

A Project-Based Learning Approach in Interlingual Subtitling: *Learn Autism* as a Case Study

Amer Al-Adwan¹, Mahmoud Alhirthani¹, Rashid Yahiaoui¹, Hadya Al-Keilani¹

¹ College of Humanities and Social Sciences, Hamad Bin Khalifa University, Doha, Qatar

Correspondence: Amer Al-Adwan, College of Humanities and Social Sciences, Hamad Bin Khalifa University, Doha, Qatar.

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Abstract

This paper explores the implementation of a project-based learning approach to interlingual subtitling during an internship offered by the Master's in Audiovisual Translation program at Hamad Bin Khalifa University. It provides a detailed account of the project's workflow in collaboration with the *Learn Autism* platform and examines the pedagogical and professional dynamics of the internship. Notably, the project presented unique challenges due to the nature of the audiovisual material, as several videos featured speakers with autism whose speech patterns posed additional difficulties for Arab subtitlers in terms of comprehension, segmentation, and readability. The paper also examines the linguistic and technical challenges encountered throughout the project and the strategies adopted to address them. To achieve this objective, the study draws on course documents and reference materials, including the project work plan, specialized glossaries, and autism guides. The findings provide an in-depth account of the project's operational workflow, including weekly meetings, task allocation, and the interns' responsibilities, and demonstrate that technical challenges often proved more demanding than linguistic ones. Beyond documenting the case study, the paper offers practical pedagogical recommendations for audiovisual translation programs, including integrating professional subtitling software training, authentic client-based projects, and structured support for student-client communication. The findings further demonstrate that project-based learning is an effective approach for developing both technical and professional competencies while facilitating the translation of specialized knowledge on autism for Arab audiences. Finally, the proposed project model can be adapted to different educational settings, language pairs, and case studies to support similar learning outcomes.

Keywords: Audiovisual translation, interlingual subtitling, project-based learning approach, education, *Learn Autism*.

1. Introduction

In recent years, scholars have increasingly emphasized the need to enhance translator education and training to adequately prepare future practitioners for the continuously evolving translation market (Neves, 2022). This need is particularly salient in audiovisual translation (AVT), where translators are expected to possess a distinct combination of linguistic and technical competencies. To become an AVT specialist, translators must not only demonstrate linguistic proficiency but also be a “techie” or “translator plus” who is familiar with and capable of using the latest technological developments in the field (Thawabteh & Al-Adwan, 2021, p. 1).

In interlingual subtitling, subtitlers can be trained through conventional classroom tasks and advanced assignments. In professional practice, however, subtitling involves more than translating a text and importing subtitles into specialized software. It is a collaborative process that requires interaction with clients, project managers, and other members of the translation team. Such interactions expose trainees to professional dynamics that are difficult to replicate in a conventional classroom. As Schögler (2017) explains, translation is not merely the transfer of meaning between languages but a social practice shaped by interactions among various actors in professional and institutional contexts. Researchers adopting this perspective:

examine the selection, production, distribution, and reception of translation. They take into account the actors (not only the translators) involved in translation, the processes (what happens when translating, what kind of manipulative forces act on translation), and the product (the translations). (p. 402).

This perspective highlights the value of project-based learning (PBL), as authentic translation projects allow students to engage with the linguistic challenges of subtitling while experiencing the collaborative and organizational dimensions of professional practice. Incorporating real-world projects into translator training can therefore provide students with a more comprehensive understanding of professional subtitling.

Within this framework, PBL is defined as a “constructivist instructional method that supports students' learning process through group work and social interaction in order to solve problems” (Vaca Torres & Gómez Rodríguez, 2017, p. 59). The Master's in Audiovisual Translation at Hamad Bin Khalifa University in Qatar provides such opportunities through its summer internship, which incorporates real-world projects in interlingual subtitling and other AVT modes, such as dubbing and audio description (AD). Drawing on a larger study conducted as part of an MA thesis (Al-Keilani, 2023), this paper examines the implementation of a real-world English-Arabic interlingual subtitling project undertaken during the 2022 internship in collaboration with *Learn Autism*. The materials subtitled by the

interns consisted of documentaries about autism. More broadly, the study describes the project's dynamics, processes, and workflow from the first day of the internship, illustrating the steps taken to produce professional-quality work. It focuses primarily on the challenges encountered and the strategies employed to address them. One motivation for this research is PBL's potential to produce meaningful real-world outcomes by enhancing students' competencies at the educational, personal, and professional levels. Martins and Ferreira (2019) argue that incorporating projects into AVT courses can help develop students' market-relevant skills, including independent thinking, problem-solving, creativity, and adaptability. This pedagogical approach can therefore achieve more than merely transmitting abstract knowledge or simulating professional subtitling tasks in the classroom.

The paper seeks to encourage the adoption of PBL in other Arab educational contexts and, in turn, contribute to the advancement of AVT education in the region. It also aims to provide academics and subtitlers with a detailed account of the potential challenges encountered in English–Arabic subtitling projects and the corresponding solutions. This account may help them anticipate similar obstacles and apply appropriate solutions from the outset, thereby saving time and effort. The paper may also serve as a useful resource beyond Arabic-language contexts, as several of the issues discussed are not language-specific. Ultimately, it highlights the advantages of PBL in developing students' skills beyond what can typically be achieved through traditional theoretical instruction or classroom-based simulations. These aims are addressed through the following research questions:

1. What dynamics and workflows characterize the implementation of a PBL approach in subtitling?
2. What challenges and issues arise when implementing this approach?
3. What solutions were identified throughout the project?

2. Teaching AVT in the Arab World

In the Arab world, most academic institutions have yet to recognize AVT as an independent field (Al-Adwan & Al-Jabri, 2023). Compared with translation studies and other language-related disciplines, AVT remains a relatively new field in the region. Gamal (2014) observes that researchers in Arabic translation have largely overlooked the significance of the screen, focusing instead on print translation. Gamal attributes academics' limited engagement with AVT to a combination of factors. On the one hand, it is perceived as a trendy field associated with younger audiences; on the other, it was largely absent from the formative experiences of many faculty members. Consequently, AVT has sometimes been perceived as expensive, irrelevant, and of limited academic importance.

By contrast, Al-Dabbagh (2017), in arguing for the integration of subtitling courses into Jordanian universities, attributes the limited interest in AVT and subtitling to the scarcity of relevant courses at both the undergraduate and postgraduate levels. Although 12 universities in Jordan offered BA programs in translation studies, only two, Yarmouk University and the German-Jordanian University, offered elective courses in AVT. Since then, however, the AVT landscape in Jordan has evolved considerably. The growing demand for audiovisual translation has prompted several universities, including the University of Jordan, Middle East University, and Applied Science Private University, to incorporate AVT courses into their translation studies programs.

This expansion reflects a broader regional trend. For example, Al-Adwan (2019) identifies Al-Quds University and HBKU as institutions offering AVT courses. Al-Adwan further describes the launch of HBKU's MA in Audiovisual Translation program as a "turning point," noting that it has produced "an increasing number of audiovisual translators, especially in subtitling, dubbing and translation for accessibility" (p. 64).

Despite this progress in the provision of AVT education, the methods used to educate and train translators at the program level remain insufficiently examined. El-Karnichi (2024) observes that "there is still a lack of thorough, investigative, or ethnographic research that critically evaluates the techniques for teaching and training translation at the program level, despite the progress made in this field" (p. 96). This gap is particularly pronounced in the Arab region, where "a significant portion of the available literature is either theoretical or based on personal opinions" (p. 96). These observations underscore the need for more systematic, evidence-based investigations of AVT pedagogy and training practices at Arab universities.

Focusing specifically on the current state of subtitling research, Al Tamimi and Mansy (2023) identify several major trends and persistent gaps in the Arab world. They recommend developing a theoretical model for English–Arabic subtitling to inform professional practice, translator training, and academic research, as well as compiling specialized dictionaries and encyclopedias of cultural references. The authors also observe that academics and practitioners have become increasingly aware of these challenges, contributing to a growing body of research aimed at addressing them. This expanding scholarly engagement indicates that AVT research is gaining momentum and is likely to strengthen academic inquiry, pedagogical practice, and professional training across the region. Recent studies have addressed a broad range of topics, including the translation of metaphors, slang, sensitive language, and other cultural references (Al-Adwan & Al-Jabri, 2023; Al-Adwan, 2024; Ali et al., 2024; Olimat et al., 2023); the translation of humor (Al-Adwan & Thawabteh, 2021; Yahiaoui et al., 2020); game localization (Al-Ajarmeh & Al-Adwan, 2022; Al-Batineh et al., 2025); and the use of translation technologies and corpus-based methods (Abu-Rayyash et al., 2023; Ibourek & Al-Adwan, 2019).

3. Subtitling

Pérez-González (2014, p.15) defines subtitles as "snippets of written text superimposed on visual footage that convey a target language version of the source speech". Similarly, Chaume (2013, p.112) defines subtitling as "incorporating a written text (subtitles) in the target language on the screen where an original version film is shown, such that the subtitles coincide approximately with the screen actors'".

dialogues”. Although these definitions provide useful general descriptions, subtitling extends beyond the transfer of spoken language. It is a multimodal practice involving multiple semiotic channels, including verbal, visual, and acoustic elements. Reflecting this broader perspective, D áz-Cintas and Remael (2021) define interlingual subtitling as:

a translation practice that consists in presenting a written text, generally on the lower part of the screen, that aims to recount the original dialogue exchanged among the various speakers, as well as all the other verbal information that is transmitted visually (letters, inserts, graffiti text messages, inscriptions, placards, and the like) and aurally (songs, voices of, voiceover narration) (p. 9).

D áz-Cintas and Remael (2021) argue that the heterogeneity of subtitling practices may contribute to inconsistent quality. In response, scholars have proposed standards and guidelines intended to promote greater consistency, including those developed by Karamitroglou (1998) for European languages in general, D áz-Cintas (2003) for Spanish, and Al-Adwan (2019) for Arabic. Al-Adwan (2019) further contends that regulating subtitling practices and improving their quality require collaboration among stakeholders from diverse backgrounds, including “industry, academic institutions, training centers, and governmental bodies” (pp. 64–65). Such collaboration, however, remains largely absent in the Arab world. Al-Adwan argues that it could facilitate “the compilation of a list of subtitling conventions” for subtitlers and subtitling companies, which would “boost subtitling quality in the Arab World and hence improve Arab viewers’ experience” (p. 63). The resulting guidelines would therefore be grounded in professional practice, theoretical knowledge, and accumulated research. Beyond improving subtitle quality, the “collective action” generated through such collaboration could help address broader industry challenges, including “poor working conditions” and the lack of professional recognition (Silvester & Tuominen, 2021, p. 122). In discussing interlingual subtitling norms, Pedersen (2018) similarly observes that translation norms are strongly shaped by technical norms, which constrain both the space available to subtitlers and the choices they can make.

4. Project-based Learning Approach

Traditionally, translator training has been dominated by a “teacher-centered” model in which instructors transmit knowledge and assign short tasks and exercises designed to develop students’ translation skills (Szarkowska, 2019, p. 182). This form of instruction remains essential, particularly during the initial stages of learning a new skill such as subtitling, when students require structured guidance. However, it is not the only effective approach and can be supplemented by more experiential forms of learning. Szarkowska (2019) argues that traditional instruction and PBL can coexist in the same course and complement one another, as she demonstrates in her subtitling course. An early influential discussion of PBL can be found in Blumenfeld et al. (1991), who present it as a promising approach to stimulating students’ motivation and critical thinking in the classroom. Subsequent studies, including Kiraly (2005) and Szarkowska (2019), advocate involving subtitling students in real-world projects that expose them to professional practices before graduation.

Serrano et al. (2022) define PBL as “a teaching method in which students develop competencies through professional experiences” (p. 1). Although concise, this definition captures the general purpose of PBL and foregrounds a central concern of the present study: the importance of professional experience in subtitling education. It should be noted, however, that PBL does not necessarily involve authentic professional experiences, as it may also be implemented through simulated projects. The present study focuses specifically on projects conducted under professional conditions. Blumenfeld et al. (1991) offer a more comprehensive definition, which is also cited by Li et al. (2015):

Project-based learning is a comprehensive perspective focused on teaching by engaging students in investigation. Within this framework, students pursue solutions to nontrivial problems by asking and refining questions, debating ideas, making predictions, designing plans and/ or experiments, collecting and analyzing data, drawing conclusions, communicating their ideas and findings to others, asking new questions, and creating artifacts (p. 371).

In other words, within such projects, students are not merely learners; they also assume the roles of project managers, problem solvers, coordinators, and creators. This view is supported by Al-Sowaidi’s (2021) study of PBL in business translation, which demonstrates that trainees move beyond the passive role of translators to become active participants capable of translating, revising, editing, and managing projects. These outcomes can be achieved in both in-person and online settings. Approaching PBL from an online perspective, Ringotama et al. (2022) define it as “a learning method that involves students gaining knowledge to produce a final product through discussions and strategies guided by the teacher using students’ prior knowledge with the help of online tools and platforms” (p. 470). This definition positions students’ prior knowledge as a central component of PBL. Undertaking a project may therefore require students to have already developed the skills, techniques, strategies, and theoretical knowledge necessary for professional practice. This principle was incorporated into the project examined in the present study.

4.1 Benefits of the PBL Approach

Implementing authentic projects for real clients in university settings can benefit translation students in several ways. Kiraly (2005) argues that such projects can enhance students’ motivation by demonstrating that their work reflects the complexity of professional tasks. They can also strengthen students’ self-confidence by allowing them to assess their progress against professional criteria and by preparing them for future practice through exposure to texts similar to those they will encounter in the workplace. Similarly, Istiqomah et al. (2018) identify increased motivation as a key benefit and add that cooperative project environments can enhance students’ social and teamwork skills.

Szarkowska's (2019) study further illustrates these benefits through an analysis of student feedback collected during a subtitling project. The responses were organized into several themes, including the "real-life task," which attracted positive comments (p. 190). One student valued the project because the resulting work would be used by an actual audience. Two other students described the project as challenging and demanding, but appreciated that their work had a practical purpose and contributed to something beyond the university. In the context of PBL, perceptions of difficulty may be interpreted positively, as they can indicate that students are encountering unfamiliar obstacles that require greater effort, critical thinking, and problem-solving.

This interpretation aligns with Kiraly's (2005) observation that, by the end of an authentic subtitling project, students' ability to "complete their difficult new task" of importing subtitles using the client's hardware and software demonstrated a high degree of autonomy (p. 1109). Encountering and overcoming difficulties can therefore play an important role in empowering students, a central objective of what Kiraly describes as "an empowerment approach" (p. 1102). In a later study, Kiraly (2012) explains that this approach seeks to empower students "to take responsibility for their own learning, their own sense-making and their own futures" (p. 84). It also contributes to the development of independent thinkers, effective problem solvers, and knowledgeable translators who become "neo-professionals", equipped with a thorough understanding of the skills and competencies required in professional practice "beyond the ivory tower" (p. 89). The development of such qualities should be integral to any PBL initiative, regardless of the discipline. By engaging students in authentic professional practices, PBL can shape their professional identities in ways that classroom-based theoretical instruction alone cannot.

In a recent study, Salamah (2026) examined the effectiveness of PBL by collecting data from 58 senior undergraduate translation students. The findings indicated that "the students had overall positive attitudes towards project-based learning, preferred translation projects over translation exams, and believed project-based learning contributed to the development of their translation competence" (p. 1). These positive perceptions suggest that PBL not only enhances students' learning experiences but also supports the broader objectives of translator education, particularly the preparation of students for professional practice. As Neves (2022) observes, "it may be argued that translator training/education institutions have made great efforts towards making their translators fit into the professional communities in which they are expected to find a job" (p. 468).

5. Case-Study Context and Methodology

5.1 The Audiovisual Translation Program

Before presenting the *Learn Autism* case study, it is important to situate the project within the broader context of HBKU's Master's in Audiovisual Translation (MAAT) program. When the project was undertaken in 2022, the College of Humanities and Social Sciences at HBKU offered two graduate programs: the Master's in Translation Studies and the Master's in Audiovisual Translation. In 2025, these programs were consolidated into a new master's degree titled Translation for the Creative Industries.

The MAAT program was designed to integrate academic research with professional practice through a four-semester curriculum that included a summer internship. During the first year, students developed a strong foundation in translation theory and practice, Arabic stylistics, research methods, and academic writing. They were also introduced to two core audiovisual translation modalities, subtitling and voicing, through a combination of theoretical instruction and practical training. The summer internship subsequently enabled students to apply their knowledge and skills in an authentic professional setting. During the final year, students completed a course in intersensory translation for accessibility, selected two elective courses, and conducted independent research culminating in a master's thesis.

The Subtitling course provided the primary preparation for the internship. Students were introduced to both interlingual subtitling and subtitling for deaf and hard-of-hearing (SDH) audiences. They also received extensive hands-on training in WinCAPS Qu4ntum in a dedicated computer laboratory, where each student had access to a licensed copy of the software. The course began with an introduction to the principles and conventions of subtitling, followed by step-by-step instruction on using professional subtitling software. Students were also provided with the MAAT subtitling guidelines, which outlined the technical, linguistic, and punctuation conventions governing Arabic subtitling.

Throughout the semester, students completed weekly subtitling exercises across a wide range of audiovisual genres and text types, receiving both oral and written feedback on their work. Their progress was assessed through graded assignments, an in-class test, and a collaborative final project. This sustained, practice-oriented training equipped them with the technical, linguistic, and decision-making skills required to undertake the interlingual subtitling project during their subsequent internship with the *Learn Autism* platform.

5.2 The Learn Autism Platform

Learn Autism is a platform that provides informational content on autism spectrum disorder. It "provides evidence-based information on a wide range of topics from pre-diagnosis to adulthood in bite-size, on-demand videos" (Learn Autism, 2025). According to its website, its contributors include "leading experts in the field of Autism, parents of autistic children and autistic individuals, including our co-founder Dr. Stephen Shore" (Learn Autism, 2025). Its English-language content is delivered through videos, podcasts, and blogs, encompassing audiovisual, audio, and written formats. For the purposes of the internship project, only video materials were used because they aligned directly with the objectives of audiovisual translation training.

The source materials selected for the project consisted of short videos featuring personal accounts from autistic individuals, presentations on therapeutic tools and protocols, recommendations on various aspects of autism, and instructional sessions delivered by special

educators and parents of autistic children. These materials provided the interns with an authentic audiovisual corpus that combined general language with specialized autism-related terminology.

5.3 Methodology

This study adopts a qualitative case-study approach to examine the implementation of project-based learning in an authentic interlingual subtitling internship. The bounded case is the *Learn Autism* subtitling project undertaken by students enrolled in HBKU's Master's in Audiovisual Translation program during summer 2022. A case-study design was considered appropriate because it allows for a context-sensitive examination of the project's organization and workflow, stakeholder collaboration, and the technical and translation-related challenges encountered during its implementation.

Although internships are generally understood as project-based experiences involving real clients in professional settings, this is not invariably the case. In some contexts, interns may work at a company and complete a series of unrelated translation or subtitling tasks for daily submission. By contrast, the internship examined here required participants to complete a single project for a real client, from initial preparation to final delivery. It therefore constituted a fully project-based model and provided a clearly bounded case for examining the application of project-based learning in audiovisual translation training.

The internship took place immediately after the students had completed the Subtitling course. It was originally scheduled to run for four weeks, from May 15 to June 12, 2022, but the submission deadline was extended to June 20 because of technical difficulties. The internship comprised two projects: one involving audio description and another involving interlingual subtitling. As the present study focuses exclusively on the latter, the audio-description project was excluded from the analysis.

The interlingual subtitling project involved three principal stakeholder groups: the MAAT faculty members, who served as project managers; two representatives of *Learn Autism*, who represented the client; and six MAAT interns. All six interns were female native speakers of Arabic who spoke English as a second language. As explained in Section 5.1, they had completed the program's Subtitling course and were familiar with WinCAPS Qu4ntum, the professional subtitling software used throughout the project. The students provided written consent to participate in the study, and their identities were anonymized in the project's description and analysis. *Learn Autism* also provided written consent for the researchers to analyze the publicly available subtitled videos on its website and describe the workflow through which they were produced.

The primary dataset consisted of 30 English-language video clips, each approximately three to five minutes in length, together with the Arabic subtitles produced by the interns. The supplementary project materials included time-coded English transcripts supplied in .srt format, the client's Arabic subtitling guidelines, the MAAT subtitling guidelines, an English–Arabic glossary of autism terminology, and Arabic-language reference materials supplied by the client. The analysis also drew on available project records relating to stakeholder meetings, queries raised by the interns, feedback provided by the project managers and the client, and technical and translation-related problems encountered during the internship. These records were used to clarify and reconstruct relevant aspects of the workflow rather than being treated as a complete archive of project communications or as an independently coded dataset.

The project was analyzed qualitatively and descriptively. The analysis first reconstructed the principal stages of the workflow, including the distribution and allocation of the clips, technical preparation, translation, review, and final delivery. The project materials, subtitle outputs, and available records were then examined to identify recurring issues that affected the project's implementation. These issues were organized into three broad categories: linguistic and terminological challenges, technical challenges, and subtitling guidelines. Relevant subtitle examples were examined in relation to the client's requirements and the applicable technical, linguistic, and punctuation conventions. The analysis focused particularly on how the interns applied their previous classroom training, responded to authentic professional constraints, and sought assistance from the project managers and the client when they encountered problems they could not resolve independently.

6. Project's Dynamics and Workflow

On the first day of the internship, an in-person meeting was held in the laboratory to explain the internship structure, introduce the two projects, audio description, and interlingual subtitling, and allocate tasks among the interns. The project managers provided each intern with a printed work plan outlining the internship, expected deliverables, and deadlines established at the outset. The session also clarified the project requirements, participants' responsibilities, and final submission procedures. Providing a clear plan from the first day helped establish an organized workflow and reduced the time and effort needed to understand the process. Throughout the internship, the document served as a reliable reference for deadlines, required files, recommended time-management strategies, and workflows for both projects.

The interns' two primary responsibilities in the subtitling project were translating and subtitling the documentaries. Each intern was assigned between three and six clips, depending on the combined duration of those clips. The interns were responsible for every stage of the subtitling process. These stages included viewing the material, consulting the client-provided transcripts to clarify ambiguous utterances, translating the source text, inserting subtitles using the software, configuring spatial, temporal, and punctuation parameters in accordance with the *Learn Autism* and MAAT guidelines, and reviewing peers' work.

From the first day, the interns were organized into six review pairings, each consisting of a subtitler and a reviewer. The review assignments followed a rotating pattern to prevent reciprocal pairing. For example, Intern 1 reviewed Intern 2's work, while Intern 2

reviewed Intern 3's work. This structure allowed each intern to collaborate with multiple colleagues, thereby fostering skill development and exposure to different perspectives. Ukušová (2020) highlights the value of pair work in authentic subtitling projects, noting that it teaches students to collaborate and resolve inconsistencies in their assigned segments. The study also notes that students have opportunities to assume the roles of proofreaders or editors, which require a higher level of responsibility and expertise than translation alone.

Once the key aspects of the internship had been clarified during the initial meeting, the interns began the audio description project, followed by the subtitling project. Throughout both projects, they were required to document all challenges and issues encountered to support the preparation of their individual reports. Writing these reports formed an important part of the learning process because it encouraged the interns to reflect on potential subtitling difficulties and the strategies used to address them. The reports could also serve as useful references in their future professional practice. After completing the projects, each intern submitted a portfolio to the project managers. The portfolio included the translated and subtitled files in ".w32" and ".srt" formats, the final subtitled videos, and the materials produced for the audio description project. The client subsequently uploaded the final videos to its platform.

At the beginning of the subtitling project, the project managers shared the client's video clips and supporting documents, along with an AVT glossary, with the interns. Initially, communication with the client was handled exclusively by the project managers. To streamline the workflow, two *Learn Autism* representatives were later added to a WhatsApp group that already included the project managers and interns. The group was used to schedule meetings, coordinate tasks, facilitate decision-making, address brief queries, and highlight important project-related matters. Although some interns initially felt uncomfortable communicating directly with the client and found the experience somewhat stressful, this interaction ultimately proved valuable. It provided them with first-hand experience in raising and discussing project-related issues with a client and working collaboratively to identify solutions acceptable to all parties. Direct communication also enhanced workflow efficiency by eliminating the need to relay questions and responses through project managers.

The first project meeting was initially planned to take place in the laboratory or a conference room. However, due to prior commitments, it was moved online and proved to be both effective and productive. Consequently, all subsequent meetings were conducted via Webex. The online format did not impede the project's progress; rather, it saved time and effort, reduced the logistical burden of resolving technical issues, and enabled the interns to devote more attention to the project itself. Given the nature of the work and the tasks involved, face-to-face meetings would have offered no substantial advantage over the online format.

During the meeting, a *Learn Autism* representative introduced the team and the platform, then explained the translation guidelines. Particular emphasis was placed on the careful treatment of terminology because of its sensitive and specialized nature. The interns were instructed to consult the client's dictionary, glossary, and supporting documents. When a new term arose, the team agreed on a single translation, applied it consistently, and added it to the shared terminology list. This process gradually produced a cumulative resource that could be consulted throughout the project. The representative also emphasized that punctuation should not appear at the beginning or end of a subtitle line. When the subtitles were uploaded to the platform, an Arabic rendering issue could alter the position of punctuation marks. Avoiding punctuation in these positions was therefore an explicit requirement of the *Learn Autism* guidelines.

Following the first meeting, the interns began working individually on their assigned clips. All project files were shared through SharePoint and Google Drive. The cohort also maintained a WhatsApp group that had originally been established during their first year of study. The group served as an informal collaborative space in which interns could seek prompt support, exchange ideas, discuss emerging issues, and work collectively toward solutions. They continued to use the group throughout the internship and in subsequent courses. Thus, although each intern was individually responsible for translating their assigned clips, collaboration remained an integral component of the project workflow. More complex issues were referred to the relevant party according to their nature. Technical subtitling matters, including timing, segmentation, and synchronization, were directed to the project managers. The project managers also provided general guidance on linguistic and translation-related questions, whereas issues requiring specialized knowledge of the source materials, particularly those involving autism-specific terminology and concepts, were referred to the client. The most challenging cases encountered during this process are discussed in the following section.

7. Challenges, Issues, and Solutions

Subtitling, like any professional practice, presents a range of challenges for both practitioners and learners. Khalaf (2016) classifies these challenges as primarily technical, cultural, or linguistic. This section focuses on the linguistic and technical issues that were most prominent during the project. Because subtitling involves multiple stages, different challenges emerged at various points in the workflow. During the translation of the source text, the principal linguistic difficulties involved unclear dialogue and specialized terminology. During the subtitling stage, technical challenges became more prominent, particularly those involving the use of WinCAPS Qu4ntum and the application of the *Learn Autism* and MAAT guidelines. Each of these challenges is discussed in detail below.

7.1 Linguistic Challenges

The first challenge involved translating indistinct utterances, particularly those produced by speakers who talked rapidly or delivered lengthy stretches of dialogue. Because some utterances were slurred or unclear, they were not included in the transcripts provided by the client. To address this problem, the interns replayed the relevant segments several times to accurately identify the words. If an utterance remained unintelligible, they shared it in the cohort's WhatsApp group and sought assistance from their colleagues. Although this collaborative approach sometimes produced a solution, it was not always successful. When the dialogue could not be identified, it was

subtitled as “speech indistinct”, in accordance with the work plan approved by the project managers at the beginning of the internship. This challenge is particularly relevant to AVT because it arises from the interaction between the spoken, visual, and contextual elements of audiovisual texts.

The second major challenge concerned medical terminology in general and autism-related terminology in particular. Translating specialized terms requires considerable precision. Because the clips were documentaries intended primarily to inform audiences about autism, the translation prioritized content and terminological accuracy over stylistic considerations (Munday, 2016). The objective was therefore to provide accurate, widely accepted Arabic equivalents for the specialized terms. Whenever a technical term was encountered, the interns first consulted the dictionaries, glossaries, and supporting documents provided by the client and project managers. However, some terms were not included in any of these resources. In such cases, the interns adopted one or more of the following strategies:

- They consulted the Unified Medical Dictionary (UMD) on the World Health Organization (WHO) website, which was particularly useful for autism-related terminology.
- They verified possible equivalents using other reputable online dictionaries.
- When dictionaries provided multiple equivalents, they used search engines to determine which translation was most widely used in the relevant context.
- If uncertainty remained, they sought guidance from their colleagues through the cohort’s WhatsApp group.
- If a decision could not be reached, they contacted the client for clarification and advice.

One example involved translating the expression “kids on the spectrum.” After consulting dictionaries, glossaries, and several websites related to autism, the interns identified several possible Arabic translations, including أطفال المتوحدين, الأطفال المصابون بالتوحد, and أطفال الطيف. Their respective back translations are “kids who have autism”, “autistic kids”, and “kids of the spectrum”. The first two options were considered inappropriate because they could carry negative connotations and present autism as a medical condition, defining the child. The third option was rejected because it is linguistically unnatural in Arabic.

Following discussions among the interns and consultations with the client and project managers, the team selected أطفال طيف التوحد, which literally means “kids of the autism spectrum”. Translation decisions of this kind were made collaboratively to ensure consistent usage across all clips. Consistency was essential because the clips would be uploaded to the same platform and could be viewed by the same audience. Maintaining terminological consistency was particularly important for documentaries containing specialized terminology, but it also contributed to the overall quality and coherence of the final product across all adopted solutions.

In addressing the two challenges discussed above, indistinct dialogue and specialized terminology, as well as the challenges that emerged later, the participants worked as a cohesive team. The project, therefore, contributed to the development of their teamwork and collaboration skills. Although each intern was responsible for subtitling assigned clips individually, the interns readily assisted one another, even when such support was not formally required. This was particularly evident when they attempted to decipher slurred speech and establish consistent translations for technical terms. The difficulties encountered strengthened their ability to cooperate, support one another, and identify appropriate solutions. Hariyanto (2021) explains that collaboration enables students to fulfill the team’s mandate by producing a unified outcome. In this project, the outcome included the consistent translation of sensitive technical terminology. Collaborative work was therefore a defining feature of the subtitling process. According to Szarkowska (2019), teamwork and collaboration involve shared responsibility and communication among learners as they work together to find solutions.

Faculty members did not function solely as instructors; they also served as facilitators (Al Sowaidi, 2021) and project managers, overseeing and coordinating workflow and approving final decisions. Meanwhile, the interns were afforded opportunities to work both autonomously and collaboratively, reflecting a core principle of PBL. When particularly complex issues could not be resolved, the project managers permitted the submission of files containing incomplete or unresolved segments for further review.

7.2 Technical Challenges

The technical dimension of the project was particularly demanding and exposed the interns to the realities of professional subtitling practice. These challenges demonstrated that even students with strong preparation in translation and subtitling may encounter additional problems that are sometimes more difficult to resolve than the translation task itself. The technical challenges fell into two main categories: those associated with the professional software WinCAPS Qu4ntum and those arising from the requirements established in the *Learn Autism* and MAAT guidelines. Each category is discussed in detail below.

The first technical challenge concerned downloading the clips from SharePoint and importing them into WinCAPS Qu4ntum. The clips were provided in MP4 format, which was incompatible with the software, so they had to be converted to either WMV or AVI before the subtitling process could begin. However, WinCAPS Qu4ntum did not accept all the converted files. For reasons that could not be determined, some files could be imported successfully only when converted on one participant’s Mac laptop, whereas those converted on other participants’ devices were not consistently recognized by the software. To overcome this issue, the participant volunteered to convert the files for colleagues who encountered the same difficulty.

This challenge demonstrates that subtitling entails considerably more than the transfer of meaning between languages. It requires interns to possess not only linguistic competence but also substantial technical proficiency in using subtitling technologies (Thawabteh &

Al-Adwan, 2021). The cause of the inconsistent compatibility of the converted files could not be identified and may require investigation by a technical specialist. Repeated attempts to convert the files became a recurring and time-consuming obstacle. Moreover, the conversion process was lengthy, delaying the interns' progress and contributing to stress and fatigue early in the project.

Although this challenge was not directly related to the linguistic dimension of subtitling, it reflects the practical difficulties that may arise in professional subtitling projects. Technology, including software, file formats, and production workflows, is integral to AVT and requires practitioners to possess adequate technical knowledge. In their discussion of subtitling training, Díaz Cintas and Remael (2021) identify multimodality as a defining feature of AVT and consequently emphasize the need for translators to develop digital competence. Although the file compatibility issue did not stem directly from the multimodal nature of the audiovisual texts, resolving it required technical expertise or, at a minimum, sufficient technological awareness and troubleshooting skills. Participation in an authentic project demonstrated that solutions to professional problems are not always readily available. The interns' independent efforts to address the issue also exemplify PBL's learner-centered nature (Istiqomah et al., 2018). Throughout the project, the team managed the problem through experimentation and progressively developed its own solutions to the technical challenges encountered.

The second challenge was more complex and involved synchronization problems affecting certain clips after they were imported into WinCAPS Qu4ntum. The subtitles either appeared after the speakers had begun speaking or disappeared before they had finished, even when the in and out times had been set correctly. Some interns addressed the problem by using computers in the university laboratory, although this solution was not effective for every clip. Following a group discussion, the team contacted the IT project coordinator at CHSS. As the coordinator lacked specialized knowledge of the software, the team was referred to the WinCAPS Qu4ntum support team. Although the support team successfully resolved the synchronization problem, a further issue emerged concerning the duration and time index of the clips. For example, a video originally three minutes long appeared to be eight minutes long after being imported into the software. While the audiovisual content continued to play at its normal speed, the time index displayed in WinCAPS Qu4ntum advanced faster. Consequently, a scene occurring at the second minute of the original video might appear at the fourth minute of the imported file.

When the team contacted the WinCAPS Qu4ntum support team again, the explanation provided was highly technical and exceeded the participants' level of expertise. The issue was therefore referred to the client and the project managers, who agreed that the files could be submitted without finalized in-and-out times, as any assigned values would not accurately correspond to the audiovisual content.

Additional software-related problems arose throughout the project, including delays, poor responsiveness, and audio loss in some clips. The submission of files with unresolved timing issues indicated that no definitive solution had been identified, primarily because the team lacked sufficient knowledge of the software's technical properties. The problem might have been resolved through the involvement of a specialist with advanced expertise in WinCAPS Qu4ntum or through more intensive student training in the software's relevant features and troubleshooting procedures. Such preparation would have better equipped the interns to address similar technical difficulties independently.

The technical difficulties caused considerable delays and ultimately required an extension of the deadline for submitting the final portfolio. Beyond developing technical skills, addressing problems of this complexity required the interns to engage with various members of the wider professional and academic community to achieve the project's objectives. The project, therefore, created a learning environment in which knowledge developed through a nonlinear and interconnected process.

Kiraly (2012) explains that, rather than being merely "situated" within a fixed context, learners become inseparable from the situations in which they participate, "with each situation itself being situated in ever more complex situations" (p. 89). Instead of working exclusively in a classroom, where guidance is generally provided by a single instructor, the interns had to communicate and collaborate with several individuals and groups both within and outside the university. Kiraly (2016) identifies authenticity and collaboration as key characteristics of an effective learning environment. Accordingly, a particular strength of this project was the opportunity it provided interns to engage in authentic professional interactions with their peers, the IT project coordinator, the WinCAPS Qu4ntum support team, the client, and the project managers. Through these interactions, the interns became part of a broader professional network and gained practical experience that could not have been replicated through classroom instruction alone.

7.3 Learn Autism's and MAAT's Subtitling Guidelines

Once the clips had been successfully imported into WinCAPS Qu4ntum, the interns began inserting the subtitles, which was a pivotal stage of the project. A major challenge involved complying with the *Learn Autism* and MAAT guidelines, either separately or simultaneously. These guidelines drew on subtitling conventions and norms established at both local and international levels. Pedersen (2018) explains that subtitling norms initially developed within national contexts, became increasingly international with the expansion of DVDs and commercial television, and later acquired a global dimension with the emergence of streaming platforms. Many of the difficulties encountered during this stage concerned the technical requirements specified in both sets of guidelines. These included spotting, the permitted number of characters per line, and the use of punctuation. The challenges associated with each requirement are discussed separately below.

The first challenge concerned spotting, or timing. For several reasons, the interns were not always able to comply with the MAAT guidelines governing subtitle duration. These guidelines specify that "part of a single line should appear on screen for a minimum of 1 second and 5 frames" and that "two liners should appear on screen for a maximum of 6 seconds". In some instances, the second requirement had to be relaxed, allowing a subtitle to remain on screen for longer than six seconds. This decision was made to preserve the

semantic coherence of a complete sentence rather than divide it into separate segments. Although this strategy preserved the intended meaning, it may have increased viewers' reading load and made the subtitles more difficult to follow.

Pauses and filler expressions such as "you know," "um," and "like" further contributed to this challenge. The relevant utterances were not divided into separate subtitles because doing so could have disrupted the continuity of meaning in the Arabic translation. D'áz Cintas and Remael (2021) explain that effective segmentation should respect the syntactic structure of the original utterance and preserve coherent units of meaning to enhance readability. The interns, therefore, prioritized semantic coherence and appropriate segmentation over strict compliance with the six-second maximum display duration.

The minimum duration requirement also presented difficulties. In one instance, the source material featured an exceptionally rapid exchange of brief questions and immediate responses between two speakers. Each subtitle contained a concise question or answer that could neither be combined with another unit nor condensed further. Consequently, some subtitles remained on screen for less than one second and five frames to preserve synchronization with the dialogue. Strict adherence to the minimum duration requirement would have caused the subtitles to fall out of synchronization with the audiovisual content.

Another challenge concerned the use of punctuation. The *Learn Autism* guidelines strictly prohibited punctuation marks at the beginning or end of subtitle lines because they were automatically mirrored when the subtitles were uploaded to the platform. Although the MAAT guidelines permitted punctuation in these positions, the client's requirements took precedence. Consequently, the MAAT guidelines were applied only when they did not conflict with those established by *Learn Autism*.

This restriction became particularly challenging when speakers quoted other people. Under standard subtitling conventions, quotation marks are used to identify quoted speech. However, the closing quotation mark frequently occurred at the end of a subtitle line, thereby violating the *Learn Autism* requirements. Omitting quotation marks altogether was not considered an appropriate solution because it could create ambiguity for viewers, particularly given that punctuation errors may adversely affect readability and the overall viewing experience (Khafik & Pratama, 2022). The problem was especially evident when the opening quotation mark occurred in the middle of one subtitle line, whereas the corresponding closing quotation mark would have appeared at the end of either the same line or the subsequent line.

After considering several alternatives, the team agreed to adopt a consistent solution throughout the project. Rather than using quotation marks, the interns introduced quoted speech with a colon placed immediately before it. Although this approach departed from conventional punctuation practices, it provided a practical compromise by clearly distinguishing quoted speech while ensuring compliance with the client's formatting requirements.

Another issue concerned compliance with the permitted character limit for each subtitle line. The MAAT guidelines allowed a maximum of 40 characters per line, including spaces and diacritics, whereas the *Learn Autism* guidelines permitted 40-45 characters. Although the client's guidelines took precedence, the interns encountered cases in which even the maximum allowance of 45 characters was insufficient.

Before exceeding the character limit, the interns explored alternative solutions, such as dividing the text across two lines or creating an additional subtitle. However, these strategies sometimes disrupted semantic coherence and produced incomplete units of meaning, both of which the guidelines discouraged. As Kendenan (2019) explains, subtitle segmentation should ensure that "the line breaks according to sense blocks either at sentence, clause, phrase, or word level" are taken into consideration (p. 40).

Terminology and acronyms were among the primary reasons for exceeding the character limit. Some source-language terms consisted of a single word or an acronym but required four to six words in Arabic. One possible solution was to follow the MAAT convention of placing an ellipsis at the end of an incomplete sentence or phrase to indicate its continuation in the subsequent subtitle. However, this approach could not be adopted because the *Learn Autism* guidelines prohibited punctuation at the beginning or end of a subtitle line. The team discussed the issue with the client and the project managers during a weekly meeting. The client proposed adding a third subtitle line, but one faculty member considered this option unacceptable. The participants therefore agreed that the most practical solution was to increase the maximum number of characters permitted per line to 50.

Overall, these instances demonstrate that the team faced a significant challenge in determining priorities. The interns had to decide when strict adherence to the guidelines was appropriate and when other considerations, including readability, semantic completeness, and effective segmentation, should take precedence. Working with the client's guidelines revealed that even seemingly straightforward rules can present practical difficulties, particularly when applied across different text types and communicative contexts.

The punctuation issue also revealed that some problems may arise from technical limitations within the client's system rather than from the subtitlers' decisions. Nevertheless, such problems may adversely affect subtitle quality and the viewing experience, while responsibility may still be attributed to the subtitler. Addressing these challenges required the interns to exercise autonomy and professional judgment in interpreting and applying the technical guidelines. Massey et al. (2015) conclude that authentic translation projects undertaken for real clients can produce professionally prepared target texts without continuous instructor intervention. Similarly, the interns in this project enhanced their professional competence by negotiating with the client to meet the client's requirements, making informed decisions, and successfully applying the guidelines in most cases.

8. Conclusion

This paper examined the implementation of PBL within an interlingual subtitling internship offered as part of the MAAT program at HBKU. The internship comprised two projects, one involving audio description and the other interlingual subtitling, both of which were completed for a real client. The present study focused specifically on the translation and subtitling of *Learn Autism* documentaries from English into Arabic. Weekly online meetings involving the project managers, interns, and client provided opportunities to coordinate the workflow, discuss emerging challenges, and develop solutions collaboratively. Each intern participated in the entire subtitling process, including viewing the audiovisual material, translating the dialogue, spotting, segmenting, and reviewing the subtitles.

The analysis identified two principal areas of difficulty: linguistic and technical. The linguistic challenges included slurred speech and the extensive use of medical terminology, particularly unfamiliar terms related to autism. The interns addressed these challenges by consulting specialized resources, including the UMD, and engaging in collaborative discussions to ensure terminological accuracy and consistency. The technical challenges concerned the use of WinCAPS Qu4ntum and compliance with requirements governing spotting, punctuation, and line length. Of all the difficulties encountered, software-related problems proved to be the most demanding and time-consuming.

This study provides a comprehensive account of the challenges associated with implementing PBL in subtitling education. It demonstrates that technical constraints can be as demanding as, or even more demanding than, the translation process itself, thereby reflecting the realities of professional practice. Future research could examine the implementation of PBL in other internships involving the subtitling of comparable documentary materials. Drawing on larger cohorts and a broader range of cases would provide a more comprehensive understanding of this pedagogical approach's application and effectiveness. This study provides an in-depth account of a single internship involving six interns. As most of the authors were directly involved in supervising or participating in the project, the account draws on firsthand knowledge of its implementation. Although the findings are not intended to be generalized to other contexts, they offer a detailed illustration of how PBL was implemented in a specific setting. Future research could build on this work by systematically assessing learning outcomes and gathering structured feedback from students and clients.

Further research on student reception in the Arab world is also needed to examine participants' perceptions of such projects, the challenges they encounter, and their recommendations for enhancing the learning experience. Such research could also assess the extent to which these projects foster the development of professional competencies, including terminology management, project coordination, and quality assurance.

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Author contributions

All authors contributed equally to this manuscript. A.A. conceived the study, developed the theoretical framework, conducted the analysis, and secured funding. M.A. contributed to the study's conceptualization, provided critical feedback on the analysis, and participated in revising the manuscript. R.Y. contributed to the study design, provided intellectual input throughout the research process, and participated in manuscript revision. H.A. contributed to the development of the theoretical framework, data collection, and analysis. All authors contributed to drafting the manuscript, critically reviewed and revised its content, and approved the final version for publication.

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