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REMOTE LEARNING MODELS IN VIDEO CORPUS CONSTRUCTION: SIMULATION, CREATIVITY AND REMODELLING AS PEDAGOGIC TOOLS

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Abstract/Izvleček

Within online learning environments research, this paper identifies four remote-learning models that have characterised the use of the OpenMWS platform within the processes of selection, transcription, annotation and concordance-like searches characterising video corpus construction and analysis. They relate to student tasks such as the creation of video corpora ex novo when completing dissertations, traineeships, group project work and with remodelling existing video corpora to meet the needs of new audiences such as primary and secondary schoolchildren. The paper makes reference to how analytics records student interactions with the platform, an approach inviting students to reflect on their own learning trajectories.

Keywords:
VCC (video corpus construction), OpenMWS platform, remote learning, learning environments specialised pedagogies.

Modeli učenja na daljavo in ustvarjanje korpusa vedeov: simulatija, ustvarjalnost in preoblikovanje kot didaktična orodja

Znotraj raziskave spletnih učnih okolij obravnava ta članek štiri modele učenja na daljavo z uporabo platforme OpenMWS znotraj procesov izbire, transkripcije in iskanja s konkordancami za označevanje gradnje in analize video korpusa. Študentje jih uporabljajo za naloge kot ustvarjanje video korpusov nanovo pri zaključevanju diplomskih nalog, pripravništva, skupinskega projektnega dela in s preoblikovanjem obstoječih video korpusov za potrebe novih uporabnikov, kot so osnovnošolci in srednješolci. Članek izpostavlja, kako analitika beleži interakcije študentov s platformo, pristop, ki študente vabi k razmisleku o lastnih učnih poteh.

Ključne besede:
VCC (gradnja video korpusa), platforma OpenMWS, učenje na daljavo, učna okolja, specializirane didaktike.

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Introduction

New digital affordances are changing remote learning. While remote learning in the University context has been enacted through lectures performed with dedicated platforms such as Teams and Zoom, studies in relation to digital skills and multiliteracies (Lim et al., 2022; Sindoni et al. 2019) provide frameworks encouraging thinking about asynchronous, activity-based remote learning that gives students considerable latitude in their management of such activities. This paper describes various experiences of this remote-learning activity using the OpenMWS platform *http://openmws.itd.cnr.it/*, developed by the author in collaboration with others (Taibi, 2020; Baldry 2004, 2022; Baldry et al. 2020) to interact with media sharing sites, YouTube in particular, but repurposing the media files they host as online corpora. Under research agreements between CNR-ITD and four Italian universities (*see Acknowledgments*), OpenMWS has been used in various projects for the exploration of English-language videos whose common assumption is that video corpus construction**,** analysis and searching – henceforth VCC – fosters students' capacity to analyse and appraise the textual and generic affordances of video media (Vasta & Baldry, 2020). In these projects, each item is individually characterised through a detailed multimodal transcription, while their shared features are annotated and searched for using concordancing-like methods (Baldry, 2004, 2022). The paper's intention is thus to describe and define the pedagogic models that such projects incorporate by collating descriptions of their nature and functions obtained from publications and discussions with teachers about their experiences (Baldry et al., 2020, 2022; Baldry & Kantz, 2022; Cambria, this volume; Coccetta 2022). OpenMWS also contributes to learning analytics in these specialised pedagogical contexts (Bianchi et al, 2022; Taibi, 2021; Taibi et al., 2018; Fulantelli & Taibi, 2014; Taibi & Dietze, 2012) by storing data relating to computer-user interactions and file management, all of which helps reconstruct University students' experiences of remote-learning projects. What follows describes the circumstances that have shaped remote learning models in both expected and unexpected ways, together with reflections on their pedagogical implications that may assist further research into remote learning.

Remote learning models in video corpus construction and analysis

VCC is an emergent reality in remote learning engagements reflecting the evolving nature and demands of digital society on university students. Typical questions posed include: To what degree can Higher Education students construct online video corpora autonomously? What tools are needed to capture data, made available to research teams investigating specialised pedagogical solutions, about their experiences? What individual and collective experiences of educational processes such as peer evaluation and group project work are essential to this end? Finally, but most significantly, what powers do users, in particular teachers and University students, have over modifications and additions to the inventory of possible remote-learning models? In partial answer to the questions, analysis of the various VCC projects so far carried out has identified the four models described below.

The single-user model typically used as a dissertation support

The OpenMWS project was initially designed to satisfy the needs of individual undergraduate and postgraduate students working, under a teacher's guidance, as a support for the production of dissertations requiring some form of multimodal transcription and text analysis (Baldry & Thibault, 2020). In this role, it was designed to simplify the intricate work of using word processing tools to construct multimodal transcriptions by redistributing the process across a wider range of digital tools. This assumes students' acquisition of a detailed understanding of the usefulness in text analysis of spreadsheets and how, when uploaded to platforms such as OpenMWS, they provide a set of VCC instructions that enact virtual division of embedded videos into smaller sequences thus providing the framework needed for transcription, annotation and search activities. Figure 1 shows how the interaction between spreadsheets and OpenMWS allows YouTube's affordances to be repurposed, solving various problems in the overall management of dissertation production by separating visual-verbal analysis into distinct stages.

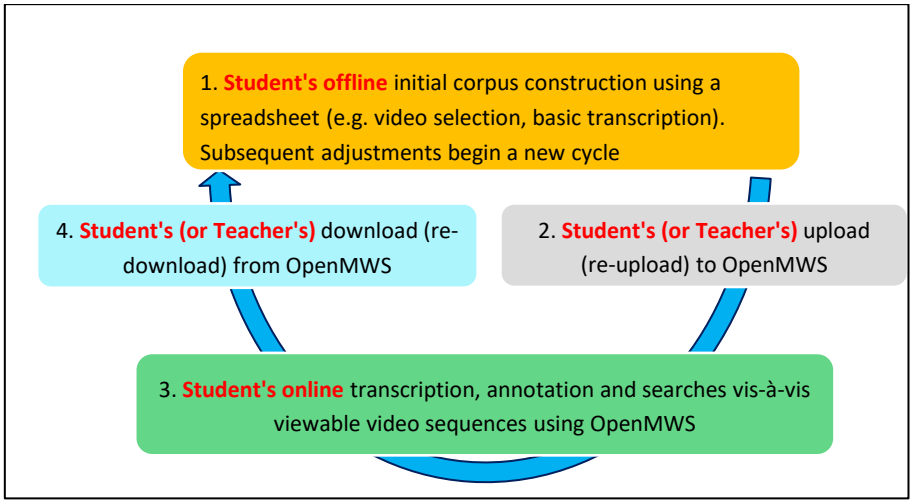

Figure 1: The VCC cycle for a single user building and annotating a video corpus e.g. for a dissertation

Figure 1 abstractly describes the VCC cycle that can be adopted by a University student working as a 'single user' when creating an online video corpus. Here 'remote' includes asynchronous interactions co-occurring with synchronous activities associated with dissertations such as face-to-face and video-call discussions about possible adjustments and refinements. A good example of this remote learning model is the searchable annotated corpus of UK Public Information Films (henceforth PIFs). To create this corpus, the student in question selected two YouTube videos and used a desktop spreadsheet (Step 1) to name and number each of PIFS they contained splitting them up on the basis of their temporal relationships, i.e. identifying the starting time points and duration of each item. The student in question did so in the knowledge that once uploaded (Step 2) OpenMWS would join the two videos forming a seamless compilation but would provide separate viewings of each of the one hundred PIFS they contained. By embedding items, and thus excluding any need to upload or download the YouTube videos, OpenMWS facilitated the student's online tasks of incorporating detailed transcriptions of the oral and written discourse used in the videos and checking and adjusting the accuracy of the time points and time spans (Step 3).

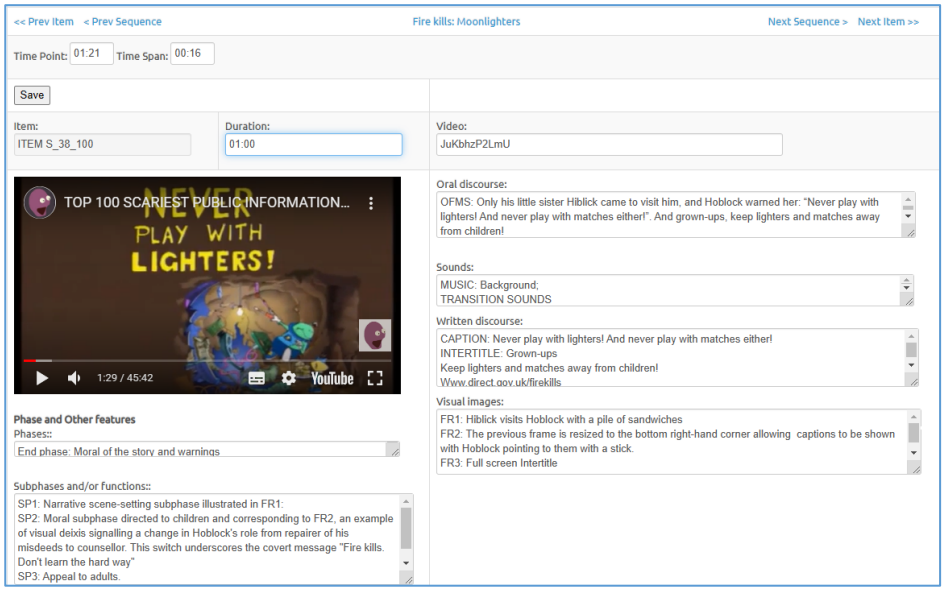

Figure 2: A multimodal transcription as a screenshot ready to be embedded in a dissertation

For this project, and others like it, the major requirement in the downloading process (Step 4) is simply taking screenshots as illustrated in Figure 2. Besides demonstrating how such a screenshot can easily record a frame from an embedded video sequence, this example shows how online multimodal transcription facilitates the description of videos' dynamic properties in this case with reference to phasal and subphasal analysis (Baldry 2004), as shown on the left-hand side of Figure 2. Overall, the student's task of illustrating results to a thesis supervisor is far easier to handle when online, since virtual sequences can easily and repeatedly be viewed in the quest to study specific details.

The remote traineeship model

Initially conceived of as a dissertation-support tool assisting a handful of students in any given academic year, OpenMWS also proved to be a useful resource in meeting credit-based traineeship requirements. When Covid struck in February 2020 and lockdowns were put into place, students found their prior plans undermined as in-presence traineeships were abruptly suspended. Their only option – turning to remote training programmes with an external co-ordinator – led to over a hundred student enrolments in one year, far too many for a single project co-ordinator to handle without fundamental changes to the OpenMWS platform that responded to

these different circumstances. Figure 3 shows the VCC cycle that came to be adopted as a solution.

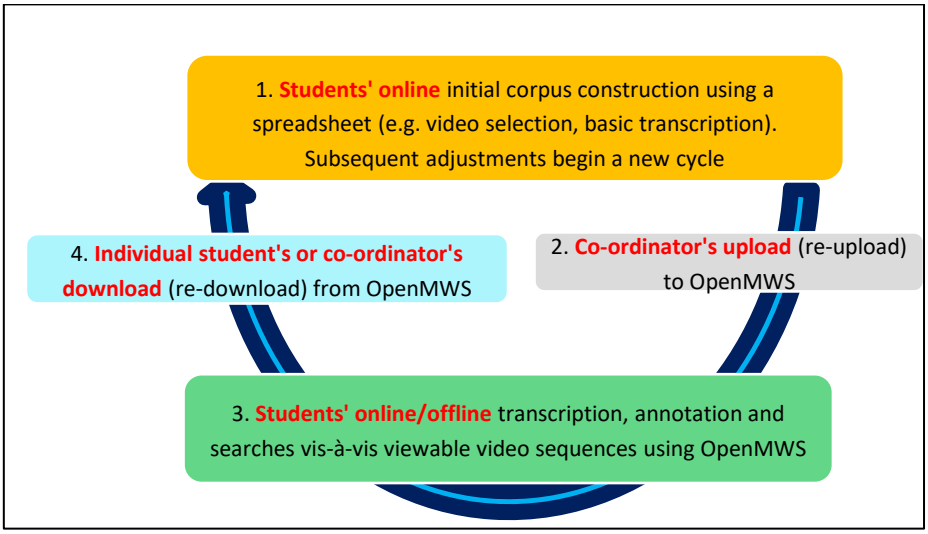

Figure 3: The VCC cycle for remote learning traineeships

When compared to Figure 1, Figure 3 highlights the quantitative and qualitative differences in VCC cycle. The use of a thicker arrow indicates the more robust platform introduced as a result of the more intensive use of each of the individual steps in the VCC cycle. The relationships between participants in this multiple-user 'traineeship' model differ from those in the single-user model described above, since the co-ordinator is, by definition, remote, i.e. not a member of the University staff where the students are enrolled, and thus contacted via individual email-based supervision and *Drive*-based written and video instructions about tasks and supporting documents, such as timesheets and reports to be completed. Given the far greater degree of remoteness in this model and the duration of the traineeship (typically for 150 hours and six credits), each student's activity had to be tracked individually over many months, sometimes for more than a year. Besides the general need to cater for the individual requirements of *multiple* students working online, different forms of interaction had to be supported. Whereas the single-user student can use an offline spreadsheet for completion of Step 1, in this model of remote learning activity, this step requires students to learn how to interact with an Overview file in the form of a shared online spreadsheet stored in a Google Drive.

Figure 4 illustrates how this model requires students to select YouTube videos that meet specific criteria; the project in question, exploring blood donation videos (Baldry, 2022), required specific students to select videos from specific countries and others from specific decades but required all to understand the procedures associated with the compilation of shared, online spreadsheets (e.g. no deletions and no duplications of data previously introduced by other students). Once completed, the Overview file, effectively an OpenMWS playlist, can be uploaded.

ITEM	USERNAME	NAME	PWD	VIDEO TITLE	FILM LINK	DURATION
ITEM S_28_300	BLOCK300	E. T.	BLOCK300	We Are Blood - Mobile Bus Experience	__3FB1xfmas	01:32
ITEM S_28_301	BLOCK300	E. T.	BLOCK300	Donating Blood Could Be Risky for Teens	wmrrjOG8wgE	02:04
ITEM S_28_302	BLOCK300	E. T.	BLOCK300	Young Blood, Blood Drive	0kPdoMhgGqI	01:54
ITEM S_28_303	BLOCK300	B. M.	BLOCK300	My Blood Donation | Astronaut Abby	vO4ss6j-r8M	02:40
ITEM S_28_304	BLOCK300	B. M.	BLOCK300	Student challenge at blood donor's clinic	iXrZnSpCuxY	02:30
ITEM S_28_305	BLOCK300	B. M.	BLOCK300	High school blood champions speak	BF2F4h3UH7Y	07:09
ITEM S_28_306	BLOCK300	N.M.	BLOCK300	Donating Blood at the Red Cross - Behind the News	NQ4aC157Vyc	03:42
ITEM S_28_307	BLOCK300	N.M.	BLOCK300	Carlmont students donate blood	mwpBSju2mEw	02:08
ITEM S_28_308	BLOCK300	N.M.	BLOCK300	VIDEO: DHS Students Donate to the Blood Drive	tZXHIV5IP0U	02:16
ITEM S_28_309	BLOCK300	L.G	BLOCK300	Student Blood Donation in Bristol	uMXMjYpOjNY	04:39
ITEM S_28_310	BLOCK300	L.G	BLOCK300	CBS - Fountain of Youth	bw0N29RWNmA	03:06
ITEM S_28_311	BLOCK300	L.G	BLOCK300	What is it like to donate blood Here's your	Young Blood Donors	07:44

Figure 4: Initials indicate student selections for the Blood Donation corpus Overview sheet (August 2021)

Step 2 implies a further distinction with the previous model. Whereas in the single-user model the student user is responsible for the project's entire management, including the uploading of files, in a multiple-user model the principle of shared responsibility introduces the need for some restrictions such as the need for the Project Co-ordinator to have exclusive access to the uploading procedure. Hence the introduction of a two-tier access structure in OpenMWS based on passwords and usernames: one for the Project Co-ordinator, the other for students each with individual access identities and thus allowing each student's progress in the subsequent steps (Steps 3 and 4) to be monitored.

When compared with Figure 1, Figure 3 neatly outlines how the process of conversion from single-user to multiple-user management of projects was ultimately achieved in a way that supported both of models in question.

However, the process of conversion from single-user to multiple-user management of projects requires considerable cultural awareness, among teachers and students alike, of what remote traineeships entail with regard to student commitments to digital skills and multiliteracies. Students participating under the supervision of a remote co-ordinator do so as individuals, entering and ending traineeships with no fixed time schedule to the point where peer relationships and ties to the degree course are backgrounded or disappear entirely; students act as if enrolled in different degree courses in different universities – and could in fact very well be so. As many students have come to realise, this model of remote learning is compatible with Erasmus commitments, so that what was started in their home country was often completed elsewhere, a further reason why this specific pedagogic model has proved popular and is outliving the Covid pandemic.

The group project model

Unlike the previous model, a basic assumption of the group project model is that, besides same-year, same-degree knowledge of each other, the students are specifically required to complete an online project by interacting with each other, sometimes in small groups (Cambria, this volume), sometimes in larger ones (Baldry & Kantz, 2022). Hence the need to introduce tools encouraging group interaction and ensuring that the benefits of remote interaction match or outweigh in-presence encounters. Figure 5 identifies a fundamental feature of this model: the obligatory introduction of summary writing about videos selected in the initial stages as essential to the process of establishing group identity and promoting mutual consultation. The group has to function *as a group,* amalgamating individual suggestions about selected videos and summaries thereof. Besides peer-reviewed and jointly and carefully-thought-out written summaries, this leads to agreements about assigning different sections of videos among the various members of the group and hence to the analysis of video genres such as news reports and documentaries whose textual features differ from those illustrated in Figures 2 and 4 whose duration rarely exceeds one or two minutes.

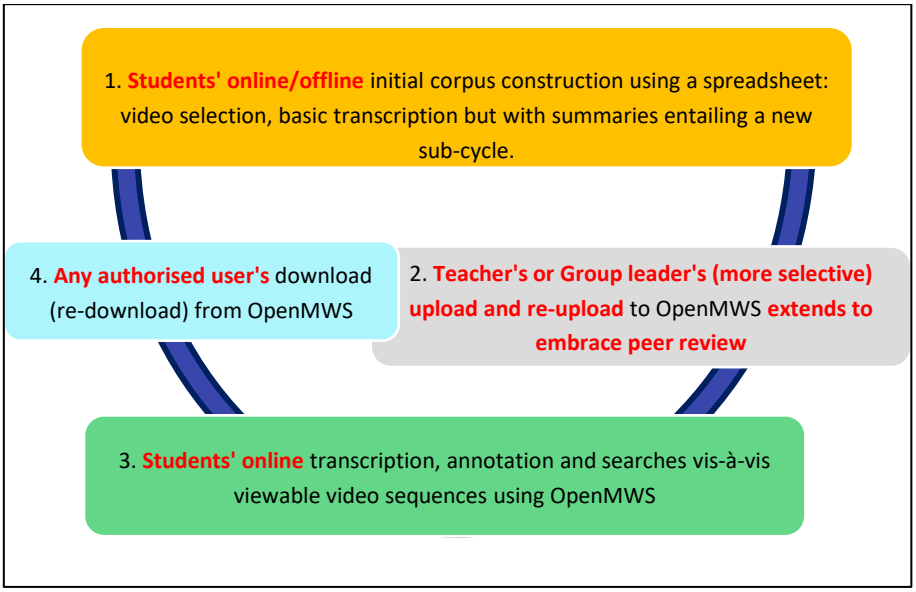

Figure 5: The VCC cycle for single group and multi-group projects

As Figure 5 shows, Step 1 often needs to be iterated. Normally, when a spreadsheet is first uploaded to OpenMWS, it contains three separate sheets – Overview, Transcription and Multi-summary – each already containing data. However, in the case of this model, where a trial-and-error approach is essential to the construction of a group summary, the Transcription sheet usually remains blank until initial consultation and agreement about the content of the other two sheets has been reached – hence the secondary, iterative arrow in Figure 5.

In addition, thanks to the password-based access system, a student in each group can be designated, as a Group Leader, to upload and re-upload the spreadsheet to OpenMWS with the teacher stepping in only when a single file containing the combined spreadsheets of the various groups, i.e. the overall project, needs to be uploaded. Figure 6 shows how group consultation and the availability of the Multi-summary and Peer Review tool encourage constant revisions: below the initial summary is a revised version, which, in addition to the improved visual layout and explanatory 'further information' links, is both corrective and integrative.

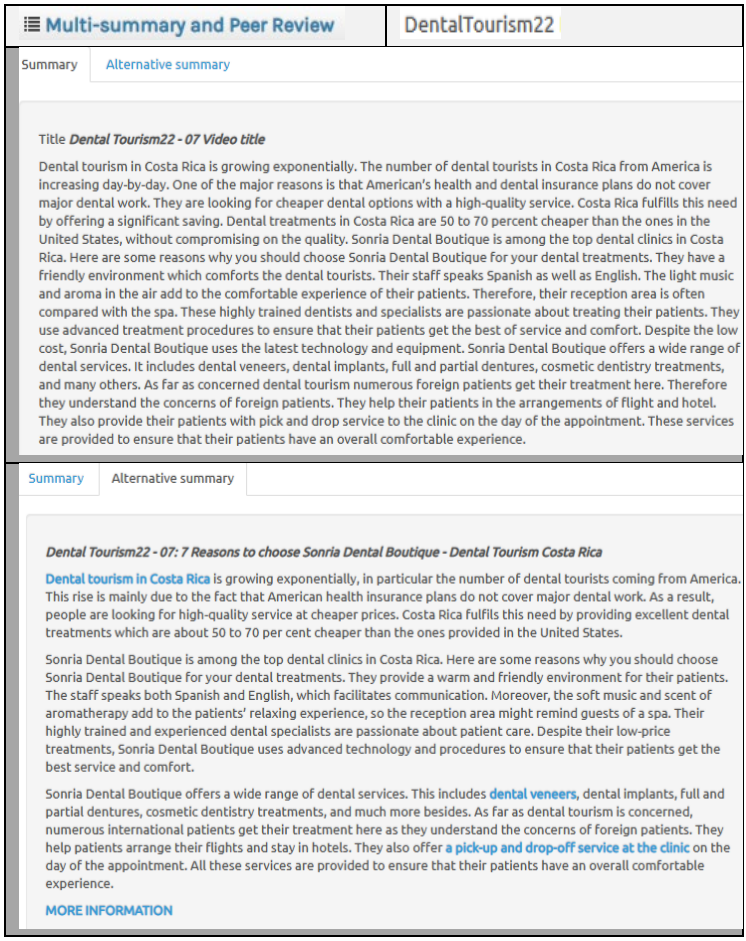

Figure 6: The Dental Tourism project: top initial summary; revised summary with embedded links

The VCC revamping model for new users

This final model relates to the reworking and extension of an existing project. This type of remote learning leads back full circle to the starting point as it has (so far) been implemented by single-user students and is basically an extended form of peer review applied to an entire corpus that repurposes the functions of a video corpus and introduces the concepts of simulation (Baldry et al., 2022). and remediation (Bolter & Grusin, 1999) into VCC.

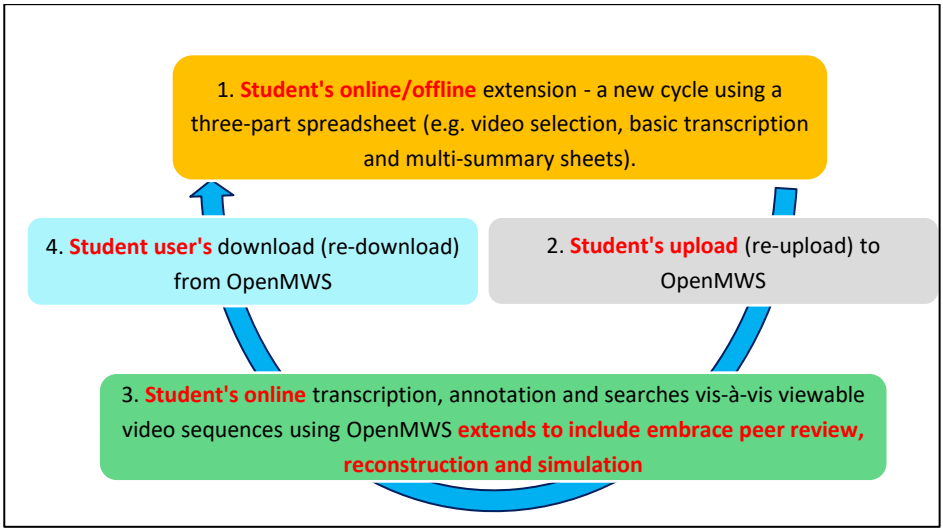

Figure 7: The VCC cycle when revamping an existing corpus to the needs of new users

As Step 1 in Figure 7 underscores, this VCC cycle relates to 'new' users modifying 'old' corpora. Whereas the previous models describe intra-University use, this model presupposes that University students will also learn about multiliteracies for 'outside' users, such as primary and secondary school students as well as students from other degree courses in other universities (Baldry & Kantz, 2022).

One project using this model, is concerned with encouraging secondary school, and possibly primary, school students to explore Multimodal Ecological Literacy (hereafter: MEL). Initially, a simulated case study outlined the various steps in the VCC cycle with a view to stimulating "young people's unquestionable curiosity about human-animal ecological systems and interactions and their need to share experiences and positionings on this matter" (Taibi, 2020: 195), in keeping with the overall pedagogical view that "analysing and critically interpreting multimodal texts in digital contexts is an indispensable skill that cuts across disciplines and impacts on society at large" (Vasta, 2020:27). This initiative was supported by the belief that a video corpus on the protection of animals following their rescue from the perils of fire, flooding, drought and human destruction of habitats would be an in-context, situated way of deepening understanding of the much wider ecological issues involved and the rather abstract concept of sustainability (Baldry & Thibault, 2020).

The simulated task has now become a reality as, step by step, and as part of online traineeships described above in Section 2.1, various groups of students from the University of Salento have mastered the techniques that allow OpenMWS to repurpose YouTube videos within the unifying VCC framework by redesigning and enlarging the original corpus that explored the *Animal Rescue* genre to embrace these wider goals thanks to new video selections and preliminary annotations about different types of habitats. Just as there was a need to provide a simulation for the initial corpus (Taibi, 2020), so the current ongoing revamping is concerned with positing additions that progressively facilitate its transformation into a MEL corpus that embraces the needs of primary and secondary education students.

Figure 8 shows one example of how the VCC revamping model has allowed a student to make a start on simulating the needs of non-University students, in this case with the introduction (Figure 8 top) of a drop-down menu in Italian in parallel with the original menu in English (Figure 8 bottom), both of which allow a user to access the video(s) illustrating the topic in question.

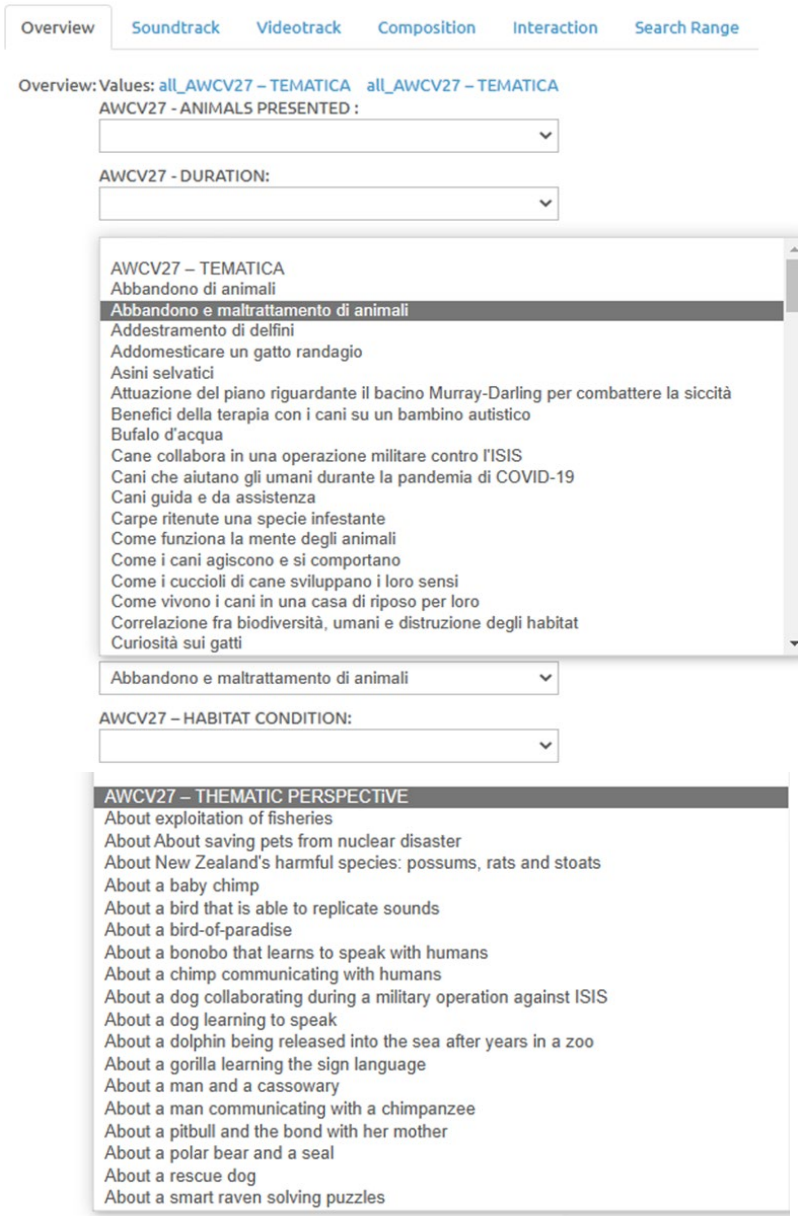

Figure 8: A menu in Italian accompanying an English-language menu in the reworked MEL corpus

Results

As a specialised interface for video corpus construction, analysis and searching which functions as an overall pedagogical support for video-based investigations into multiliteracies, OpenMWS is sufficiently flexible and adaptable to meet many remote-learning circumstances and requirements. It is by no means the first project to explore the relationships between YouTube and students (see, for example, Buzzetto-More, 2014; Jackman & Roberts, 2014; Jackman, 2019; Jones & Cuthrell, 2011); nor is it the first to explore emergent learning environments (Dalke et al., 2007; Brill & Park, 2008; Kang et al., 2018; Liu et al., 2016; Wood, 2022). It has, however, broken new ground by providing new ways for VCC projects to access and repurpose the functions of YouTube videos. Since its first incarnation in February 2019, many functionalities have been progressively improved or added to this platform. Thus, as a result of an ever-widening field of application, OpenMWS was recently upgraded to support sequence-based activities for almost all mp3 and mp4 files. All four remote-learning models that have emerged in the VCC cycle are supported in a way that allows University students to quickly master the interplay between offline and online versions of a corpus. Research into these specialised remote learning models has led to gradual simplification of what is uploaded to and downloaded from OpenMWS: a single spreadsheet file consisting of three sheets, the first an Overview sheet with a list of the media files to be embedded, the second, a Transcript sheet, containing students' division of each media file into time-based sequences that also include multimodal transcriptions and analyses of the characteristics of each sequence, plus student-defined descriptor-based annotations for these sequences; the third is the Multi-summary and Peer Review sheet which includes the various types of summaries, evaluations, suggestions and proposals made by the students.

Overview:

AWCV27 - ANIMALS PRESENTED :	NONE
AWCV27 - DURATION:	30-35 mins
AWCV27 - GENRE:	Documentary
AWCV27 - HABITAT:	EUNIS CODE 2021: V - Vegetat
AWCV27 - CROSS-WALKS TO OTHER HABITAT TYPOLOGIES:	EUNIS CODE 2021: U - Inland h
AWCV27 - ANIMAL-HUMAN INTERACTION:	UNDECIDED
AWCV27 - ANIMAL-HABITAT CORRELATIONS:	About regenerative farming and
AWCV27 – THEMATIC PERSPECTIVE:	About promoting regenerative fa
AWCV27 – TEMATICA:	Promuovere l'agricoltura rigener
AWCV27 – HABITAT CONDITION:	DRAINED IN AN UNSUSTAINAE
AWCV27 – ASSISTING/PROTECTING/CO-EXISTING:	PROTECTING AND/OR MANAG
AWCV27 – ANIMAL SOUNDS:	UNDECIDED
AWCV27 - PHENOMENA ADVERSELY AFFECTING HABITATS:	Drought - overgrazing - overexpl
AWCV27 - VOLUNTEER ORGANISATIONS:	BLANK
AWCV27 - SUSTAINABILITY:	AWCV27 - SUSTAINABILITY

Figure 9: Annotations based on frame-by-frame views of specific moments in a MEL corpus video

As Figure 9 shows, a further level of engagement, designed to contextually check and extend the data in the uploaded spreadsheets, is provided by the tools in OpenMWS which allow each of the embedded video sequences to be further annotated. Search tools use the data recorded through the processes of transcription and annotation to identify sets of media sequences characterised by the presence (or absence) of specific features of a sociocultural, methodological or genre-related nature.

Besides supporting students through the various stages of corpus building, learning analytics provides teachers and researchers with student performance data and hence indications of improvements to be made to the individual corpora, and, more generally to the platform's functionalities. Experimentation over a period of four years has helped pave the way for future developments.

These obviously include, for example, the greater visibility to be expected for the OpenMWS platform as a tool for remote learning, and, in particular, as a hub for research into remote learning that goes beyond the online lecture-based learning model whereby students listen to a teacher's online lecture and merely take notes. This assumption about added value is also based on the observation that study for and passing exams can be consolidated by the task-based *asynchronous* model that VCC presupposes.

Various implications for pedagogic culture arise in particular as a result of the issue of encouraging students to formulate hypotheses in relation to simulated scenarios (Baldry et al., 2022). One of these is, as it were, involves keeping "one's feet on the ground" – hence the support given in this paper to the view that the more digital societies encourage digital skills and multiliteracies, the greater the need to encourage students to use these skills to explore the world around us, a view in keeping with the recognition that "Digital literacy refers to the knowledge, skills and attitudes that allow children to flourish and thrive in an increasingly global digital world, being both safe and empowered, in ways that are appropriate to their age and local cultures and contexts" (Nascimbeni & Vosloo, 2019).

Discussion

What lies ahead? With many video corpus projects nearing completion, or as indicated by various publications already completed, an awareness has emerged that further possible stages can be entertained. Diversification and consolidation are key words that lead to a partial redefinition and extension of VCC itself, as the notion of corpus-based studies of digital media gains ground in sometimes unexpected but constructive ways. Reconnecting with the physical world around us after the lockdown experience is one of these, relevant in particular to the fourth learning model, insofar as it involves the redevelopment of corpora for 'new' users such as primary and secondary schoolchildren (Baldry & Thibault, 2020; Taibi, 2020; Fulantelli & Taibi, 2014; Fulantelli et al., 2021). In this respect, the support given to the view that digital skills and multiliteracies must be used to explore the world around us, especially in relation to such pressing issues as sustainability, habitat destruction, loss of biodiversity (Thibault, in press) means that this paper too, in its turn, and the overall project as well, must at least in part be concerned with simulation.

However sketchily, the fourth model attempts to suggest how the corpus-based tools and techniques developed over the years might be further adjusted to help younger children shape their experiences of the welfare of animals as a basis to stimulate their thinking about MEL. Thus, this paper is not a blueprint for the production *ex-novo* of a video corpus by primary and secondary schoolchildren. Rather it is a framework within which University students during their traineeships and/or group project interactions can put forward their ideas about how to customise and reshape an existing video corpus so that it corresponds to what they would like to have had during their time at school and which they think today's schoolchildren could benefit from most. In this respect, a recent paper (Taibi, 2021) pointed out the need to reflect carefully on the definition of learning analytics presented in 2011 at the first *Learning Analytics and Knowledge Conference* as "the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs" arguing that learning analytics is also "for learners" and not just "about learners". Indeed, the redevelopment of the current *Animal Welfare* corpus shows a need for learning analytics to embrace the possibility of recording suggestions made *by learners for other learners* as part of their reflection on multiliteracies. This could take various forms, most obviously as part of the written report presented at the end of their traineeship; other ways of recording suggestions might include typing ideas directly into a personalised "Suggestions box" column in an online video corpus, i.e. one that, in a modified version of the already existing *Multi-Summary and Peer evaluation* functionality, names the student as the proponent.

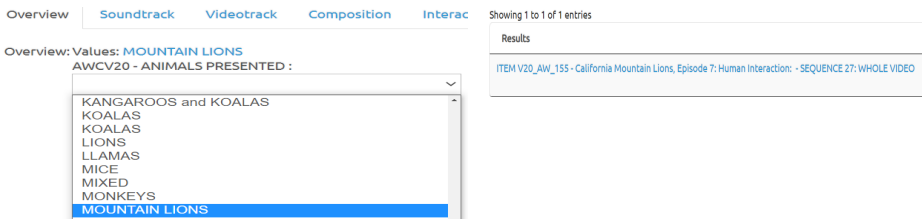

Figure 10: A corpus search to establish the index entry for a particular animal

Alternatively, and maybe concomitantly, it might take the form of a contribution to a pre-existing column such as *Games about animals*. In the latter case, since suggestions can be made in relation to the individual videos making up the corpus, a University student might be induced/instructed to search for simple online games about animals designed for primary school children and associate their descriptions of animals to videos in the corpus in keeping with the development with digital learning concerned with designing videogames (Chiazzese et al. 2018; Liu et al., 2016). Thus, for example, the *Central Sierra Environmental Resource Center* (CSERC) protecting "more than 2,000,000 acres of forests, rivers, lakes, wetlands, roadless areas […] and other precious areas within the Northern Yosemite region of the Central Sierra Nevada" (https://www.cserc.org/about-cserc/) has a habitat game for primary schoolchildren learning English (https://www.cserc.org/sierra-fun/games/match-habitat/) that includes a question about mountain lions, a search for which identifies a video in the existing corpus (Figure 10). On this basis, 'revamping' University students could complete an entry for this video in the proposed *Games about animals'* window that links it to the habitat game website. Since the proposed window would be part of the *Multi-Summary and Peer evaluation* functionality (which is easier to browse as compared for example with the *YouTube*'s current *Comments* section) it gives young children a co-contextualising resource that supports their explorations by allowing them to connect up information from two sources (in this case a specific video sequence showing a real mountain lion in action, missing in the video game).

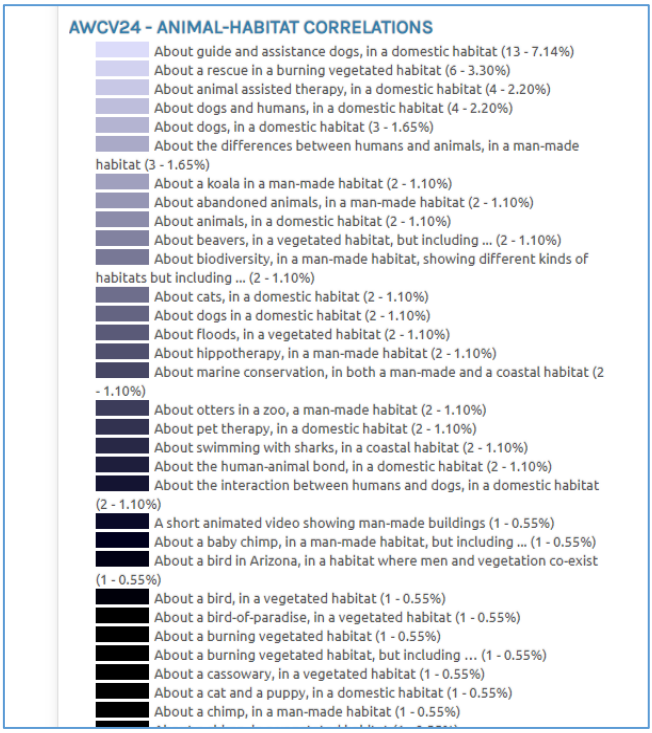

Figure 11: Animal-habitat correlations: a search-generated chart from the Animal Welfare corpus

A further area within the field of multiliteracies which requires reflection on the part of all University students is the issue of visualisation literacy (Oliveira et al., 2021; Tyner, 2014). For example, and on a concluding note, it will be interesting to see what suggestions are made in the revamping process in relation to the capacity for primary schoolchildren to interpret different types of charts such as the one shown in Figure 11 and the possibility of creating engaging alternatives to be tested out experimentally (Oliveira et al., 2021).

Conclusions

The identification of VCC remote learning models that respond to different educational and training circumstances is itself an encouraging preliminary finding but pointing to the need for further experimentation and long-term integration with the services that universities offer to their students.

In particular, these preliminary findings show that with some support, especially in the initial phases, Higher Education students are well disposed towards VCC and capable of completing the specific tasks it involves whether carried out as part of a team or autonomously. Remote learning in the VCC context is a new field in the study of specialised pedagogies and technologies which, as indicated above, takes its inspiration from a variety of sources. However, the paper supports the view that the more digital societies encourage equality for all in digital skills and multiliteracies, the greater the need to encourage students to apply these skills to emergent world issues such as sustainability. Hence the need to focus further research on specific aspects of remote learning models and, in particular, the processes of adaptation, simulation and remediation that enable many of the challenges that have arisen in the digital society of the first decades of the 21st century to be met head on.

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