avec des vidéos à distance (Ahmed et al. 2017). Dans la suite, nous décrivons comment elle a été connectée à un système de capture vidéo plus sophistiqué, pour permettre un enregistrement professionnel.

3   Capture vidéo

Pour la capture vidéo, nous avons opté pour la réalisation en temps réel des enregistrements, où le flux vidéo est directement enregistré dans la plate-forme d'enregistrement sans travail en

post production. Pour réaliser ces enregistrements en temps réel, nous avons choisi d'utiliser une green-box sur laquelle nous filmons la traductrice. La sortie vidéo de la caméra passe alors en mode « chroma key » afin de pouvoir par la suite supprimer le vert et venir intégrer une image de fond choisie préalablement en fonction du sujet abordé ou du contexte d'utilisation de la vidéo. Dans notre cas spécifique, nous avons opté pour un fond gris foncé, puisque notre traductrice est habillée en noir et la couleur de la plateforme BabelDr est blanche. Le gris foncé permet donc une meilleure visibilité de la langue des signes. Le fond gris foncé provient d'un ordinateur dans lequel nous stockons les images choisies. Après suppression du fond vert et intégration de l'image de notre choix, nous récupérons le flux vidéo final pour l'intégrer dans une carte d'acquisition vidéo. Cette dernière est reliée à un ordinateur portable et le flux peut ainsi être capturé par la plate-forme d'enregistrement en ligne.

4   Méthodologie de traduction

La traduction des questions en français écrit vers la Langue des Signes de Suisse Romande (LSF-SR) a été assurée par une équipe composée d'une infirmière Sourde et d'une interprète français/ Langue des Signes Française, diplômée en France et travaillant en Suisse depuis neuf années. Ces deux personnes ont le rôle de traductrices (voir Wurm 2018 sur ce concept) dans le cadre de ce projet. Un médecin qui fait actuellement une spécialisation en Suisse et qui organise des cours de langue des signes dans les hôpitaux de Suisse romande fait aussi partie du groupe d'échange, avec une chercheuse en traduction (co-autrice de ce travail). Pour l'instant, 800 questions médicales ont été traduites, dans le domaine de la douleur abdominale. La consigne donnée aux deux traductrices au début du projet était de produire une traduction qui soit accessible au plus grand nombre et qui exploite la spécificité du système où plusieurs variantes sources sont liées à une même rétro-traduction. Par exemple, « avez-vous une hépatite » et « avez-vous une inflammation du foie » sont liées à la même rétro-traduction « avez-vous une inflammation du foie », ce qui permet de choisir entre la traduction du terme ou de la paraphrase en fonction des spécificités de la langue cible.

5   Problématiques de traduction et stratégies

Pendant la traduction, les traducteurs ont noté trois problèmes principaux :

(1) Le **jargon médical** : l'emploi d'une terminologie spécifique dans le contexte médical est bien connu pour être la source de graves malentendus en médecine si les patients ne comprennent pas ce qui est dit par le personnel médical (par exemple, Ong et al. 1995). Ceci est vrai aussi dans des situations d'interaction monolingue qui concernent des langues de grande diffusion (Major 2012). En langue des signes, les termes médicaux sont très rarement employés dans la vie courante par la communauté Sourde (voir aussi Major et al. 2013). Il n'existe souvent pas de signe officiel spécifique universellement admis pour beaucoup de termes fréquemment utilisés par les médecins dans le contexte de l'anamnèse, par exemple « rate » ou « canaux biliaires » dans les phrases suivantes :

avez-vous eu un examen de la **rate** ?

avez-vous eu un examen des **canaux biliaires** ?

(2) Les **noms propres,** tels que les noms de médicaments pour lesquels il n'y a pas de signe spécifique. Les traductrices considèrent que la dactylologie fatiguerait excessivement les yeux de la personne sourde qui regarde la vidéo :

avez-vous bien pris du **Voltaren** ?

depuis combien de jours prenez-vous du **Vancocin** ?

(3) Le **support d'enregistrement multimédia** : les vidéos obligent de passer à une modalité 2D, ce qui pose problème notamment au niveau de certaines phrases qui sont partiellement signées dans le dos comme dans les exemples suivants :

avez-vous aussi mal dans la **partie supérieure gauche du dos** ?

avez-vous aussi mal aux **omoplates** ?

Pour les résoudre, différentes stratégies de traduction (Pointurier-Pournin 2014) ont été mises en place:

(1) La **paraphrase**. Cette stratégie est souvent utilisée en traduction pour définir les termes quand ils sont peu compréhensibles en langue cible (Pointurier-Pournin 2014). Dans notre cas, ce procédé a été choisi quand le mot français

était univoque et avait un sens paraphrasable avec des concepts généraux facilement compréhensibles par le patient, par exemple :

-Urticaire : CORPS + TÂCHES + ROUGE + GRATTER

-Aphtes : BOUCHE + DEDANS + BOUTON + BLANC

-Diverticules : VENTRE + POUSSER + BOSSES

-Appendicite : APPENDICE + OPERER

(2) L'**incrustation** de mots français en bas de l'écran avec des sous-titres, comme dans l'Image 2. Ce procédé a été utilisé quand le terme en français n'était pas paraphrasable sous forme de concepts simples existants ou n'était pas univoque, comme c'est le cas pour le terme **bétabloquants**, qui remplit différentes fonctions en médecine (Figure 3) :

-avez-vous pris des bétabloquants? : TOI + FINI + PRENDRE + POINTAGE VERS LE BAS

Figure 3. Pointage vers le bas où il y a le sous-titre.

(3) l'ajout d'images explicatives, qui illustrent le signe utilisé avec une image, par exemple le pointage vers une boîte de médicaments ou une partie du corps (Figure 4).
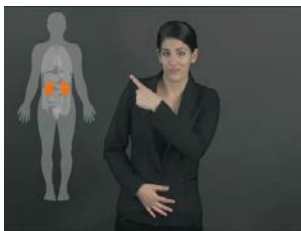

Figure 4. Pointage à droite qui indique l'image avec l'organe intéressé.

6 Conclusion

Dans cet article, nous avons décrit la méthodologie de traduction en langue de signes dans le cadre du projet BabelDr, les problèmes de traduction rencontrés et la manière de les résoudre dans cette application concrète. Elle met en évidence les difficultés à la fois

techniques et linguistiques de traduction de ce type de contenu en langue des signes avec des vidéos 2D. Cette version du système sera évaluée aux HUG cet hiver, ce qui permettra de voir la satisfaction des personnes Sourdes face à ce type d'application de traduction. L'objectif est aussi que les vidéos collectées constituent une mémoire de traduction qui puisse servir de référence à la communauté des interprètes vers la langue des signes. Cette mémoire permettra aussi d'étudier les processus de traduction utilisés par les interprètes dans ce contexte spécifique.

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Automatic Pictogram Generation from Speech to Help the Implementation of a Mediated Communication

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Abstract

The goal of our research is to develop an automatic pictogram generation tool from speech to help the social circle of users of Alternative and Augmentative Communication to communicate among themselves. We describe here the issues of such a tool, we then detail our development methodology and finally we describe our evaluation protocol.

1 Introduction

When the use of speech or sign language to communicate is impossible because of aphasia, dysarthria and aggravating physical disorders, people are not able to express their feelings or needs and can't create any social link, which is central to the proper development of a human being.

Using Alternative and Augmentative Communication (AAC) methods could be a way to help these people. These methods replace or support a speaker's speech abilities. They often use visual encoding of the information, especially pictograms which are more iconic than words due to their likeness to the referent. (Duboisdindien, 2014)

The pictogram can be defined, in AAC, as a schematic graphic sign whose signifier has a more or less strong similarity with the signified, unlike phonic or graphic linguistic signs whose stimulus form is arbitrary and independent of that of the referent. It therefore allows a more iconic representation of the information and is therefore more easily interpretable.

Nevertheless, the way that people interpret a pictogram can be extremely variable because of the set of pictograms used, the cultural background, and the meaning of the pictogram (the grammatical ones are more complex to understand because they are less iconic).

Pictograms, thanks to their iconicity, can help people to communicate in a foreign country when they do not speak the local language and do not share any linguistic background with local inhabitants. As Rada Mihalcea and Chee Wee Leong have shown in 2009 in *"Toward communicating simple sentences using pictorial representations",* pictogram translations can help people who do not share the same language to communicate.

However, in order to learn how to build sentences using pictograms and to increase the size of the speaker's vocabulary, it is necessary to have a rich input of pictogram sentences from the family (Beukelman and Mirenda, 2017).

Communication boards, paper-based or electronic medium, are used to encode these sentences. Finding the required pictogram in a communication board is an uneasy task. The family has to learn how to use the communication tool and, if it is a physical communication board, they have to spend time to look for the relevant pictogram. Because of this complicated navigation, interaction is not spontaneous and can even be perceived as really negative.
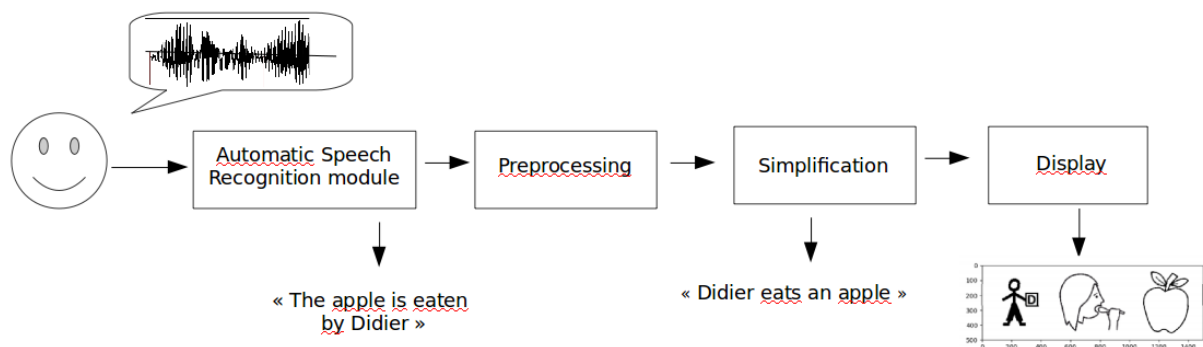
Figure 1. Method of automatic pictogram generation from speech.

2 An automatic pictogram generation tool

An automatic pictogram generation tool working with everyday speech is a good way to solve this problem. Such a tool allows people close to the user of an AAC method to speak with their own language without necessarily having to learn how to encode pictogram sentences and without losing time to find pictogram in a communication board. It gives a better access to school for AAC users. If a text-to-speech tool is also used, it becomes possible for students using AAC to communicate with teachers or other students. A social bond can be created, with possibilities of mutual help, which leads to a positive learning environment.

Pictogram generation allows to overcome the language barrier between people and can allow people to join a school or a training course more easily than before.

3 Methodology

Our methodology (Figure 1) is based on the work of Vandeghinste and al (2017) and their Text2picto project. We propose 2 modules in order to generate pictograms from speech. The first one is the Automatic Speech Recognition (ASR) system and the second one generates a simplified message.

These modules result from the studies of the translation strategies of text into pictograms in a corpus collected on the web. In this corpus, grammatical words are often removed, as well as adverbs. Translating every word does not improve the comprehension of the text (maybe except for the mild disabilities or for people who knows already the structures of oral language) .

The granularity level of the translation must be adjustable to be adapted to each situation and each disability. Besides the syntactical structure can been changed to clarify the role of each phrase: when the passive voice is used, or when a sentence is included in another one, syntactical roles are not always easy to define.

The next sections detail the 2 modules.

3.1 Automatic Speech Recognition

We propose to use an Automatic Speech Recognition (ASR) module allowing to work directly with the voice. It takes a speech signal and transforms it into an orthographic transcription. The ASR model is based on a hybrid HMM-DNN model, developed by (Elloumi and al, 2018) with KALDI toolkit (a free ASR system) (Povey and al., 2011).

3.2 Simplification module

The next step consists in analyzing the syntactical structure of the sentences and to get the lemma of each words (the canonical form of a word). After this preprocessing of the transcriptions, the sentence is simplified. A simplification is necessary because a literal translation of a sentence into pictograms might be unintelligible for people with cognitive or mental impairments. This simplification can also help foreign people who do not master the language of the country they lived in. Two different simplification methods are proposed.

The first method is a syntactical simplification: as recommended by the Pathways project which have developed European Easy-to-Read, it is easier to understand simple sentences, in active voice, than long sentences and passive voice. We have implemented a passive-to-active sentence transformer which finds passive sentences and simplify them into active voice to

be sure that everyone understands "who does what".

Our second simplification method defines two levels of translation, one which translates every word and the other one which does not translate determiners and adverbs. It will be easier for people with symbolisation problems to understand the sentences without these linguistic units as they are not part of the core meaning of the sentence. For foreigners, using grammatical units which work quite differently in their native language can be difficult. Hence, keeping only the semantically relevant units to encode a sentence into pictograms seems to be better.

4   Evaluation

To evaluate the performances of our system we have created 2 evaluation tracks: one assessing the quality of text-to-pictogram, and the other one assessing speech-to-pictogram. For the first corpus, we have gathered six children stories copyright-free that we have manually translated in pictograms following strict guidelines built from our study of translation strategies. We have also manually created a simplified version of these stories by deleting articles, the verb be and some adverbs as we saw in our study of translation strategies.

The second corpus created to evaluate speech-to-picto contains twenty sentences extracted from audio recordings taken from the "Books for children" (a module of the ESLO corpus). These sentences are directly translated into pictograms, without preliminary orthographic transcription.

The choice of creating our own evaluation data was motivated by the fact that texts already translated in pictograms are hard to find and difficult to process. Besides most of these resources use proprietary sets of pictograms. Thus, we had to build our own evaluation corpus, with comparable data (same syntactical structures and vocabulary) such as poems and lullabies.

The evaluation of translation performances will be both qualitative with human judgments and automatic (BLEU [Papineni & al, 2002], WER...).

Nevertheless, using ASR implies some problematics that are important to consider such as noise in data, impact of the ASR errors on the other modules… The evaluation will measure how the performances of the ASR can affect the other ones.

First results for text-to-picto

We are able to present here only our first results for text-to-picto. Only BLEU score of text-to-picto have been calculated. Indeed, our first experimentation with speech recognition has obtained a Word Error Rate of 70%.

 We can explain these results by the fact that spontaneous speech has many characteristics that complicate speech recognition (superimposed speech, disfluencies, poor acoustic conditions, etc.).The best speech recognition systems today get 40% WER on semi-prepared speech but the state-of-the-art performances on spontaneous speech is well below. Because of this preliminary result on ASR, we did not evaluate our prototype from speech because the results would have been catastrophic.

For text-to-picto, our prototype obtains a BLEU score of 26,65 when all the words are translated and 19,91 when the text is simplified (some grammatical words are deleted). This evaluation highlights the difficulties encountered in the task of simplifying text. Indeed, it is particularly difficult to identify grammatical words that can be deleted from those whose deletion may significantly change the meaning of the message. When we have built our simplified evaluation corpus, many complex cases in the deletion of adverbs caused us problems, and many adverbs had to be kept in order not to modify too much the meaning of the text.
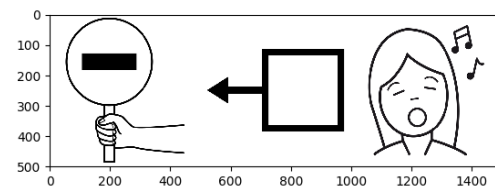

Figure 2."It's forbidden to sing here": Simplified translation with our prototype.

In this example we can see that when the prototype simplifies the sentence, it deletes the adverb "here". But without this adverb, the meaning of the sentences changes a lot. In our evaluation corpus, in this case we have chosen not to delete the adverb to keep the meaning.

The removal of all adverbs by our level 1 prototype therefore explains the lower results.

5 Research opportunities

5.1 Word Sense Disambiguation

To improve the results obtained by our pictogram translation model, we have identified several possibilities: first, the addition of a lexical disambiguation model, to determine the meaning of a word in context, could prevent the display of an irrelevant homonym.

To avoid generating the pictogram of a mouse (the animal) instead of a computer mouse in sentences like "The mouse of my computer is broken", we will annotate the input sentences with a neural model that assigns a WordNet ID to every word (Vial & al, 2018). WordNet is a free lexical database in which words are "grouped into sets of cognitive synonyms (synsets), each expressing a distinct concept" (George A. Miller, 1995). After this annotation step, our tool will query a database, developed by our team, in which each pictogram has been assigned a WordNet ID. When the most relevant sequence of pictograms is found, they are then displayed to the user.

5.2 Re-training of ASR system

The improvement of the performance of our recognition system will involve a re-training of the system from an oral corpus presenting spontaneous speech in daily interaction. Indeed, to better fit to our use case, we will retrain the ASR system with the ESLO [Eshkol-Taravella and al, 2011], which contains spontaneous speech (more linguistic facts of spontaneous speech like disfluencies, bad acoustic conditions and speakers overlapping (Dufour, 2010)).

5.3 Lexical simplification

Another possible improvement would be the addition of lexical simplification to our syntax simplification module. Indeed, the complex vocabulary, often absent from pictogram sets, is not translated by our prototype. A process of simplifying these words would therefore be really relevant, both to help the complete display of the user's sentences and to help individuals in situations of language disability understanding them.

6 Conclusion

In this paper we proposed a tool allowing to translate speech into pictograms. We address several issues that are linked to this technology: disambiguation, simplification and evaluation. Finally, this tool, developed in French and with the Arasaac set of pictograms, might improve the quality and the frequency of the input in pictograms which accelerate the acquisition of pictogram encoding, allows to break language barriers and can facilitate the access to school or work. It can be adapted for other languages and other set of pictograms. We plan to test our tools with real users and gather their reviews to highlight what we have to improve. These tests will measure the impact of such a technology on the acquisition of language of the AAC users.

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Guide de «bonnes pratiques» à l'usage d'interprètes de liaison en présence d'une personne ayant un handicap sensoriel ou cognitif - deuxième volet

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Résumé

Cet article présente quelques résultats spécifiques du projet Erasmus Plus «Enhanced Communication. Research to improve communication for people with special needs and development of ICT resources and tools» (https://ecplusproject.uma.es/node/1). Dans ce cadre, l'Université de Gand a développé un cours en ligne qui aborde une série de situations où un interprète en milieu social travaille inopinément pour un client allophone souffrant d'un handicap sensoriel ou cognitif. Le cours existe aussi sous forme de manuel (Vermeiren 2018a). Un premier article a déjà repris les «bonnes pratiques» lorsqu'il s'agit de faire connaissance et du positionnement de l'interprète (Vermeiren 2018b). Le deuxième volet reprend d'autres «bonnes pratiques», notamment au moment du choix de la technique d'interprétation, de l'interaction et ses défis déontologiques, du suivi et de la prise de congé.

1 Introduction

La Convention ONU relative aux droits des personnes handicapées (2008), la Charte Européenne des Droits Fondamentaux (2009) et la Stratégie Européenne 2010-2020 en faveur des personnes handicapées insistent toutes sur les droits des personnes handicapées à l'accessibilité et à la participation. Une personne handicapée allophone a donc le même droit qu'une personne non-handicapée à l'assistance d'un interprète lors d'un entretien avec un professionnel. Pour le groupe-cible des sourds, il existe des interprètes spécifiques en langage des signes pour ceux qui connaissent ce langage. Mais il y a de nombreux autres handicaps, qu'ils soient sensoriels ou autres.

Malheureusement, aucune formation d'interprètes pour les services publics ne prévoit de travailler pour des clients handicapés. Il manque donc un manuel de «bonnes pratiques» destiné aux clients allophones en situation d'handicap sensoriel ou cognitif mais capables d'user le langage verbal. Un tel manuel permettrait de surmonter les doutes, de transcender les stéréotypes et de travailler de façon professionnelle avec ce groupe-cible.

Le cadre théorique habituel pour expliquer et analyser les pratiques en matière d'interprétation de liaison est celui de l'interaction (Goffman 1981; Giles, Coupland & Coupland 1991; Fischer 2016). Ces auteurs étudient en détail le statut des interlocuteurs, leur mode de participation, l'agencement des tours de parole (voir Sacks, Schlegoff et Jefferson 1974) ainsi que l'accommodation communicative entre des interlocuteurs (voir aussi Pöchhacker 2012 pour une vision d'ensemble). Dans le contexte des services publics, les interlocuteurs ne sont plus en phase socialement. Cette asymétrie ne fait que croître lorsque le client est allophone. S'il y a discordance linguistique, les services publics font appel à un interprète pour combler le fossé. En créant un «pas de trois» (Wadensjö, 1998) l'interprète leur permet de communiquer, mais sa présence rend l'interaction à la fois plus complexe. En plus, le rôle de l'interprète n'est pas fixé d'avance mais peut varier selon le type de rencontre. Le contexte qui nous intéresse ici, cependant, est celui où l'interprète est surpris de se trouver face à un client handicapé, et n'est donc peut-être pas familiarisé avec les conditions de vie du client, ou, par exemple sa perception de la douleur, la surdité ou l'épilepsie. Si le client allophone est handicapé, l'interprète devra au moins s'orienter sur le devoir de diligence du professionnel et se montrer «sensible» vis-à-vis du client (Hewett 2012). Dans ce cas, le rôle de l'interprète revient

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en grande mesure à traduire en adoptant différentes stratégies d'adaptation afin que le client handicapé puisse participer de la meilleure manière possible. Cela peut mener le cas échéant à une adaptation extrême. L'un des grands défis dans ce contexte est pourtant que le client handicapé n' ait pas le sentiment d'être paternalisé.

La complexité d'une communication entravée par des déficits sensoriels ou cognitifs nous oblige cependant à chercher plus loin que les théories habituelles de l'interaction et de la participation. Ce cadre plus large nous est fourni par la sémiotique, qui englobe toutes les ressources dont nous disposons pour communiquer. La multiplicité de canaux sensoriels, tactiles et autres nous mène à la multi-modalité. Il s'agit de tous les moyens dont dispose l'homme pour communiquer, soit ceux du corps comme le langage verbal, l' écriture, le langage corporel, pointer, le regard, le langage des signes, toucher le bras ou la main de quelqu'un, ou les moyens technologiques tels que les pictogrammes, applications ou dispositifs de suivi oculaire etc. (Kress 2010). Ce sont les interlocuteurs qui déterminent ensemble quelle est pour eux la meilleure façon de transmettre un message sémiotiquement parlant (Kress, 2010). Il peut s'agir du choix en faveur d'une seule modalité, ou, au contraire, une combinaison, ce qui nous amène à la communication augmentée (Kress et Van Leeuwen 2001; Pinar Sanz 2005).

«A first set of guidelines» (Vermeiren 2018b) a exposé les deux stratégies de base pour communiquer de façon augmentée avec une personne allophone ayant un handicap sensoriel ou cognitif: le langage (verbal) simplifié (Blum-Kulka et Levenston 1983) et les gestes (McNeill 1992; Capone Singleton et Shulman 2014). Le langage (verbal) simplifié est le résultat de stratégies notamment lexicales, grammaticales ou pragmatiques basées sur le niveau linguistique attribué au client. Les gestes par contre appartiennent au langage non-verbal, notamment au code visuel. Il ne s'agit pas des gestes du langage des signes mais plutôt les gestes typiques partagés par tous dans une certaine culture ou des gestes qui ne visent qu'à appuyer ce qu'on dit.

Après avoir esquissé les repères théoriques, «A first set of guidelines» (Vermeiren, 2018b) aborde pas à pas le déroulement d'un entretien entre un professionnel et un client handicapé allophone en présence d'un interprète verbal. Les phases en sont les suivantes: faire connaissance, le positionnement de l'interprète, le choix de la technique, l'interaction et la participation pendant l'entretien et les défis déontologiques qui se posent, le suivi et la prise de congé. Dans «A first set of guidelines» (2018b) nous avons commenté les deux premières phases: faire connaissance et le positionnement de l'interprète.

Dans ce deuxième volet nous approfondissons les phases suivantes de la rencontre, c'est-à-dire le choix de la technique, l'interaction triadique avec ses défis déontologiques, le suivi et la prise de congé. Comme notre facteur clé est celui de la rencontre inopinée, nous ne nous étendons pas sur les moments du *briefing* et du *debriefing*.

2 Choix de la technique

Dans le cas d'un client handicapé, le choix de la bonne technique est un facteur déterminant pour créer un climat de confiance. Les «bonnes pratiques» sont les suivantes:

- La technique doit être choisie en fonction des capacités du client. Si le client amène un outil ou matériel pour faciliter la communication, le professionnel et l'interprète doivent se plier aux possibilités de cet outil.

- Si l'interprète choisit une certaine façon de travailler, il doit laisser au client le temps de s'y habituer, quitte à l'abandonner et en choisir une autre.

- Il est important de garder le calme et de montrer par sa technique qu'on contrôle la situation.

- Une technique à éviter est le chuchotage. La superposition de deux voix crée une sorte de brouhaha dans lequel une personne malentendante ou malvoyante ne peut pas distinguer clairement les voix.

- L'interprétation consécutive courte, au besoin même sans prise de notes, permet de travailler par bouts appréhensibles:

- L'interprète doit toujours veiller à garder un bon contact visuel avec le client.

- Si le langage verbal du client se révèle faible ou insuffisant, le professionnel et l'interprète peuvent avoir recours à des supports visuels tels que des dessins, des pictogrammes ou des photos. S'il s'agit d'une personne sourde (mais

pas malvoyante) qui ne connaît pas la langue des signes, il est préférable de passer à la vélotypie (écrire sur un écran d'ordinateur). L'usage de certains gestes pour montrer, insister, etc. peut être utile, mais il faut faire attention à ne pas surcharger la communication.

3 Interaction, participation et défis déontologiques

Le handicap du client augmente la complexité de la rencontre triadique puisqu'il peut empêcher une bonne interaction et participation. Les «bonnes pratiques» sont les suivantes:

- Les rôles des participants (professionnels, famille ou ami, client, interprète) doivent être clairs.

- Les non-handicapés ont l'obligation de faire de leur mieux pour que le client handicapé puisse s'exprimer dans la mesure de ses possibilités.

- Le client allophone handicapé doit absolument entendre et voir clairement l'interprète. Le positionnement triangulaire est moins important que le confort du client. Au besoin l'interprète s'assied face à lui (meilleure visibilité) ou à côté de lui (meilleure audition, meilleure lecture) afin qu'il puisse mieux suivre les tours de parole.

- Le client doit comprendre le jeu spécifique des tours de parole dans un entretien avec un interprète.

- L'interaction doit se faire «sur mesure». La bonne mesure doit être cherchée conjointement par le professionnel et l'interprète.

- Chaque intervention de l'interprète à l'adresse du client doit débuter par un appellatif, une expression ou un geste qui attire l'attention du client handicapé mais qui ne transmet pas encore de message proprement dit. De cette façon le client handicapé ne risque de perdre aucune partie du message.

- Le professionnel et l'interprète doivent éviter les apartés, ceux-ci rendant l'entretien confus et donnant au client l'impression qu'il ne peut pas participer. Par contre, le client a le droit d'interrompre l'interprète lorsqu'il n'a pas compris.

- L'interprète doit laisser au client le temps de suivre et notamment de signaler que quelque chose n'est pas clair.

- Lorsque le client handicapé a la parole, on doit lui laisser le temps de formuler ses pensées, sans l'interrompre pour gagner du temps.

- La prosodie de l'interprète doit être claire, surtout lorsqu'il s'adresse au client. Celui-ci doit pouvoir comprendre les éventuels actes de langage comme des salutations, des félicitations, des excuses, etc. et pouvoir réagir de façon adéquate.

- L'interprète doit faire un usage stratégique du regard et des mouvements du corps (se tourner vers le client pour lui adresser la parole ou pour l'écouter, faire des gestes) pour souligner les tours de parole.

- L'interprète doit s'aligner sur la façon de s'exprimer du client. En lui adressant la parole il doit tenter de réutiliser les mots utilisés par le client lui-même.

- Pour neutraliser son identité, l'interprète peut préférer sembler un membre de l'équipe pédagogique, médico-sociale etc. et ne pas traduire sous la forme «Je» mais parler plutôt de «Nous». Il peut au contraire préférer se positionner du côté du client et utiliser les formes «Lui», «Elle» ou «Eux» en parlant du professionnel.

- La gestion des apartés est différente par rapport à d'autres contextes. Il faut éviter tout commentaire méta-communicatif visant à signaler qu'il y a eu un aparté. Le client pourrait avoir du mal à comprendre les apartés qui se déroulent entre le professionnel et l'interprète et se sentir exclu.

- Une stratégie de participation assez spécifique consiste à faire répéter au client ce qu'on vient de lui expliquer.

4 Le suivi

L'effort de stimuler la participation du client et de garder sa confiance doit se poursuivre durant la phase du suivi. Lors de cette étape, les «bonnes pratiques» sont les suivantes:

- Jusqu'au dernier moment, le client handicapé doit avoir l'occasion de dire ou de demander ce qui le tracasse.

- Le professionnel et l'interprète doivent marquer très clairement qu'on passe au suivi en tant que dernière partie de l'entretien proprement dit.

- Il faut toujours expliquer le suivi au client, même si le client est accompagné d'un parent ou un ami.

- On demande éventuellement au client de répéter les arrangements ou engagements qui ont été pris.

- L'interprète doit accepter de noter quelques instructions (arrangements /engagements) pour le client ou de les enregistrer pour lui au moyen d'un dispositif digital.

- Si on a fait usage de ressources visuelles, par exemple des photos ou des pictogrammes, il faut en donner une copie au client.

5   Prendre congé

Les «bonnes pratiques» de la phase finale sont les suivantes:

- Il faut veiller à conclure l'entretien d'une façon polie et amicale, pour que le client continue à avoir confiance.

- Le professionnel et l'interprète saluent le client allophone handicapé et son accompagnateur.

- En sortant de chez le professionnel, le client handicapé doit être accompagné par une personne en qui il ait confiance. S'il n'y a pas d'accompagnateur, c'est au professionnel ou à l'interprète de s'en charger.

- Un bref debriefing entre le professionnel et l'interprète est utile pour préparer de futurs entretiens avec des clients handicapés.

6   Conclusion

Nos «bonnes pratiques» se veulent générales, donc utiles pour des situations variées.

Le droit des personnes handicapées à l'accessibilité et à la participation implique en premier lieu que des prestataires de services se sentent à l'aise avec eux. Pour sa part, le client handicapé doit vite avoir l'impression qu'il peut avoir confiance en son interlocuteur.

L'objectif de ces pages est que l'interprète verbal réagisse avec professionnalisme et fasse un travail calme et efficace face à un client handicapé sensoriel ou cognitif, même si leur rencontre a un caractère inopiné.

Ces «bonnes pratiques» peuvent parfois sembler un défi au code déontologique de l'interprète, notamment en matière de neutralité.

Mais en réalité, les codes déontologiques existent pour que les clients puissent avoir confiance en leur interprète.

Un interlocuteur handicapé sensoriel ou cognitif – a fortiori s'il est allophone – ne s'exposera pas face à des professionnels s'il n'a pas confiance en eux. Le climat de confiance constitue donc la première priorité.

Remerciements

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Certification for Digital Accessibility Professionals and Teachers – A Survey on Existing Options and Considerations for a Way Forward

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Abstract

Certification for digital accessibility professionals and teachers is an important enabler towards a more inclusive society. However, there is currently no widely acknowledged certification scheme and body of knowledge for the field of digital accessibility in various professions including teaching. In its certification roadmap, the MOOC Accessibility Partnership has identified three existing certification options as solutions to be considered for the future. This paper describes them and provides considerations on a way forward towards a common certification scheme in Europe.

1 Introduction

When planning for changing the landscape towards a more inclusive society, it is essential to build capacity for digital accessibility in various professional fields, including education, work, government and services. Capacity-building requires a joint effort of higher education institutions and private entities to enable the current and future generations of professionals to understand the barriers that people with disabilities and older people encounter when using digital technologies, and to harness these technologies to build solutions that are fully accessible for all users.

Whereas there have been well-established bodies of knowledge and certification schemes in existence for many other fields, digital accessibility education is currently diffuse and fragmented in this regard. In the curriculum guidelines for a Computer Science bachelor of the North American Association for Computing Machinery (ACM), the topic of digital accessibility is scattered over three bodies of knowledge (Human-Computer Interaction, Information Management, and Social Issues and Professional Practice), but is not broken down into sub-topics (ACM/IEEE 2013). Similarly, in ACM's curriculum for an Information Technology bachelor, "Assistive technologies and accessibility" is one of eight subdomains of User Experience Design (ACM/IEEE 2017).

In Europe, the EU-funded project IDCNet (Inclusive Design Curriculum Network, 2002-2004) tried to identify core knowledge sets and skills for Design for All that should be included in design curricula for ICT (IDCNet 2005; Strobbe 2004). IDCNet defined a taxonomy of knowledge sets and skills that contained a general category (which also took interpersonal skills into account) and an ICT category. Efforts to define a curriculum were continued through the development of CEN Workshop Agreement (CWA) 16266, "Curriculum for training ICT Professionals in Universal Design", which was published in 2011 (CEN 2011). This document described a modular curriculum that could be adapted for various target groups, such as software developers, testers, designers and managers. Since the maximum lifetime of a CWA is six years, this document is no longer available on CEN's website.

In a report for the European Commission, the Council of European Professional Informatics Societies (CEPIS) has identified four building blocks required to mature the profession of ICT practitioners: Bodies of knowledge (BOKs), Competences, Education and Training (including certifications), and Professional Ethics (Innovation Value Institute / CEPIS 2012). CEPIS refers to the European Foundational ICT Body of Knowledge, as prepared for the European Commission, which lists "accessibility standards" as a possible topic

under Human-Computer Interaction (Capgemini Consulting / Ernst & Young 2015). Furthermore, digital accessibility has only recently been added to engineering design accreditation requirements of globally acting professional societies such as ABET (Shinohara 2018).

The European funded ERASMUS+ project "MOOC Accessibility Partnership" (MOOCAP) (2014-2017) has brought about a series of eleven online courses on various topics of digital accessibility, including four Massive Open Online Courses (MOOCs). The project partners agreed that, in order to build capacity for digital accessibility in Europe, we need a common certification scheme that would allow to educate students and professionals in a harmonized fashion across domains and countries, and to assess the level of expertise of digital accessibility among teachers, designers, programmers and other professions. Skills should be certified by a third party across Europe, or even globally.

We expect that, once there is a clearly specified body of knowledge (BOK) for digital accessibility (or multiple bodies for multiple sub-fields of digital accessibility) and clear requirements for certification, the following will happen: (1) Existing education and vocational training classes and courses will become harmonized in terms of their content; (2) Applicants for job positions can be better assessed with regard to their skills on digital accessibility, and applicants with a certificate will be ranked better than those without a certificate in general; (3) Demand for education and vocational training on digital accessibility will rise, causing an increase in training offerings; and (4) Digital accessibility capacity will increase with professionals and teachers who received training.

This will gradually lead to a more inclusive society. Note that there are different domains (e.g. education, work, government) that each have their own specifics, and development towards inclusion will probably not progress in all domains at the same time and at the same pace. In each domain (and possibly sub-domain), a process for improving inclusion needs to be started by defining bodies of knowledge and certifications that appropriately address the specificities of that domain.

For the educational field, there is currently no widely acknowledged BOK that specifies the knowledge and skills for teachers that are needed to teach in an inclusive manner that respects and accommodates the various needs and preferences of students with disabilities. The most advanced area with regard to established bodies of knowledge and certifications on digital accessibility is computer science, in particular web design. In the following chapter, we look at some existing certification schemes in this area. Then, in the concluding chapter 3, we provide some recommendations as to move forward in general, and for the educational field in particular.

2   Existing Options for Certification

In the process of creating a roadmap for certification (Zimmermann et al. 2017), the MOOC Accessibility Partnership has looked at several existing certification options, including the following.

The **European Computer Driving License (ECDL)** is provided by the ECDL foundation which is part of the Council of European Professional Informatics Societies (CEPIS). ECDL claims to be the world's leading computer skills certification with more than 15 million people having engaged with the ECDL program, in more than 100 countries (ECDL 2018). ECDL offers a wide range of modules and certificates, structured in basic, intermediate and advanced topics. The University of Linz (a partner of MOOCAP) has defined a module on Accessible Web Design, and a related certificate for Web Accessibility Experts. In general, digital accessibility skills would need to be established as new modules, including the definition of syllabi (specifying skills and competences), and test bases with questions for testing.

The **European e-Competence Framework (e-CF)** specifies a certification space as hierarchical structure with four dimensions: Areas, Competencies Levels, Knowledge, Skills. 40 profiles are pre-defined as specific certificates within this space. The e-CF became a European standard (EN 16234-1) in 2016. Since no digital accessibility competencies are defined in e-CF, it is not clear which of the 40 existing profiles should be extended, or whether new profiles should be created to reflect expertise on digital accessibility.

The **International Association of Accessibility Professionals (IAAP)** – which has merged in 2016 with the **Global Initiative for Inclusive ICTs** – is focused on promoting digital accessibility. Currently, it offers two certificates: The Certified Professional in Accessibility Core Competencies (CPACC), and the Web Accessibility Specialist (WAS). Further certificates are planned for the near future (2018/2019): Procurement specialist, Digital content specialist, and Native Mobile Accessibility Specialist. Once a person has acquired a certificate, they need to refresh it every three years by earning credit points (e.g. receiving vocational training, giving presentations on relevant topics). IAAP/G3ict is a membership-based organization, mostly driven by industry, but there is a plan for an IAAP university network of interest. However, it is not clear whether higher education institutes would be required to attain a fee-based corporate membership to become part of this network.

3   Considerations for a Way Forward

When looking at the existing certification options, it becomes clear that there is no silver bullet for moving forward towards a common certification scheme for digital accessibility expertise in Europe. However, we provide the following general recommendations to be followed: (1) There should be **one common certification scheme across Europe or better world-wide**. Most aspects of digital accessibility knowledge are valid globally, except for local or regional regulations. However, these can be accommodated by local variations of bodies of knowledge. (2) A certification scheme for digital accessibility, including its diverse fields, **should be extensible** to allow for growth and diversification in the future. (3) The certification scheme should **build upon an existing certification process and infrastructure**. (4) **Training and certification should not be provided by the same organization.** If an organization that drives the certification (i.e. defining the BOK and exam questions) would also provide education and training, this could run the risk that this organization will take advantage of the situation to gain a competitive edge over competitors in education and training. (5) When designing an infrastructure for a sustainable certification

scheme and process, **national and European Computer professionals associations** (such as CEPIS) should be involved.

For the field of teaching with accessible digital media, there needs to be a separate BOK and certification scheme. This would possibly be a part of the BOK series on digital accessibility in other domains. Anyway, specification of the BOK and certification should be harmonized with other BOKs in this area, since there are many overlapping topics.

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