Technology in Language Teaching

(ENG 529)

Virtual University of Pakistan

Outline for Technology in Language Teaching

Sr. No.	Topics
1.	**Introduction to Technology** **1. Why technology** **2. Benefits of learning technology** ❖ Instant Information ❖ Real communication **3. A variety of different tools** ❖ Pedagogy Vs Technology
2.	**Technology in Language Learning** **4. Technology in Language Learning** ❖ Technology in Education **5. Technology in the Classroom** **6. Technology Use in Language Education**
3.	**Technology in English Language Classroom** **7. Technology as an Effective Tool for Language Learning** **8. Use of Technology & Improvement of Language Teaching & Learner Learning** ❖ The Outcome Dependent on the Language Teacher's Use of Technology **9. Application of Technology & a Changed English Classroom** ❖ Technology-embedded Classroom Develops Learners' Autonomy ❖ Use of Technology Develops Learners' Higher Order Thinking
4.	**Distance Language Teaching with Technology** **10. Introduction: Defining the field** **11. Technologies, tools, and learning environments** ▪ CMC-based environments ▪ Audiographic and videoconferencing environments ▪ Learning management systems ▪ Telecollaboration ▪ Web 2.0 tools **12. Enquiry into pedagogical issues** ▪ Task design ▪ Assessment of learning ▪ Teacher expertise ❖ Research trajectories and a future agenda

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14.	**Technologies for Teaching and Learning L2 Speaking** **40. Theoretical frameworks** ▪ Sociocultural theory ▪ The Interactionist Hypothesis ▪ Autonomy and student agency ▪ Cognitive perspectives on speaking proficiency: Accuracy, complexity, and fluency **41. CALL pedagogical frameworks for speaking**: Task-based instruction (TBI) **42. CALL learning environments** ❖ Tutorial CALL and speaking **43. Feedback with tutorial CALL** ▪ Computer-assisted pronunciation training (CAPT) ▪ Asynchronous CALL storytelling ▪ Digital sound tools: Unleashing student creativity ▪ CMC
15.	**Technology-Enhanced SLA Research** **44. Defining SLA and SLA research** ▪ Cognitive approaches to SLA ▪ The interaction approach ▪ Sociocultural theory **45. Defining SLA-relevant research in computer-assisted Language learning (CALL)** ▪ Three SLA-relevant CALL studies o Cognitive approach o Interactionist approach o Sociocultural theory

Lesson 1

Introduction to Technology

- Definition of Technology
- Why Technology
- Benefits of Learning Technology
- Source of Instant Information
- Real Communication
- A Variety of Different Tools
- Pedagogy Vs Technology

Definition of Technology

According to Merriam-Webster, technology is defined as:

"The practical application of knowledge especially in a particular area" or "a manner of accomplishing a task especially using technical processes, methods, or knowledge" or "the specialized aspects of a particular field of endeavour."The last definition is especially pertinent to the field of education.

Why Technology?

We now live in a world in which technology permeates every aspect of our lives. Apart from its time- and labour-saving function, technology can also inspire creativity and bring new opportunities to people, connecting them to new ideas and people they otherwise might not have met.

In language teaching and learning, technology can be used for:

- Accessing information, including information about language
- Exposure to the target language
- Entertainment (i.e. reading/listening for pleasure)
- Creating text
- Publishing learner work
- Communicating and interacting with other language users/learners
- Creating community
- Managing and organizing learning (e.g. learning management systems, online vocabulary notebooks, etc.)
- Use of big data to explore any issue
- Explore digital content at the run time from all over the world
- Time-saving (Roberto Busa spent 27 years to accomplish a project, now it can be done in a few minutes.)

Benefits of Learning Technology

Many classroom teachers using technology have anecdotal evidence of their learners being motivated and engaged, and this is often a major reason for using learning technologies. There is also evidence that the use of technological tools empowers learners to transcend the traditional concept of the classroom (Drexler, 2010) and can lead to learners taking greater ownership of their learning (Terrell, 2011), especially through being actively involved together outside the classroom. Real language exposure has been transmitted to learners through technology.

Technology can be a highly engaging and interactive tool, providing a source of real language, both written and spoken, in the classroom, and motivating learners to produce more language than they otherwise might have done. More senses are involved in technology, so learning becomes durable and most penetrating into the slate of the brain.

Source of Instant Information

The Internet, in particular, has become a social phenomenon that "pervades work, education, interpersonal communication" (Thorne, & Black, 2008), and having internet access in the classroom opens up learning to the real world, beyond the confines of the classroom.

For instance, the web can be an instant provider of information for the teacher, as it has fast become in the world outside the classroom. Rather than telling learners, you will give them the answer to a question later, you can look it up there and then. You can also show the learners how to use reference tools, such as dictionaries, concordancers, a thesaurus and phonemic charts. By helping them help themselves, you are promoting their autonomy, as learners and users. A teacher also has more choice with the Web-more ways to answer vocabulary questions, for example. As well as explaining something or providing a definition or translation, you can look for complete sentences, or show your learners a picture.

The Web is, of course, also a great source of listening. You can find video clips of people speaking countless varieties of English, as well as have access to songs, through sites such as YouTube. Apart from providing a large bank of authentic recordings, the Web allows you to personalize listening tasks and choose a video clip to complement something in the syllabus. The Web can also be used for learners who are particularly interested in a specific topic, or as a stimulus for speaking about a subject.

Real Communication

There has also been a clear shift in the role of the Internet, away from it being a huge resource library towards what has been called Web 2.0, where communication takes the lead, which has led to an increase in internet use. A Web 2.0 site allows users to interact and collaborate as creators of user-generated content in a virtual community.

Your learners can connect to other learners, or users of English, in real-time (synchronously), or at different times (asynchronously), thereby providing opportunities for authentic language practice (i.e. real communication), rather than the practice for practice's sake that usually takes place in the classroom.

A Variety of Different Tools

All of this is not just about the internet. The proliferation of hand-held devices, such as mobile phones, digital cameras, tablets, mp3 players and voice recorders, have led to what, for some teachers, is a sometimes bewildering choice of potential activities and resources. Even if mobile phones are banned in your classroom or institution, you can use your own (most mobile phones support this) to record learners (using the voice recorder or video recorder), and if it is a smartphone, there is a rapidly increasing number of applications to be made use of to help you in class.

As the potential of these devices is realized, and more and more learners have access to them, teachers are beginning to experiment with using these tools. The use of mobile devices is expected to lead to language learning becoming more informal and personal (Chinnery, 2006; Kukulska- Hulme, & Shield, 2008), with many more learners studying or spractising with manageable chunks of language wherever they are. This revolution in mobile learning is happening both inside and outside the classroom.

Learners who are addicts of video games, they should be guided to play ESL video games to enhance their linguistic proficiencies. We share some ESL video games for learners:

- Phantasy Quest leaves you on a deserted island
- Sound Factory lets you play a musical factory
- Ketinetto 2
- The Ballard of Ketinetto 7
- Heart Of Tota
- Monster Basement This one is fairly scary,.
- Griswold The Goblin includes audio supported text and a lot of fun..
- The Ballad of Ketinetto
- Dr. Stanley's House 2″
- Inspector Kloo 4

For Objectives

- Inspector Kloo 5
- The Ballad of Ketinetto 8
- Mild Escape is an “escape the room” game

Pedagogy vs. Technology

This increase in the availability of technology has led to an explosion of interest in its use in the language classroom. Despite the potential for new ways of learning, the trap that teachers can fall into is one of being seduced by the ‘wow factor’ of new technology, with pedagogy being pushed to the sidelines.

Moreover, as language classrooms become more technologized, there is a real danger of teachers developing Everest syndrome (Maddux, cited in Gallo, & Horton, 1994). Named after George Mallory’s reason for wanting to climb Mount Everest, this refers to a situation where teachers can be tempted to use a specific technology just ‘because it’s there.’ Care has to be taken; therefore, to make use of what we have available only when it serves the language aims of the lesson, and to avoid any use of ‘technology for technology’s sake.’

We share with you alist of tools and their academic purposes. Learners should use these tools for beter and advanced level of learning. Now the world is learning smartly, and we must opt latest technology in service of learning.

For Objectives

OVERALL RANKING	CHANGE FROM 2019	TOOL	CATEGORY
1	SAME	YouTube	web resource (videos)
2	UP 8	Zoom	video meeting platform
3	DOWN 1	Google Search	search engine
4	DOWN 1	PowerPoint	office tool / suite

5	UP 6	Microsoft Teams	collaboration platform
6	UP 1	Word	office tool / suite
7	DOWN 1	Google Docs & Drive	office suite | file sharing platform
8	DOWN 3	LinkedIn	social network / community
9	DOWN 5	Twitter	social network / community
10	UP 4	WhatsApp	chat tool
11	DOWN 3	Wikipedia	web resource
12	UP 6	Facebook	social network / community
13	UP 3	Excel	office tool / suite
14	DOWN 5	WordPress	blogging/website platform
15	UP 121	Google Classroom	learning platform / LMS
16	UP 77	Google Meet	video meeting platform
17	DOWN 5	Slack	collaboration platform
18	UP 16	Canva	content dev tool (graphics)
19	SAME	Skype	chat tool
20	UP 8	Trello	collaboration platform
21	DOWN 6	Feedly	news reader & alert tool
22	DOWN 9	LinkedIn Learning	online courses

23	UP 7	Padlet	collaboration platform
24	DOWN 3	Kahoot	live engagement tool
25	DOWN 8	Dropbox	file sharing platform
26	UP 15	Mentimeter	live engagement tool
27	UP 19	Gmail	email tool
28	UP 20	Instagram	social network / community
29	DOWN 3	Google Forms	forms and survey tool
30	DOWN 10	Articulate	course authoring tool
31	DOWN 9	OneNote	digital notebook
32	UP 13	Google Translate	translation tool
33	UP 5	Outlook	email tool
34	UP 32	Vimeo	web resource (videos)
35	SAME	Google Chrome	web browser
36	UP 14	Moodle	learning platform/LMS
37	UP 40	Google Maps	productivity tool (mapping)
38	UP 34	Flipgrid	video meeting platform
39	UP 8	Prezi	office tool / suite
40	DOWN 16	TED Talks	web resource (videos)

41	UP 14	OneDrive	file sharing platform
42	SAME	Easygenerator	course authoring tool
43	DOWN 20	Camtasia	content dev tool (screencasts)
44	DOWN 17	Snagit	content dev tool (screen capture)
45	UP 79	Whereby	video meeting platform
46	DOWN 21	Evernote	digital notebook
47	UP 23	Canvas	learning platform/LMS
48	DOWN 17	Pinterest	curation platform
49	UP 43	Screencast-O-matic	content dev tool (screencasts)
50	UP 6	Pocket	curation tool
51	UP 8	hihaho	content dev tool (interactive video)
52	UP 27	Wakelet	curation tool
53	UP 22	Vyond	content dev tool (animation)
54	DOWN 25	Udemy	online courses
55	UP 76	Google Sites	blogging/website platform
56	UP 8	Cisco Webex	video meeting platform
57	DOWN 4	Coursera	online courses
58	DOWN 25	SharePoint	collaboration platform
59	UP 32	Quizlet	games & testing tool

60	UP 63	DeepL	translation tool
61	UP 10	Kindle	web resource (e-books)
62	UP 115	Quizizz	games & testing tool
63	DOWN 6	H5P	content dev tool (HTML5 content)
64	UP 77	aNewSpring	learning platform/LMS
65	DOWN 26	Google Scholar	web search engine
66	**NEW**	Mural	online whiteboard
67	DOWN 6	Audible	web resource (audio books)
68	DOWN 6	Poll Everywhere	live engagement tool
69	DOWN 15	Apple Podcasts	web resource (podcasts)
70	UP 11	Adobe Connect	video meeting platform
71	**NEW**	Netflix	web resource (documentaries)
72	DOWN 40	Diigo	content curation tool
73	DOWN 37	Yammer	collaboration platform
74	DOWN 9	Degreed	learning platform/LMS
75	**NEW**	Miro	online whiteboard
76	UP 6	Adobe Spark	content development tool (graphics)
77	DOWN 25	Blogger	blogging/website platform

78	DOWN 38	iSpring	course authoring tool
79	DOWN 1	Grammarly	productivity tool (grammar checker)
80	UP 36	getAbstract	web resource (book summaries)
81	DOWN 7	Apple Keynote	office tool / suite
82	UP 68	Nearpod	lesson authoring tool
83	**NEW**	Spotify	web resource (podcasts & music)
84	**BACK**	MS PowerBI	data analytics & visualisation tool
85	UP 13	Google Workspace (prev G-Suite)	collaboration platform
86	**NEW**	Snip & Sketch	content dev tool (screenshots)
87	DOWN 14	Genially	content dev tool (graphics)
88	UP 31	Socrative	live engagement tool
89	UP 50	Google Alerts	news alert tool
90	DOWN 53	Adobe Captivate	course authoring tool
91	DOWN 33	Duolingo	language learning app
92	UP 34	Totara	learning platform/LMS
93	UP 17	Loom	content dev tool (screen recording)
94	DOWN 51	Tweetdeck	social network (Twitter dashboard)
95	UP 35	Blackboard Learn	learning platform/LMS

96	DOWN 8	Adobe Acrobat Pro	content development tool (PDFs)
97	DOWN 21	Inoreader	news reader & alert tool
98	UP 27	Firefox	web browser
99	DOWN 16	Google Keep	digital notebook
100	DOWN 56	Adobe Photoshop	content dev tool (photo editing)
101	UP 21	Thinglink	content dev tool (interactive media)
102	UP 11	Jamboard	online whiteboard
103	DOWN 43	Workplace by Facebook	collaboration platform
104	DOWN 18	Adobe Premiere Pro	content dev tool (video)
105	DOWN 4	edX	online courses
106	DOWN 11	Adobe Illustrator	content dev tool (graphics)
107	UP 41	Screencastify	content dev tool (screencasts)
108	DOWN 9	Adobe After Effects	content dev tool (video)
109	**NEW**	Jitsi Meet	video meeting platform
110	UP 19	MS Stream	content dev (video streaming)
111	DOWN 14	Survey Monkey	forms & survey tool
112	DOWN 63	Audacity	content dev tool (audio/podcasts)
113	DOWN 9	Adobe Audition	content dev tool (audio/podcasts)

114	**NEW**	Coggle	mind mapping tool
115	DOWN 64	Medium	blogging/website platform
116	UP 54	Freemind	mindmapping tool
117	UP 25	Big Blue Button	video meeting platform
118	UP 35	Apple iMovie	content development tool (videos)
119	DOWN 12	Quora	web resource (Q&A site)
120	**NEW**	WebinarGeek	video meeting platform
121	DOWN 58	Mindmeister	mindmapping tool
122	DOWN 16	MS Forms	forms & survey tool
123	DOWN 39	Stack Overflow	social network / community
124	**NEW**	ClickUp	collaboration platform
125	**BACK**	EdPuzzle	lesson authoring tool
126	DOWN 48	Adobe InDesign	content dev tool (interactive PDFs)
127	**BACK**	Blackboard Collaborate	video meeting platform
128	**NEW**	MS Whiteboard	online whiteboard
129	**BACK**	Wooclap	live engagement tool
130	DOWN 28	Plickers	live engagement tool
131	DOWN 23	Google Calendar	productivity tool (calendar)

132	DOWN 43	Slideshare	web resource (slide sets)
133	DOWN 18	Udacity	online courses
134	UP 9	Mailchimp	email tool (newsletters etc)
135	DOWN 32	FutureLearn	online courses
136	UP 29	Omnigraffle	content dev tool (diagrams)
137	UP 26	DuckDuckGo	search engine
138	**BACK**	Asana	collaboration platform
139	DOWN 4	Lectora	course authoring tool
140	UP 43	Notability	digital notebook
141	DOWN 72	Anders Pink	curation platform
142	DOWN 48	Sway	content dev tool (presentations)
143	**NEW**	Ayoa	mindmapping tool
144	**NEW**	Apple Mail	email tool
145	DOWN 55	Flipboard	curation tool
146	DOWN 79	Powtoon	content dev tool (animation)
147	**NEW**	ilovepdf.com	content dev tool (PDFs)
148	UP 18	Apple Pages	office tool / suite
149	**NEW**	Factile	games & testing tool
150	DOWN 63	Unsplash	content dev tool (image library)

151	DOWN 55	Biteable	content dev tool (video)
152	DOWN 67	isEazy	course authoring
153	DOWN 15	Blinkist	web resource (book summaries
154	**NEW**	Handbrake	content dev tool (video conversion)
155	**BACK**	Safari	web browser
156	DOWN 7	WeTransfer	file sharing platform
157	DOWN 20	Nuzzel	news alert tool
158	UP 20	Zotero	research tool
159	DOWN 13	Overcast	web resource (podcast player)
160	DOWN 42	Xing	social network / community
161	SAME	gomo Learning	course authoring tool
162	**NEW**	Hot Potatoes	games & testing tool
163	DOWN 6	Podcast Addict	web resources (podcast player)
164	DOWN 6	Highbrow	online courses
165	**NEW**	Google Lens	productivity (image recognition)
166	DOWN 39	Scoopit	curation tool
167	DOWN 67	Piktochart	content dev tool (infographics)
168	DOWN 12	Pluralsight	online course platform

169	**NEW**	Apple Numbers	office tool / suite
170	DOWN 10	IFTTT	productivity (workflow automation)
171	DOWN 4	MS Edge	web browser
172	DOWN 1	Zapier	productivity (workflow automation)
173	DOWN 1	Bing	search engine
174	DOWN 23	Mind Tools	online course platform
175	DOWN 2	Khan Academy	online course platform
176	**NEW**	Google Arts & Culture	web resource (virtual visits)
177	**NEW**	MS Learn	online courses
178	DOWN 34	Evolve	course authoring tool
179	**NEW**	Gimkit	live engagement tool
180	**NEW**	Telegram	chat tool
181	**NEW**	Brave	web browser
182	DOWN 71	Pixabay	content dev tool (image library)
183	DOWN 55	Axonify	learning platform/LMS
184	UP 9	Google Analytics	web traffic analysis
185	UP 10	LearnDash	WordPress LMS plugin
186	**NEW**	OpenLearn	online courses

187	**NEW**	Otter.ai	content dev tool (live transcription)
188	**NEW**	Google Currents	collaboration platform
189	**NEW**	MasterClass	online courses
190	**NEW**	MS Publisher	content development tool (DTP)
191	UP 5	Thinkific	learning platform/LMS
192	**NEW**	AskDelphi	learning platform/LMS
193	**NEW**	Drillster	learning platform/LMS
194	DOWN 12	Docebo	learning platform/LMS
195	DOWN 5	Adapt	course authoring tool
196	UP 4	Bluejeans	video meeting platform
197	DOWN 18	edCast	learning platform/LMS
198	DOWN 13	AnswerGarden	live engagement tool
199	**NEW**	Open edX	learning platform/LMS
200	**NEW**	GoBrunch	video meeting platform

Lesson 2

Technology in Language Learning

- Technology in Language Learning
- Technology in Education
- Technology in the Classroom
- Technology Use in Language Education

Technology in Language Learning

Technology in language learning has been in constant evolution since its genesis in the 1950s, in part due to attempts to keep up with the ongoing developments in computer technology. The development of technology in language education is also the result of the development of learning theories and pedagogical considerations. These tools are based on some theoretical underpinnings. Many terms and expressions have emerged, and different theoretical perspectives require different approaches to understand and define the concept.

The most widely used variant of technology in language learning is CALL (computer-assisted language learning). This term has been widely used to refer to the areas of technology and both second language teaching and learning despite frequent suggestions to revise the term (Chapelle, 2001). There are, of course, many other similar terms associated with technology use in language learning, for example, TELL (technology-enhanced language learning), WELL (web-enhanced language learning), CELL (computer-enhanced language learning), NBLT (network-based language teaching), and CMC (computer-mediated communication). We also see the use of ICT (information and communications technologies), e-learning and blended learning. In recent years, we have seen the popularity of MALL (Mobile Assisted Language Learning)/ mobile learning (m-learning) which brings ‘mobility’ into learning (Pegrum, 2014). Consequently, knowledge has become ubiquitous, and its quest should be continued in all activities of life, for instance, a person can listen to audiobooks while driving.

As practical tasks, learners should explore the following websites. They are replete with all language skills, learning and teaching resources. We found these sites very useful for ESL learners. We share some useful sites for learning the English language:

- British Council Teaching English
- Onestop English
- Zozanga.com
- Manythings.org
- Academia.edu
- Elt-resourceful
- Demand High ELT
- An A-Z of ELT
- 4Teachers.org (to integrate technology
- Abcteach educational offering 5000+ printable
- Breaking News English.com
- Dave's ESL Café
- Education Planet more than 100,000 resources
- Education World educational search engine
- Educator's Reference Desk: ESL Lesson Plans http://www.refdesk.com
- EduHound
- Edutopia
- Eduweb interact with material like video games
- English Firsthand: Teacher Resources

- ESL Flow
- ESL Kids Stuff
- ESL Through Music
- SongsforTeaching
- Every Picture Tells a Story
- Everything ESL: Classroom Lesson Plans
- Google for Educators
- Interesting Things for ESL Students
- Havefunteaching.com
- Internet Picture Dictionary
- Larry Ferlazzo's Websites of the Day (award-winning website)
- Learn English
- National Capital Language Resource Center

Technology in Education

It would be fair to say, perhaps, that technology has changed our lives in every way, such as shopping, communicating, entertaining, teaching and learning, and even in the way we think. Most, if not all, teachers, educators and policymakers would support the use of technologies in enhancing learning. Computer technologies have for some time now played a significant role in improving education and reforming curricula across countries all over the world (Pelgrum, 2001; Kozma, & Anderson, 2002). Governments, education authorities and schools have all made major investments into providing schools with computer equipment (Pelgrum, 2001; Macaro, Handley, & Walter, 2012).

Globally, technology integration into education is an important feature of the educational landscape. Countries like the US, Australia, Spain, Italy, Singapore, China, and UAE have taken major steps to equip their educational institutes with technology.

Apart from the policy and investment in technology use in education, it makes sense to use technology in teaching and learning, according to brain research experts (Tileston, 2000). For example, computers can promote visual, verbal, and kinesthetic learning and address different cognitive and psychological processes in learning by using multimodal materials. Later, it leads to multimodal analysis and multimodal learning material.

Technology in the Classroom

Joseph Hardin said, "Technology is affecting education in revolutionary ways, and the momentum toward these changes is irreversible." Technological change is redefining communication by leaps and bounds, but in turn, is also changing how educators need to teach. A significant viewpoint for all teachers is to consider that networking signifies not just an innovative toolset, but a novel environment for learning and teaching. New communication technologies encourage new possibilities and enlist an unlimited database of knowledge for students.

Technology Use in Language Education

Technology has been integrated into second language teaching and learning since the 1960s as a mechanical tutor to train repetitive language drills, the so-called drill-and-practice method. It is only since 2000 that computer technology has been largely used in reading, writing, literacy, and cultural awareness (Chapelle, 2003). With the development of multimedia computing and the Internet, technology is becoming a vital feature of second language classrooms and an important issue confronting second/foreign language teachers and researchers. For example, Chapelle (2003), as an applied linguist, asserts that 'technology-based language teaching and research is not a departure from applied linguistics. It is a continuation- the 21st century version of what applied linguists do'.

There are millions of English learners and the development of technology is embracing these learners. The advantage of the Internet is that it allows language to come to the learner,

rather than a learner having to go to a special place to learn the language. In institutional contexts, such as higher education sectors, secondary schools and primary schools, teachers face a generation who has grown up in an environment in which they are constantly exposed to computer-based technology; therefore, their methods of learning are different from those of previous generations. Determining how to teach the generation which has already integrated technology into their daily life is a challenge to the traditional teaching and learning philosophy. All these points suggest that language learning/teaching is embarking on a new trend, and it has become an urgent issue for teachers, applied linguists and learning theorists to think about how new technologies should be integrated and utilized in language learning.

Lesson 3

Technology in English Language Classroom

- Technology as an Effective Tool for Language Learning
- Use of Technology & Improvement of Language Teaching & Learner Learning
- The Outcome Dependent on the Language Teacher's Use of Technology
- Application of Technology & a Changed English Classroom
- Technology-embedded Classroom Develops Learners' Autonomy
- Use of Technology Develops Learners' Higher Order Thinking

Technology as an Effective Tool for Language Learning

Technology is an effective tool for learners. Learners must use technology as a significant part of their learning process. Teachers should model the use of technology to support the curriculum so that learnerscan increase the true use of technology in learning their language skills (Costley, 2014; Murphy, DePasquale, & McNamara, 2003). Learners' cooperation can be increased through technology. Cooperation is one of the important tools for learning. Learners cooperatively work together to create tasks and learn from each other through reading their peers' work (Keser, Huseyin, & Ozdamli, 2011).

Use of Technology & Improvement of Language Teaching & Learner Learning

Bennett, Culp, Honey, Tally, and Spielvogel (2000) asserted that the use of computer technology led to the improvement of teachers' teaching and learners' learning in the classes. The use of computer technology helps teachers meet their learners' educational needs. According to Bransford, Brown, and Cocking (2000), the application of computer technology enables teachers and learners to make local and global societies that connect them with the people and expand opportunities for their learning.

The Outcome's Dependency on the Language Teacher's Use of Technology

They continued that the positive effect of computer technology does not come automatically; it depends on how teachers use it in their language classrooms. According to

Susikaran (2013), basic changes have come in classes beside the teaching methods because the chalk and talk teaching method is not sufficient to effectively teach English. Raihan and Lock (2012) state that with a well-planned classroom setting, learners learn how to learn efficiently. Technology-enhanced teaching environment is more effective than lecture-based class. Teachers should find methods of applying technology as a useful learning instrument for their learners although they have not learnt technology and are not able to use it like a computer expert.

Application of Technology & a Changed English Classroom

The application of technology has considerably changed English teaching methods. It provides so many alternatives as making teaching interesting and more productive in terms of advancement (Patel, 2013). In traditional classrooms, teachers stand in front of learners and give lecture, explanation, and instruction through using blackboard or whiteboard. These methods must be changed concerning the development of technology. The usage of multimedia texts in classroom assists learners in become familiar with vocabulary and language structures. The application of multimedia also makes use of print texts, film, and internet to enhance learners' linguistic knowledge. The use of print, film, and internet gives learners the chance to collect information and offers them different materials for the analysis and interpretation of both language and contexts (Arifah, 2014).

Technology-embedded Classroom Develops Learners' Autonomy

Dawson, Cavanaugh, and Ritzhaupt (2008) and Pourhosein Gilakjani (2014) maintained that using technology can create a learning atmosphere centered around the learner rather than the teacher that in turn creates positive changes. They emphasized that by using computer technology, language class becomes an active place full of meaningful tasks where the learners are responsible for their learning. Drayton, Falk, Stroud, Hobbs, and Hammerman (2010)

argued that using computer technology indicates a true learning experience that enhances learners' responsibilities. Technology encourages learners to learn individually and to acquire responsible behaviors. The independent use of technologies gives learners self-direction.

Use of Technology and Development of Learners' Higher Order Thinking

According to Arifah (2014), the use of the internet increases learners' motivation. The use of film in teaching helps learners to realize the topic with enthusiasm and develop their knowledge. Learners can learn meaningfully when technology is used in the process of learning through using computers and the internet. When learners learn with technology, it assists them in developing their higher order thinking skills. It can be concluded that the true combination of multimedia and teaching methodology is very important to attract learners' attention towards English language learning.

Lesson 4

Distance Language Teaching with Technology

- Introduction: Defining the field
- Technologies, Tools, and Learning Environments
  - CMC-based Environments
  - Audiographic and Videoconferencing Environments
  - Learning Management Systems
  - Telecollaboration
  - Web 2.0 Tools
- Enquiry into Pedagogical Issues
  - Task Design
  - Assessment of Learning
  - Teacher Expertise
- Research Trajectories and a Future Agenda

Introduction: Defining the field

The form and scale of technology-mediated distance language teaching has expanded markedly over the past two decades, with ongoing innovation providing access to increasingly rich language learning opportunities, for dispersed populations of learners. Language teaching at a distance is now geographically widespread around the world as a well-established means of extending access and opportunities to language learners in both public and private settings. Importantly too there has been a shift in the positioning of distance language programs from being regarded by many as a somewhat marginal enterprise, to being recognized as sites for technological and pedagogical innovation that extend the theory and practices of language teaching. Central to these developments has been an abiding concern to identify the distinctive

nature and effectiveness of technology-mediated distance language teaching, together with advancing theory, research and practice to inform what a burgeoning domain of activity is.

Defining features of all these forms of distance language teaching are that teachers and learners are physically separated, that "the bulk of the learning takes place in non-co-presence" (Lamy 2013a, 144), and that technology is used to mediate the teaching-learning processes within the presence of an educational organization (distinguishing it from the private study). Distance language teaching has evolved largely in response to developments in technology, from early print-based courses, to educational radio and broadcast television, through to audio and videocassettes, and then to computer technologies, with further possibilities offered by interactive multimedia, Web 2.0 environments, and Second Life. Developments in technology-mediated distance language teaching mark a fundamental shift from early approaches concerned with the production and distribution of learning materials for independent study (including CD-ROMs, video-based courses, and broadcast education for example), to more contemporary approaches concerned with interaction, communication, collaboration and collective activity within virtual learning environments. Technology is no longer solely used for distribution purposes, as in broadcasting, and emphasis is now placed on opportunities for communication using both text and sound, as in the chat, and videoconferencing, meaning that distance language education can focus on communication and learning as a social process.

Importantly, too, the new learning environments offer opportunities for peer support, and for reflection on learning experiences in both private (with teachers) and shared (with peers) conversations online. Thus, emerging paradigms for distance language teaching have made possible different combinations of individual and collaborative language learning environments and called for not only technological innovation but pedagogical innovation. They introduced new expectations of what is required to work successfully in technology-mediated distance language learning environments for both learners and teachers. Earlier research using older technologies such as the telephone (Graham 2000) can acquire new significance with the introduction of accessible tools such as Skype; the value of those earlier studies often lies in the

rich accounts provided of pedagogical challenges, including for example attempts to make conversations more interactive.

Technologies, Tools, and Learning Environments

In distance language teaching while the terms technologies, tools, and learning environments are often used quite loosely, even interchangeably, technology is mostly used as a generic term encompassing, for example, digital technologies and mobile technologies; tools is more specific and is often used to mark a distinction between synchronous and asynchronous tools for example or to refer to specific devices such as the videoconferencing tool NetMeeting. The term learning environment can refer to managed learning environments such as Moodle but more often refers to the complex, local ecology of a course including not only specific tools and content but also constellations of learners, teachers, tasks and interactions, including over time. Blake (2009), in his review of technological applications for second language distance learning, traces advances in the field, concluding that "the profession will need to rethink current best teaching practices and integrate CALL advances fully into the language curriculum including DL options."

To conclude, the most influential technologies, tools, and environments in distance learning have been computer-mediated communication, audiographic and videoconferencing, the use of learning management systems, telecollaboration, and Web 2.0 tools.

- **CMC-based Environments**

  The advent of computer-mediated communication (CMC) opened up entirely new domains in distance language teaching, freeing students from the limitations of pre-determined curricula and materials, and introducing new options for learning through discussion and participation in collaborative environments. Importantly, for the first time distance language learners had the prospect of becoming more active agents in their learning: they could raise questions and participate in more open-ended, collaborative learning opportunities to complement the pre-determined course content. Crucially, isolation was no longer such a barrier, and students were able to connect with their peers,

and, ideally, develop a sense of affiliation and community. Blake (2005), for example, describes CMC as the essential "glue" that holds students together in distance language learning, arguing that it not only engages them, but allows them to put to use the language they learned during the week, and contributes to maintaining motivation.

White (2003) makes a distinction between static course content and more fluid content which is most easily provided through the use of what are now multiple options for CMC, synchronous and asynchronous, in text, oral, and visual format. Chat, for example, has played a crucial role in providing interactive opportunities in distance language courses: Volle (2005), for example, details synchronous online oral tasks and online oral interviews incorporated into a course for distance learners of Spanish, which was then extended into desktop videoconferencing.

Asynchronous forums were among the earliest forms of CMC used in distance language teaching, with attention to ways in which reflection could be optimally combined with interaction in text‐based conferencing. Subsequently, both asynchronous and synchronous opportunities were used together as in the use of email and chat in an online distance writing course (Raskin 2001), at which point access to the opportunities needed to take account of time zones. A new issue was that of vicarious interaction, that is learners who preferred to read rather than contribute to online interactions. Importantly, this led to new understandings of the importance of social presence online, and the need to integrate computer‐mediated communication into the course curriculum and assessment.

CMC is important in distance language teaching not only as a learning tool but as a gateway to target language communities.

- **Audiographic and Videoconferencing Environments**

In terms of synchronous conferencing, both audiographic and video conferencing have become crucial components in many distance language courses, providing opportunities for interaction and collaboration, as both the means and the objective of language learning. Videoconferencing, as Guichon (2010) argues, was originally designed for social communication and has been "diverted for pedagogical purposes", a comment that applies equally to the telephone, Skype, blogs and other technologies and tools. In providing face-to-face communication at a distance, videoconferencing has been seen as beneficial for the kinds of interactive opportunities it could provide distance language learners. Importantly too videoconferencing has been recognized as complementing the more established interactive opportunities provided within written online environments (synchronous and asynchronous). Several applications are available (including Adobe Connect, Blackboard Collaborate, Breeze, FlashMeeting, NetMeeting), and they combine different modes such as spoken and written language, and different kinds of access to graphic and visual systems. While early studies identified the benefits of videoconferencing, particularly relating to the affective factors of motivation and confidence, there was an evident need to ensure that task design was well supported by the affordances of the technology.

Both research and practice have focused not only on the affordances and constraints of task-based videoconferencing environments for distance language teaching but also the new demands they placed on language learners and teachers. The challenge for participants has been seen as one of "making meaning in multimodal virtual learning spaces" (Hampel and Hauck 2006), and the complexity of that challenge has been identified as one of developing multimodal literacy, which involves not only becoming familiar with the technology but then learning to "represent meaning in more than one mode at a time, understand each mode and how to use different modes constructively, while remaining aware of. … the affective demands of new media" (Hampel, & de los Arcos, 2013).

Identifying the skills teachers need to work within synchronous distance language teaching environments, has also been a focus of much research (Hampel and Stickler 2005; 138 Cynthia J. White Lamy and Hampel 2007; Wang, Chen, & Levy 2010). Guichon (2009), for

example, identifies the need for specific combinations of socioaffective skills (including to individualize the relationship with students), pedagogical skills that can be deployed in real-time, and multimedia skills. He extends this analysis in a detailed case study of language teachers new to synchronous online teaching, and to videoconferencing in particular. The focus is on language teaching activities, the difficulties experienced by teachers, and the strategies they use to overcome them. A further aim is to identify specifications for a desktop videoconferencing system designed specifically for language teaching. Based on the findings, Guichon refers to "the cognitive limitations met by teachers who had to manage several sub-tasks and deal with several channels almost simultaneously". Key functionalities which would help teachers were identified as relating to planning the online session, communicating more successfully, and keeping track of some of the learner language for later feedback.

- **Learning Management Systems (LMS)**

The expansion of technology - mediated distance language teaching also required course developers and language teachers to make decisions concerning learning management systems (LMSs), also known as content management systems (CMSs) or virtual learning environments (VLEs). Doughty and Long (2003) were among the first to critique any prospect of the mass commercialization of distance language courses packaged into "ill - fitting courseware management programs". The concern was that such systems were not created for language learning, with all the attendant limitations that imply. As they evolved, LMSs such as Moodle and Blackboard included a range of communication tools, both asynchronous and synchronous, thus potentially displacing some of the earlier concerns about a lack of opportunities for interaction or engagement with learner needs (Wang, &Chen, 2009). VU LMS is one of the best LMS systems in Pakistan. It synchronizes all academic and administrative activities at one platform.

- **Telecollaboration**

While technology - mediated distance language teaching has been concerned with providing opportunities for communication and interaction in the target language, access to those opportunities with native speakers has also remained an enduring ambition. Tudini (2013) argues that interactions which are moderated or mediated by a teacher "are likely to provide only limited preparation for naturalistic conversation outside of the classroom".

Tandem partnerships conducted by email were an early form of asynchronous bilingual exchanges incorporated into distance language courses providing access to authentic interactions with native speakers. Subsequently, telecollaborative exchanges which aim "to bring together language learners in different countries to carry out collaborative projects or undertake intercultural exchanges" (O'Dowd, & Ritter, 2006) were developed within distance language courses using increasingly rich environments (including Web 2.0 platforms such as blogs, wikis, YouTube, and Facebook).

- **Web 2.0 Tools**

More recently, online distance language environments have included, and, in some cases incorporated Web 2.0 tools, such as blogs and wikis. While joint authoring is a key functionality of wikis, the critical dimension of learner support in distance language teaching also needs to be addressed. Organizational aspects are a further challenge related to collaborative work in distance learning, particularly the time it takes for learners to come together and get the work underway.

The functionalities of blogs suggest that they could play an important role in distance language courses: they have an accessible interface and include opportunities to revisit, update, and comment on texts. However, the role of the teacher is critical in ensuring such tools are accepted and embedded within the way the course unfolds, as revealed by Comas-Quinn (2011),

in her discussion of an upper-intermediate Spanish distance language course. While only 16% of the distance learners started a blog, for that small community of bloggers committed to

posting and updating their blogs, it became an important tool for writing practice and a central element of their course. This finding aligns with White's (2003) argument that distance language learners can be seen as course producers, who actively construct their version of the course from the sources available to them, and according to their own learning needs and agendas.

Comas-Quinn (2011) noted that several teachers were reluctant to see "the pedagogic value of blogs and revision exercises that are not properly marked [by the teacher]." Further to this, they expressed resistance to the distributed nature of the learning spaces, arguing that they would prefer to have fewer places to moderate and that such a role could be assigned to an e-moderator as a facilitator of learning opportunities online, separate from the tutor.

The role(s) of teachers in distance language teaching has been an area of enduring debate, and contestation, and the introduction of new technologically mediated spaces tends to draw such debates to the surface once more.

Enquiry into Pedagogical Issues

Technology-mediated distance language learning environments entail quite dramatic shifts in pedagogies developed for more traditional settings, requiring both learners and teachers to rethink their practices. While much emphasis has been placed on technological innovation, pedagogical innovation has tended to lag further behind, though arguably this gap has begun to close as the field matures.

- **Task Design**

In the early forms of distance language teaching, there was a sustained interest in course design and ongoing evaluation of materials. Approaches were informed by principles in the wider distance education literature such as tutorials-in-print and the need to ensure the presence of a "teaching voice" within the course content (Holmberg, Shelley, and White 2005). Course design tended to be a lengthy, detailed process involving trialling of materials during the

developmental stage, with ongoing attention to such features as learning goals, assessment, the rate of progress that could be expected, and opportunities for feedback on course work.

It is important to emphasize that the consequences for flawed design in distance language teaching can be quite significant, impacting on learner motivation and persistence for example, as noted by Lamy (2013): "remote, isolated learners whose learning is impeded or halted by design issues cannot obtain immediate help, nor can the designers intervene swiftly to recast pedagogical orientations that have been explicitly described for the learners in the self-study materials already released to them." While it is now possible to update or revise elements of a course through virtual learning environments, such midstream changes can result in confusion or a negative impact on learner confidence and engagement. As knowledge of broader issues of course design has grown, the emphasis has shifted to task design, which remains an equally high-stakes activity. The prevailing focus has been on task design related to the affordances of particular online tools, the needs and preferences of learners, and the goals of specific learning events. And, as noted earlier, a central concern has been to provide optimal opportunities to develop interactive competence in the target language.

Technology-mediated environments provide the teacher and researcher with a view into the ways in which distance language tasks are interpreted, negotiated, and enacted by students, and by groups of students. This represents a quite dramatic departure from earlier forms of distance language teaching where the teacher was for the most part remote from the individual sites of student learning and had to rely on inferences about students' interpretation of tasks drawn from submitted course work. In technology education, there should be a sustained comparison made between task design and implementation with not only different learners but also different tutors; the aim should be to assist both teachers and course developers in enhancing task design in synchronous online settings.

- **Assessment of Learning**

A prevailing concern has been how to assess the learning gains of distance language students in ways that are appropriate for the learning setting. Currently, we do not have a well-developed philosophy of assessment in distance language teaching, and to date assessing the

acquisition of the target language skills by distance language learners has been the focus of enquiry with two broad purposes: to investigate student gains in performance as a means of

establishing the effectiveness of distance language teaching environments and processes (Blake et al. 2008; Volle 2005) and/or as a means of assessing particular skills and providing feedback to learners on their progress. In the first category, early studies focused on assessing and documenting the development of oral skills in online distance environments

An important development in technology - mediated assessment came with the increasing focus on tailoring assessment to match the kinds of interactive and collaborative opportunities integral to contemporary paradigms of distance language teaching. Hopkins (2010) reports on the use of FlashMeeting (which combines synchronous voice and text chat features, together with video, whiteboard, voting, file sharing, and other features) to develop and assess skills in real-time, interactive speaking tasks for English as a foreign language students at the University of Catalonia. The main part of the learning in distance language courses is not directly mediated by a teacher; rather it is the non - co - presence of the teacher into carefully scaffolded, assessed, small group speaking tasks Hopkins (2010).

- **Teacher Expertise**

The knowledge, skills, and expertise required to participate in technology - mediated distance language learning (whether as a teacher, learner, moderator, assessor, course designer), has been explored from several perspectives.

One of the earliest accounts of practices in virtual language classrooms comes from Lamy and Goodfellow (1999a) as they focus on asynchronous conferencing to encourage reflective interaction among distance language learners of French in a project termed Lexica Online. The project aimed to encourage student reflection on their vocabulary learning strategies through group discussions which were moderated by tutors over six weeks. A significant feature of the study is that it analyzes the contributions of tutors and students in terms of message types

and tutor styles, both of which are linked to student learning. Of the three text types, only "reflective conversations" (as opposed to monologues and social conversations) were identified as contributing significantly to language learning in that they were interactional "in both information processing - and social - interactional senses". In terms of optimal tutor styles,

Lamy and Goodfellow argue the need to attend to both cognitive and social dimensions of student participation and learning. Their work was part of a wider concern as to how to develop learner autonomy within collaborative online distance learning as a critical dimension of learner support.

Hampel (2009) identifies a key challenge in online distance synchronous settings as addressing the tendency for tutors to assume a more directive or teaching-centered approach than is congruent with the espoused benefits of learner-centered language teaching. It is evident that certain features of the setting may lead to this approach including student unfamiliarity with the online tools, technical problems, and the perceived need to direct students to the affordances of the environment. Importantly too Hampel notes that students often find it very difficult to collaborate, having been mostly used to the self-study aspects of distance language learning. Beyond these epistemological shifts in practices of distance language learning and teaching, Hampel identifies the critical importance of design in fostering interaction and collaboration online, referring to Mangenot and Nissen's (2006) framework: "A more learner-centered approach requires the ability on the part of the teacher to provide a setting in which learners can develop the socioaffective, sociocognitive and organizational skills that are prerequisites of collaboration. This can be facilitated by appropriate tasks, moderation and feedback."

These findings underline the importance of affective and organizational dimensions of engagement across all aspects of the role: students for example argued that for their points of contact with tutors were generally high stakes, and that distance language teaching thus requires more attention to interpersonal aspects and relationships, better organization and focus than was often required in other settings, and a degree of sensitivity and empathy towards the learner's individual context. Much research has focused on understanding distance teacher skills in different virtual settings and concerning specific task types (e.g., Comas-Quinn, de los Arcos, &

Mardomingo, 2012;Ernest, Heiser, & Murphy, 2013), with a sustained focus on how to encourage interaction and collaboration, to maintain motivation and to ensure student retention and course completion. Important operational practices include setting up online socialization in multimodal learning environments, providing access to support and timely feedback, ensuring congruence between coursework and course assessment, providing spaces where students can exchange ideas and get support concerning assessment, and generating a feeling of "belonging" to the course and to a learning community.

Conclusion

Technology-mediated distance language teaching is a mature field, yet questions remain about the role of technology and the quality of learning experiences, especially given the diversity of practices that come within the rubric of distance language teaching. While contemporary approaches to distance language teaching are based in social and collaborative virtual contexts, distance language programs around the world still vary considerably in terms of how they are designed, and then in terms of how they are used by instructors and learners, meaning again that the actual experience of distance language learning is highly varied.

While much work remains to be undertaken to shed more light on the processes and best practices of distance language learning and teaching, the research enterprise has been aided enormously by access to archival data from within virtual learning environments. To be of value, access to the situated practices of distance language learners and teachers in particular settings needs to be interpreted against a background of what we have long understood to be major challenges for the field: namely the need for ongoing attention to learner support that adds value to individual learning agendas, attention to the community, and affiliations within that, feedback on an individual and collective activity, and careful consideration of the affective aspects of distance language learning. In introducing new tools or opening up any new learning environments it is critical to consider questions relating to curricular articulation and assessed course components, given the constraints on distance language learners as they seek to adapt to particular learning environments and then learn to derive benefits from working within them.

Lesson 5

The Continuing Evolution of Virtual Worlds for Language Learning

- What are virtual worlds?
- A brief history of VWs
- Overview and categorization of virtual worlds today
- Categories of VWs
  - Age level
  - Game level (low, mid, or high)
  - Socialization level (low, mid, or high)
  - Education focus (low, mid, or high)
  - Technical requirements (low, mid, or high)
- The future of VWs

What are Virtual Worlds?

While the basic concept of a virtual world has existed for some time, our modern concept of a VW is still a matter of some debate since their continuing evolution has led to refined definitions as well. While some might consider a massively multiplayer online role-play game (MMORPG) like World of Warcraft to be entirely different from a VW like Second Life, others see them as virtual cousins that share many of the same characteristics, with the key difference being that VWs are primarily considered as virtual environments that exist primarily for socializing or what Steinkuehler and Williams (2006) refer to as a "new third spaces" since they may provide virtual "spaces for social interactions and relationships beyond the workplace (or school) and home…"

Characteristics of a Virtual World (VW)

A VW can be defined as having the following characteristics:

• **Online 3D environment:** This may simulate the real world, or it may be wildly creative.

• **Avatars:** Avatars are the in-world representations of real people who control them.

• **Real-time interactivity:** VWs include the possibility of interacting with other avatars in the environment in real-time (synchronous communication), and usually with a range of objects in that VW.

• **24-hour accessibility**

• **Persistence:** When a user logs out of a VW, their avatar, and the actions taken by that avatar, are not deleted.

• **Social space:** Although VWs may vary in look and theme, all VWs are primarily social spaces that exist for the purpose of humans interacting via their avatars.

• **Numbers:** In most VWs there are many players (sometimes in the hundreds of thousands) online in the world at the same time.

• In many—though not all—VWs, users can also control their appearance (e.g., height, facial features, eye colour), gender, clothing, and even their species. In addition, many VWs allow users some control over their environment … (Sadler, 2012, 24–25).

A Brief History of VWs

Works by authors such as Vernor Vinge, William Gibson's Neuromancer in 1984, and Neal Stephenson's Snow Crash from 1992 took the computer technology that was beginning to

develop and run with it fictionally. That work, in turn, inspired many of the virtual environments that exist online today.

The history of virtual worlds as they exist on computers and online may be traced back to the creation of the first text-based computer games, beginning with Colossal Cave Adventure (CCA) by Will Crowther in 1975–1976. This virtual text-based environment was based on the real-life Mammoth Cave system in Kentucky but included several fantasy-inspired components.

In 1978, Roy Trubshaw created a new game that was patterned on one of the variations of Zork that he called MUD. It first ran on the network of Essex University only, but in 1987 it became available on ARPANET (an ancestor of today's Internet), therefore becoming the first true multi-user online role-play environment. This game, which can still be found on the British Legends website http://www.british-legends.com, included the game elements that made its predecessors popular, but added human-to-human text-based communication and competition in the online environment. This meant that players no longer played solely against a computer, but against (or in support of) each other as well.

The evolution of MUDs led to the creation of MOOs (MUDs, Object-Oriented), with the first created by Stephen White in 1990. While these often looked almost identical to MUDs at first glance—still text-based environments that allowed for multiple users—they also integrated a new feature called object-oriented programming. This allowed for the owner of the MOO, typically called the wizard, to add elements such as a new room or items within a room (again, still text-based) without custom programming a new environment from scratch (a feature that may seem familiar to users of modern VWs like Second Life).

Educators soon discovered that these spaces had the potential for virtual classroom space, and the use of MOOs flourished in that area. Several universities, including the University of Arizona (the Old Pueblo MOO), had MOOs that instructors were able to use for virtual office hours or other educational activities.

While almost all MOOs have disappeared since that time, at the time of this printing the SchMOOze University MOO is still available for use by anyone:

http://schmooze.hunter.cuny.edu/

Overview and Categorization of Virtual Worlds Today

One of the key questions that is surprisingly difficult to answer is exactly how many virtual worlds exist. One reason for this difficulty lies in the nebulous division between VWs and MMORPGs, as discussed earlier in this chapter.

Determining how many individuals are making use of VWs is also quite difficult. One reason for this difficulty is that VWs that publish user data typically only make available the number of registered accounts.

Categories of VWs

In the early days of VW development, the choices were quite limited, especially for those interested in their use for education. One of the first widely available VWs with a significant education component was Active Worlds (AWs), created in 1995 and still available today. AW included a significant Educational Universe component that, sadly, has largely faded away, as has the popularity of this world. However, there has recently been significant redevelopment in AW that may signal new development in this environment. More recently, as discussed above, the number of VWs has risen dramatically, which means that educators can choose from environments aimed at young children, teens, or adults, with multiple options at each level. Similar options exist for VWs ranging from those almost entirely focused on social interaction to those that blend into the universe of MMORPGs. Most VWs begin with details in five key areas:

- **Age level:** The specific age ranges recommended for the VW based on the information provided by the company. This may be in grade levels or age.
- **Game level (low, mid, or high):** A "pure" social environment would rarely be strongly game-like in nature. A MMORPG like World of Warcraft, on the other hand, may include social elements, but the primary goal of WoW is to gain talents, skills, and tools in order

to complete quests.

• **Socialization level (low, mid, or high):** VWs are social spaces, but some are more social than others.

• **Education focus (low, mid, or high):** Nearly all VWs have potential use for education. The key is in the way that they are used. VWs are a tool for teachers in the same way that PowerPoint can be a tool.

• **Technical requirements (low, mid, or high):** Some VWs are more graphics-intensive than others. Some require more brandwidth, or are more difficult to navigate.

Research on Virtual Worlds

In comparison to other forms of computer-mediated communication (CMC) such as email, message boards, and so on, research into the effect of VWs on language learning and teaching is relatively recent. Except research on Habitat, studies examining VWs have almost entirely been published after 2000.

Given the social nature of VW environments, it is not surprising that one theme shared by several VW studies is their ability to enhance collaboration amongst learners. A second major set of findings regarding VWs and language learning connects to the issue of anxiety. Some of this research found that the use of an avatar (essentially a masked persona for the user) helped learners to "loosen…up a bit…" (Love, Ross, and Wilhelm 2009) while they were able to experiment with new and powerful identities" (Shaffer, Squire, Halverson, & Gee, 2004).

Some researchers also discuss the power of VWs to expose learners to the real world via the virtual environment. While this may seem counterintuitive, it appears that students can become so immersed in the environment that the virtual and the real can become blurred positively.

The Future of VWs

If predictions of future technologies were accurate, contemporary humans would be travelling via personal air cars, with our work being done by groups of robots—made safe, of course, by Isaac Asimov's three laws of robotics as introduced in the short story Runaround in 1942Sadly, this is not the case, but near-future predictions about upcoming advances in VWs may be made with greater accuracy based on products currently under development.

Over time, VWs have continued to advance, with massive changes in the quality of the graphics, user interfaces, and possibilities for communication.

However, there are many upcoming changes in these environments that will begin to shift them from being VWs to more fully developed artificial reality simulators (ARS). This begins the shift from a 3D environment on a computer screen to "the idea of immersion—using stereoscopy, gaze-tracking, and other technologies to create the illusion of being inside a computer-generated scene." (Rheingold, 1991)

Virtual worlds have grown from their text-based infancy of the 1970s to the 3D immersive environments of today. Educators and students now have a wide array of VWs available to them that can grant instant access to native speakers of a huge variety of languages who are located around the world. As these environments and their associated technologies continue to advance, they promise to change the ways that we understand both human-to-human interaction and what it means to be a student of language.

Lesson 6

Authoring Language-Learning Courseware

- What is language courseware?
- Personal computers and authoring tools
- Multimedia courseware
- Intelligent language tutors
- Commercial courseware and open educational resources (OER)
- Web-delivered courseware

What is Language Courseware?

Language courseware is generally understood to refer to software applications designed for language learning. Here language courseware will be interpreted broadly to include language-learning programs used for individual self-study or integrated into a teacher-led course of study, and running the gamut from simple single-skill activities to comprehensive online courses. With the rise of peer-to-peer interactions and social learning affordances through the internet, the function of the courseware has evolved from the role it played in the early days of computer-assisted language learning (CALL). Rather than being presented as a set of standalone, discrete exercises for enhancing a particular language skill, courseware today is typically integrated into an online learning environment. That is likely to be through a course website, using materials developed in house or provided by a publisher.

Increasingly, structured language-learning materials will be available to students online, whether the course is completely online, delivered in a hybrid/blended format, or taught face-to-face. With the rise of artificial intelligence (AI), have come sophisticated "intelligent language tutors" (ILT) which offer personally customized interactions between learner and computer.

Today, language-learning software, including ILTs, is increasingly incorporated into a rich communicative environment delivered over the Web or through mobile apps.

Courseware at the Core of Early CALL

Language courseware goes back to the earliest days of CALL in the 1960s. The early experiments in developing computer-based language-learning software used workstations connected to a mainframe over a phone line. A considerable number of language-learning programs were developed and delivered by way of this setup through the Programmed Logic for Automatic Teaching Operations (PLATO) system at the University of Illinois, which began in 1960.

PLATO programs were created with the TUTOR programming language, specifically designed for education. It was developed so that actual language teachers would be able to create their exercises: "The notion was that instructors would wish to make their own PLATO lessons somewhat in the same way that they produced lecture notes, class handouts, and textbooks; hence, much emphasis was put on making TUTOR easy for the nonprogrammer" (Hart, 1995). PLATO was one of the first systems to be usable by non-experts. This has continued to be an important goal in CALL, to enable real teachers to create their language courseware, tailoring it to the needs of their students and their curriculum. Authoring in TUTOR for PLATO was relatively simple and intuitive, with a very basic instructional format, that came to be used predominantly in language courseware, namely question—response—feedback. PLATO exercises were largely text-based and focused on one particular skill, with assessment through multiple-choice or short answer format questions. The interactions focused on grammar and vocabulary development, although PLATO did have capabilities to display graphics (through a pneumatic tool to access a microfiche) and play audio (on mounted disks). The monitors used were surprisingly sophisticated, as they were touch-sensitive, thereby allowing the creation of exercises such as touching the screen to identify a designated vocabulary item in a picture or playing a concentration-style matching game. Many innovations came out of PLATO, including

hierarchical menus, an organized help system, spelling/grammar checkers, and programmed review options (Hart, 1995).

Much of the pioneering work in developing software for language learning was done in the BASIC programming language, provided for free with most early microcomputers. There was a widespread view at the time that serious and effective computer-based language learning needed to be developed by teacher-programmers with a background in both language pedagogy and computer programming. This was in part driven by the desire to move beyond the kind of drill and practice exercises typically seen in early CALL, as expressed by Underwood in 1984:

"It is ironic that at the same time our profession was discovering communicative methodology, which discouraged piecemeal morphological drill in favour of global practice, the CALL people were busy cutting language up into largely meaningless little pieces."

As it turned out, relatively few language instructors learned to program in BASIC or in other programming languages. For those who are able and willing to do so, the advantage is the full control over the design and functionality of the software created, as well as the ability to update and customize at will. The challenge in using BASIC or any other general programming language is that everything must be programmed by the developer, not just the content and logic, but also screen layout, file organization, and user guidance. In contrast, an authoring language specifically geared towards education, such as TUTOR, provides built-in help for courseware development, so that not everything need to be created from scratch.

One of the early authoring languages dedicated to CALL was Computer-Assisted Language Instruction System (CALIS, 1979), available for MS-DOS (Borchardt 1995). The creation and evolution of this authoring tool is similar to that followed by other systems of this era. CALIS started as a text-only program, with no graphics or multimedia. To create CALIS exercises, instructors used a text editor to create a script, which was run by the student in the CALIS program. Writing the scripts involved using the procedure employed in early word processors for entering formatting instructions, namely inserting words or symbols before and/or after a text string to indicate its programmatic role. This is familiar to anyone having written HTML code for the Web, as it uses the same convention. As is the case with other exercise creation tools, the author types in possible correct answers, entered on a new line starting with

the plus sign, with other acceptable responses separated by a vertical bar. Anticipated wrong answers can be entered, by writing a new line starting with the minus sign. Following each line of correct or incorrect answers, the author could provide feedback.

Wildcard symbols and abbreviations can be used to describe particular patterns such as any sequence of text followed by a particular word. Student responses are parsed to check if they match any of the exact text or patterns which the author had included. The software then displays the preprogrammed feedback to the user. An authoring tool such as CALIS, or similar tools such as Dasher or MacLang, allowed instructors to create their computer-based exercises with only minimal technical expertise (Otto, & Pusack, 2009). This enabled instructors to create learning materials tailored specifically to their needs, that is, using vocabulary, cultural information, or grammar structures that align with textbooks or with other curricular considerations. The fact that the CALIS script is in plain text-enabled easy sharing as well as potential portability to other systems (through a global find and replace). Such considerations are important in decision making about authoring options. Scripting is easier to learn and use than programming code. It is also more readable and portable in that programming code is tied closely to the syntax of the language used and is less easily imported into a new environment. Using a tool such as CALIS eliminates the need to write substantial computer code, but it also limits the functionality to what is enabled by the program creators. While not having to learn general programming is a major time-saver, using such a system could be quite cumbersome in that teachers need to enter correct and anticipated incorrect responses and, optimally, supply customized feedback for each.

The use of authoring languages still requires some coding on the part of the instructor. That is eliminated in template systems, which began to appear in the 1960s. These require the teacher to enter only the content of the item, (i.e., question, correct answer, feedback), not any sequencing or formatting code. The ClozeWrite tool from Fun with Texts, as did other similar programs, allowed free-form text entry, which was evaluated using pattern matching, that is comparing the user's answer to a pre-determined set of correct answers. In a technique used by several authoring systems, students were given feedback on their input through the representation of errors with symbols replacing letters, indicating the locations of errors or misspellings. While this kind of automatic pattern markup can be quite helpful in reducing the time and effort needed to generate feedback, there are several shortcomings to this approach

(Pusack, 1983). While the software flags where the error is located in the student's answer, it does not explain the error or provides specific guidance for its correction. It also fails to distinguish trivial from significant errors.

Finally, this approach is good at finding morphological errors but is less useful in identifying other problems such as word order. The Tactical Language and Culture Training System, for example, designed for use by U.S. military personnel, offers a highly interactive immersion experience that combines cultural information with practical language training (Johnson et al., 2004).

Personal Computers and Authoring Tools

Much of the early work in courseware development of the 1960s and 1970s was designed along similar lines to how drill exercises worked in language labs at the time, with a heavy emphasis on repetitive exercises focused on grammar and vocabulary, inspired by behavioural learning theories. There was also courseware developed for reading, featuring text annotations and comprehension questions. Listening comprehension and pronunciation exercises were limited due to a lack of hardware support. In fact, limitations in the capabilities of the computing environment at the time inhibited the widespread use of language-learning software.

Computer terminals, such as those used in PLATO, were quite expensive and, because they shared processing with other users of the connected mainframe computers, could at times be slow and unresponsive. The advent of personal computers in the 1980s brought about tremendous change in the computing environment and new opportunities for the development and use of language-learning software. Personal computers were relatively inexpensive and could be used without any network or mainframe connection. This changed significantly the development environment, with the prospect of language teachers having their office computers for teaching and research. In this decade teachers began to develop their courseware on PCs through the availability of authoring tools, such as HyperCard (1987).

Authoring tools provide more control than templates over aspects of an exercise such as formatting, feedback, and inclusion of optional items such as help screens. In contrast to authoring languages, authoring tools provide simplified methods for creating exercises with easy-to-use code and procedures for entering questions and feedback. Of course, in the process,

they also sacrifice the greater control over presentation and program logic available through the use of an authoring language. Earlier authoring programs written originally for use on mainframe or minicomputers were ported over to the PC environment. From the multitude of computer platforms and operating systems through the 1980s, there was eventually industry consolidation around just two, MS-DOS/Windows from Microsoft and the Apple Macintosh. In the process, some programmers who had developed for other platforms were forced to either abandon their projects or to re-create their work, which often meant learning a new programming language. This issue remains current, as developers— professional or casual—need to make decisions based on the anticipated longevity of hardware and software.

Just as word processors eventually did away with the necessity of entering formatting codes (special codes around items to designate print formatting), that development was paralleled in authoring tools. CALIS, for example, was ported to Microsoft Windows, becoming WinCALIS, and featuring a script editor, which eliminated the need to learn and write CALIS commands. WinCALIS also supported Unicode, a major factor in allowing courseware to be created for multiple writing systems. Much of the early work in CALL involved efforts to be able to display text written in non-Roman alphabets on computer displays. Another major addition with WinCALIS was the option to incorporate multimedia. The ability to incorporate sound and be able, with some confidence, to enable its playback on student computers, was a major development for language-learning courseware. Audio is important of course for developing listening comprehension, but it can also be used in multiple other ways, such as accompanying readings, audio feedback for computer drills, or pronunciation practice. The growing popularity of the Macintosh during the 1980s, at least in North America, was due in part to its built-in support for multimedia. Also supplied at this time free with every Macintosh computer was a general authoring tool used widely for the creation of language courseware, HyperCard. Authors of HyperCard programs created individual “pages” which could then be combined into “stacks,” using a hypertext linking system familiar today from its use on the World Wide Web. It was possible to create HyperCard stacks without any scripting at all, by using icons and pull-down menus to incorporate buttons or other such elements, to add sound and other media, or to create links to other pages or elements on the screen. The text could be entered directly into a text box or copied and pasted from a text file. Advanced users could take advantage of the scripting language built into HyperCard, HyperTalk, to customize layout and

functionality and to add more sophisticated interactions. The basic authoring requirements of HyperCard were at a low enough level that technically unsophisticated language teachers were able to create useful courseware. Some instructors who put time and effort into creating extensive HyperCard learning materials were able to make that work available commercially. Moreover, speech to text technology saved the human labour of typing. Now typing voluminous texts have become easier with Speechnotes.co tool which works only with Google chrome. Written data can be saved in different places. One can access this tool from the link: https://speechnotes.co/

Multimedia Courseware

Most early language-learning software targeted a specific skill area, such as reading comprehension or grammar knowledge. With the ability to incorporate audio and video, new opportunities emerged for multimodal courseware. In the early days of CALL, the ability to create courseware incorporating audio was problematic, let alone using video. However, there were early courseware projects which incorporated video. Some of the first uses were developed at Brigham Young University. Through the development of courseware under the Time-shared Interactive Computer Controlled Information Television (TICCIT) project, which created an extensive set of language courseware, there was interest developed in the use of video for language learning (Hendricks, Bennion, &Larson, 1983).

To allow non-technical instructors to build their own multimedia applications incorporating authentic language materials, several template-based authoring systems for use of video were developed, including IconAuthor, MaxAuthor, and MALTED. One free tool for video annotation is ANVILL, which allows the importation of data from a variety of sources, including phonetics tools, such as the widely used PRAAT. This enables features such as accurate speech transcription. An important component of L2 video is the possibility of including transcriptions as well as L1 or L2 subtitles. Particularly useful is the ability for the viewer to switch at will among the different options.

One of the design choices made for that project was to provide an initial lockstep introduction to the program, which was intended to make sure users were familiar with all the features and functions of the program (Blake, 1999). This is a recurring issue in language

courseware design, namely to ensure that users take advantage of the features included for assistance and further exploration, such as help screens, grammar references, dictionaries, or richer feedback options. It seems evident that learners taking the active steps to consult available help mechanisms may lead to deeper processing and therefore more likely language acquisition. That process can also be helpful in building metacognitive awareness in the learners of mechanics and strategies for language learning. Most multimedia projects necessitate a development team, not a single individual. Needed are not just content experts, but also instructional designers, graphic artists, multimedia specialists, and programmers. The experience, time, and effort involved in such projects make them quite different from earlier projects which often involved work by a single teacher-programmer. In practice, most language-learning projects necessitate funding of some kind, whether that be provided by a grant agency, a university fund, or a commercial entity.

Intelligent Language Tutors

The need for funding applies as well, and perhaps even more, to projects for the development of intelligent language tutors (ILTs), which need the expertise of specialists in computational linguistics and artificial intelligence. ILTs use artificial intelligence to provide a more personal and individualized learning experience. Rather than general feedback or pattern responses, ILTs can provide more tailored feedback, often based not just on what the user has typed, but also drawn from a user profile. That profile may include information on the individual's previous work with the program as well as other data about the user, such as language background, the field of study, or principal area of interest in learning the target language.

Such programs are "intelligent" because they can analyze and evaluate text input by using built-in knowledge about the language to parse, or take apart, the utterance and analyze its form and meaning to determine its appropriateness, comprehensibility, and/or grammatical correctness (Heift, &Schulze, 2007). The program does this based on a language model or "expert system" as well as a language corpus, i.e., a large collection of texts in the target language. Advances in the field of artificial intelligence in recent years have resulted in much more successful natural language processing (NLP). Consumers today often encounter NLP, for

example, in automated voice exchanges, where NLP is paired with automatic speech recognition, which has likewise improved tremendously.

The effort and resources required to build an ILT are such that it would be advantageous for these projects to be built cooperatively or to share resources or code. Most programs are built with computer languages commonly used in computational linguistics, namely Lisp and Prolog, along with those used on web servers, Java and Python, but they are normally built from scratch, resulting in quite different approaches and code bases. Designing the architecture of the ILT to be modular is a step towards interoperability and flexibility, allowing parts of the system to be turned off or on and to be updated individually. That makes it easier as well to add additional modules in the future. What would increase even more the versatility of ILTs would be the ability for non-programmers to modify the content. The Tutor Assistant is an authoring tool for ILTs which enables that functionality (Toole,Heift, 2002). Flexibility is important as well in providing options to accommodate as wide a range of learners as possible. That could mean providing different pathways for analytical learners who prefer a deductive approach (rules first) and for global learners, who learn better from an inductive method (examples first). When possible, providing different language choices for feedback and other help functions also makes the system more universally usable.

One of the better-known and successful ILTs is E-Tutor for German. Its structure is typical of an ILT in that it incorporates a language knowledge module that parses sentences to provide phrase descriptors and detailed error information, an analysis module, which generates possible responses and updates the student module, which dynamically evolves based on student performance. The nature, amount, and ordering of feedback is one of the most difficult issues that ILT developers face. Language learners will often make more than one error in a sentence so that the system must decide which errors to flag, in which order, and how much feedback to provide for each. Some errors may result from typos, and others may be grammatically incorrect but not critical to comprehensibility. Some systems will provide more detailed feedback to beginners while advanced learners get only a hint at the error.

One approach to user feedback is to have the system places errors into categories and automatically provide feedback on those judged most critical while giving the student the option to see or not feedback on others. Such decisions can be built into the system or be determined by

the teacher or by the individual student, by setting defaults in the student module. E-Tutor features an "error priority queue" which ranks errors and is instructor adjustable (Heift, 2004). Another factor for authors to take into consideration in determining user feedback is how much metalinguistic information to provide, that is grammatical or linguistic explanations. Studies have shown that providing such feedback can be more effective than simple flagging of errors (Nagata, 1993) and that learner uptake from feedback is increased if the error is both explained and highlighted (Heift, 2004). That is likely to depend on the individual learner so that best practices in this area would seem to point to the importance of flexible feedback, which is at least in part under the user's control.

It is relatively easy to analyze learner input for grammatical and lexical errors. It is more difficult to evaluate and measure other aspects of the user's L2 such as complexity, fluency, and creativity. It is possible to compare an individual learner's input with similar utterances from a learner corpus, comparing sentence length or examining syntactical complexity. One of the other areas that could be examined is the use of collocations or idiomatic expressions, important indicators of lexical sophistication, so crucial for fluency and natural-sounding language output (Tschichold, 2003). An area of importance in second language acquisition is pragmatics, the use of language which is not just grammatically and lexically correct, but also situationally and culturally appropriate. Assessing user input from this perspective is quite difficult, as there are likely to be many different utterances that could be acceptable, and which would likely range from possible but improbable to highly idiomatic (Tschichold, 2003). Providing in the feedback to the user examples of pragmatically appropriate responses—even if the user's utterance is acceptable—may be advisable.

Practical Activity of Corpus:

Corpus must be inculcated in ELT classroom, and learners should be given an autonomous environment for learning and exploring English. Moreover, non-native TEFL teachers have limited linguistic variety. If they lead their students to various authentic corpora, learners can learn best in their respective fields, for instance, journalism students can explore News on the Web corpus and Time Magazine corpus. Mark Davies built the following corpora, and they are free to use by all and sundry. Students are advised to check the following corpora from the given link:

https://www.english-corpora.org/

The links below are for the online interface. But you can also download the corpora for use on your own computer.

Corpus (online access)	**Download**	**# words**	**Dialect**	**Time period**	**Genre(s)**
iWeb: The Intelligent Web-based Corpus		14 **billion**	6 countries	2017	Web
News on the Web (NOW)		12.9 **billion+**	20 countries	2010-yesterday	Web: News
Global Web-Based English (GloWbE)		1.9 **billion**	20 countries	2012-13	Web (incl blogs)
Wikipedia Corpus		1.9 **billion**	(Various)	2014	Wikipedia
Corpus of Contemporary American English (COCA)		1.0 **billion**	American	1990-2019	Balanced
Coronavirus Corpus		1090 million+	20 countries	Jan 2020-yesterday	Web: News
Corpus of Historical American English (COHA)		475 million	American	1820-2019	Balanced
The TV Corpus		325 million	6 countries	1950-2018	TV shows
The Movie Corpus		200 million	6 countries	1930-2018	Movies
Corpus of American Soap Operas		100 million	American	2001-2012	TV shows

Hansard Corpus		1.6 **billion**	British	1803-2005	Parliament
Early English Books Online		755 million	British	1470s-1690s	(Various)
Corpus of US Supreme Court Opinions		130 million	American	1790s-present	Legal opinions
TIME Magazine Corpus		100 million	American	1923-2006	Magazine
British National Corpus (BNC) *		100 million	British	1980s-1993	Balanced
Strathy Corpus (Canada)		50 million	Canadian	1970s-2000s	Balanced
CORE Corpus		50 million	6 countries	2014	Web
From Google Books n-grams (compare)					
American English		155 billion	American	1500s-2000s	(Various)
British English		34 billion	British	1500s-2000	(Various)

In contrast to the proliferation of multimedia CD-ROMs for language learning, there have been relatively few publicly released ILTs. A good number of projects received preliminary funding to support a proof-of-concept prototype but were not able to fund final development to enable production versions. This is not surprising, given how difficult a task ILTs face, dealing with the complexity of human language and of second language acquisition. ILTs often are designed as research demonstration projects, rather than shareable or commercial products.

There are relatively few reviews or studies of ILTs with the exception of those by the developers themselves. Developers of ILT tend to focus, as one would expect, on the functionality and effectiveness of the software, rather than on the user interface design. The user experience can be quite different from that provided by commercial software. In particular, graphics and multimedia do not display the same high production values.

Commercial Courseware and Open Educational Resources (OER)

In recent years, language-learning software such as **Rosetta Stone** or **Tell Me More** has gained prominence (Nelson 2011). Although such products are sometimes used to provide the primary delivery system for language courses, they are more often used as supplements to classroom instruction or independently by learners in self-instructional contexts. Integrating such commercial software into instructed language learning can be problematic in terms of vocabulary, grammar sequencing, and cultural content. A commercial alternative to standalone software such as Rosetta Stone are the quite widely used electronic workbooks which many publishers are now supplying with basic language textbooks. WWW.duolingo.co is a great source to learn any foreign language. It starts with GTM (Grammar Translation Method), and afterwards, it shifts to the direct method. It is entirely free, and language learning has become a fun with audio visual aids.

Unfortunately, there have been a few studies on the effectiveness of publishers' electronic workbooks. The use of such resources, given the expense and comprehensiveness, is likely to mean that local resources are not developed in support of language instruction. That may not be an issue in some educational settings, but it is possible that curricular requirements or standardized testing may make it imperative to be able to modify materials to meet local needs.

Given the expense, limited access, and inflexibility of much commercial software, one of the recent developments in the creation of language courseware is the rise of shareable teaching and learning materials, often referred to as open educational resources (OER). These can range from quite simple and basic, such as vocabulary grammar drills created with tools such as Quia (a web-based exercise creator) to full-fledged courseware incorporating grammar tutorials, exercises, readings, dialogue, and multimedia.

The well-regarded language courses available from the BBC also are in this category, as are the variety of courseware from the Open Courseware Initiative. There are sites such as Merlot or LORO which act as OER aggregators and feature peer reviews of linked content. While smaller units of OER content, sometimes called "learning objects," can provide useful learning content for teachers and students, they can sometimes be difficult to integrate into a specific course or curriculum (Friesen 2004). Some learning objects have rich metadata which provide information on provenance, targeted proficiency level/skill, and typical completion time (Meskill, & Anthony, 2007).

Web-Delivered Courseware

Most of what today is produced as OER is available as web-based resources. In fact, today, language courseware is overwhelmingly designed to be delivered over the internet. In the 1990s, most of that development was done in programming environments that were not native to web browsers namely Java and Flash and which necessitated the use of special browser plug-ins to run. Plug-ins are software components added to web browsers that enable special features or functionality. Several ILTs, including E-Tutor, are written in Java and designed to run in the Java plug-in as applets in a web browser. Flash has also been used extensively, for example, for the rich internet applications from the Center for Language Education and Research (CLEAR, Michigan State University). The use of Java and Flash enabled the kind of interactivity and media integration that at that time were not possible in the native web environment using HTML. Plug-ins, however, were not an ideal solution, as they tended to cause performance issues and also could not be fully integrated into web pages. Another early option to move beyond static webpages was server-based interactivity through CGI scripts, or common gateway interface, written in Java or Perl. This method however could be slow, as a new page had to be received from the Web server, and since the entire page was replaced, did not work well for designing interactive courseware. The arrival of JavaScript in the mid-1990s changed dramatically the nature of Web interactivity.

JavaScript (officially ECMAScript) is a scripting language that is incorporated into the source of the webpage, along with HTML and CSS (cascading style sheets). JavaScript is client-side code and is natively supported by Web browsers, which means that it runs efficiently and can be integrated into the Web page structure. What that means in practice is that a script can

manipulate objects on the page, for example, showing a checkmark for the correct answer to a question and providing appropriate feedback.

JavaScript syntax and logic will seem familiar to anyone acquainted with earlier scripting languages such as those used in HyperCard or ToolBook. Since JavaScript is embedded into HTML, the source code used for a Web page can be viewed. This makes learning and borrowing much easier than in other development environments. Web browsers incorporate JavaScript debuggers, which enables code errors to be identified and rectified. As both HTML and JavaScript can be created with a basic text editor, this makes the development of interactive web pages more universally feasible than in environments requiring specialized authoring software.

JavaScript has evolved considerably since its origins, to the point at which web applications using JavaScript can be quite complex and sophisticated. One of the JavaScript techniques used frequently is to pull data from a server in the background, then use CSS to update on the fly information on the page, as requested by the user or in response to an action, such as answering a question. This technique, called AJAX for asynchronous JavaScript plus XML, enables the kind of transparent interactivity familiar from authoring tools such as Director. For language-learning software, this allows queries for information housed on a server, such as from a language corpus. That data will most likely be encoded in XML, extensible markup language, a more flexible and generic markup language than HTML. Maintaining program data in a standard, well-structured, open format such as XML is desirable to separate content from formatting. XML offers as well a significant chance to future-proof data, as its structure makes it easy to translate the data into different formats, such as JSON (JavaScript object notation), a lightweight data-exchange format of increasing popularity.

Authoring tools have been created which allow instructors to create exercises which take advantage of the power and flexibility of JavaScript. A tool frequently used by language teachers is Hot Potatoes, which features a wide variety of exercise types. Many language instructors in higher education are likely to be using a web-based course management system, usually called a learning management system (LMS) or virtual learning environment (VLE). These are server-based software tools that are quite useful for course management, including grade recording, assignment distribution and submission, and document archiving. They also provide a consistent and familiar interface to students, as they tend to be used widely across institutions where they

have been adopted. As they are generic teaching tools, they do not offer specific language-learning activities. They do include options for creating a variety of exercises, although formats and feedback options are limited. Content or exercise creation in most LMS can mean that the content resides in a proprietary system, with limited options for export and reusability.

Moreover, by virtue of the extensive features and functions built into an LMS, the implicit message to instructors may be that this is the total of how the web can be used in teaching and learning, definitely a far cry from the real power and potential of that medium. Most LMS now allow plug-ins or integration of third-party applications, which can supply tools and functions important for language learning such as voice tools. The LMS which is most easily customizable for language learning is Moodle, which also has the advantage of being open source. Many of the external tools and services are increasingly integrated into an LMS through use of an interoperability standard and application program interface (API) called learning tools interoperability (LTI). The LTI-based integration of third-party tools, services, and repositories of learning objects or assessments supplements the built-in functionality of the LMS. This allows as well assessment data from the use of those resources to be sent to the LMS grade book.

The most recent version of the web authoring language, HTML 5, includes features that are important in language-learning applications including native playback for audio and video, enhanced graphics, and robust language support (Godwin-Jones 2014).

The video format allows playback without the need for a plug-in and therefore better integration into the other elements of the page. It also makes it easier, through WebVTT (video text tracks) to include a variety of subtitles and turn them off and on programmatically or at the request of the learner. One of the new elements associated with HTML5 is Canvas, a graphics rendering standard that uses scripting to draw and manipulate images. Form elements on the page (for user input such as text entry fields or radio buttons) can be easily tied to graphic representations using Canvas. Among other additions to HTML5 is a speech input field in forms and advanced text manipulations, such as Ruby annotations, important for some Asian languages. There are other features of HTML5 that make it a good candidate for the development of courseware. The stateless nature of Web pages (i.e., no data kept upon leaving a page) has traditionally been overcome through the use of browser “cookies,” which, however, have limited

storage capacity and raise security and privacy issues. The new "Web storage" is more robust and reliable. In terms of interactivity, HTML5 allows any element of the page to be "draggable."

It also includes support for parsing text with patterns (i.e., "regular expressions"). Since not all features are implemented at the same time in all browsers, it is advisable to use progressive enhancement in designing web apps, that is, assuring basic functionality in all browsers, while enabling more advanced features for supported browsers. This can be done automatically by using available JavaScript libraries.

A JavaScript library, such as the popular jQuery, is a set of pre-written JavaScript which allows for easier development of JavaScript-based applications. These libraries have become very popular with developers, as they make it easier and faster to create rich internet applications.

Using an open standard such as EPUB makes the content usable on a variety of platforms. It also offers some specific features of potential use in language learning. It supports the use of media overlays for creating synchronized audio, which matches up spoken and written texts. This is used heavily in e-books for children, but it clearly could be valuable in second-language learning as well. Media overlays also allow switching from one modality to another, for example, by starting to read at home and then switching to an audio mode in the car. EPUB 3 also offers robust support for non-Latin writing systems, including vertical writing and right to left page progression. Using HTML5 to deliver a web app makes content usable on mobile devices, through the built-in web browsers on smartphones and tablets. Many projects designed for mobile delivery use a proprietary development environment to produce native apps for the targeted platforms. This makes it easier to integrate with the device hardware, but it also means that separate code (using different programming languages) must be written for each platform. Increasingly, authoring tools are taking into consideration mobile users, making the content at last partially usable on phones and tablets. One of the directions holding a good deal of potential for language learning in the mobile space is the development of games. Projects such as Mentira, for example, leverage the capability of mobile devices to enable place-based interactions between students and native speakers. Mentira was created with the game authoring took Augmented Reality and Interactive Storytelling (ARIS), an open-source platform from the University of Wisconsin.

One of the challenges with games and other forms of informal language learning available today is integrating those experiences and the second-language development they enable into formal learning settings. We seem likely to see in the future more courseware development along the lines of Mentira. The program has a focus on a particular area of linguistic competence of cultural significance—in this case, the use of pragmatics in

A collaborative learning environment is the normal context for the delivery of language courseware. The process of creating and delivering language-learning software has changed significantly since its beginnings in the 1960s. Today, developers are unlikely to be working independently creating discrete language-learning exercises for particular skills. Instead, most developers will be part of a team that includes subject experts, media specialists, and instructional designers. They will be taking advantage, to the extent possible, of pre-built frameworks for creating applications. The delivery system will inevitably be internet-based, using either the open web, a proprietary delivery system such as an LMS, or mobile-friendly apps. Delivery and record-keeping are likely to be cloud-based.

Courseware will continue to be integrated into a social learning environment with rich peer-to-peer collaborative functionality. The majority of language teachers are likely to continue to rely on commercial courseware, developed, and marketed in conjunction with textbooks.

Lesson 7

E-Books

- E-Books on the Internet
- Early Internet E-book Projects
- The World Wide Web and the Expansion of E-books
- Commercial E-books on the Web

- Google Books
- Authors Bringing in new E-books
- The Future of E-Books on the Internet

E-books on the Internet

In modern times, e-books are finally coming of age. A recent Time magazine article highlights growing competition in the e-book reader market. The release of Apple's long-awaited iPad, with accompanying iBookstore and iBooks app, adds even more competition, with over 300,000 devices sold on the first day. Students should also learn technical aspects of the e-books, for example, they should download MobiReader, Winrar because some e-books require these softwares. As a practical task, students must explore the given link to download books from these sources. If users register themselves, they can download 10 books or articles in a day. This site is a reservoir for a bibliophile. Apart from books, it also gives free access to millions of research papers. Please visit this biggest online free library from this link: .https://z-lib.org/

These impressive statistics, the high-profile debate over the Google settlement, and recent popular interest in e-books are signs that they have become part of the public zeitgeist. Long before Amazon began selling books, before Google began scanning texts, and before publishers began to "embrace" e-books, thousands of e-books were available to be read and downloaded for free on the Internet. These e-book libraries were the creation of a relatively small but influential e-book community. This community-developed core philosophies concerning the preservation of digital e-books experimented with digitization processes and learned to cope with accelerating technological change.

Early Internet E-book Projects

The first Internet e-book was created in 1971. The project, aptly dubbed Project Gutenberg, was the brainchild of Michael S. Hart. Hart, then a student at the University of Illinois, founded Gutenberg on the premise of replicator technology. As Hart put it, "Once a book or any other item (including pictures, sounds, and even 3-D items) can be stored in a computer, then any number of copies can and will be available. Everyone in the world, or even

not in this world (given satellite transmission), can have a copy of a book that has been entered into a computer" (Hart 1992). Hart accurately predicted the Internet's power as a syndication tool. Today the phenomenon is well documented, proven every time a music file is downloaded or a new viral video appears on YouTube. Hart chose the Declaration of Independence as the first document to digitize. Once the document was typed, Hart told his colleagues how to access the file, or sending the 5 kB file to everyone would have crashed the system; six people downloaded the file. Hart had proven his underlying premise. The Gutenberg Library was built slowly. You can browse through this link. https://www.gutenberg.org/ebooks/In August 1989, Project Gutenberg added its tenth book, the King James Bible. In January 1994, Project Gutenberg celebrated its one-hundredth book by publishing the complete works of William Shakespeare. In October 2003, with the addition of the Magna Carta, Gutenberg reached ten thousand volumes.

Today, the Project Gutenberg library contains thirty thousand free books contributed by "tens of thousands" of editors (Lebert 2005). These numbers may seem less when one considers the number of books in the Internet Archive or Google Books. Yet, for nearly four decades, two decades before the World Wide Web, Project Gutenberg has been in the forefront of e-book digitization and collections. Gutenberg first expressed a philosophical basis for Internet e-book collection development policies, in Hart's words "to make information, books and other materials available to the general public in forms a vast majority of the computers, programs and people can easily read, use, quote, and search" (Hart 1992).

Gutenberg's mission is elegantly simple: to "encourage the creation and distribution of e-books"; hence the texts are offered primarily in plain text to make the e-books as widely accessible as possible. Project Gutenberg was the first and, for some time, just about the only Internet e-book library. Eventually, other libraries went online.

Early Internet e-book creators faced substantial technical challenges. E-books had to be typed and progress was slow. Early e-book creators viewed one thousand or five thousand books as significant milestones—and they were. It took over twenty-five years for Project Gutenberg to complete its thousandth book: Dante's Inferno, added in August 1997. Scanner technology—

originally developed in 1957—was not widely available, nor were optical character recognition systems, even though Intelligent Machines Research had introduced the first commercial OCR systems in the 1950s. Eventually, scanners and OCR software would change the role of the early e-book creator from typist to editor/proofreader.

Sharing information on the early Internet was not easy. The Internet, advanced for its time, was still clunky. Download speeds were slow, and basic transfer protocols were in their earliest iterations. TC P/IP (Transmission Control Protocol/Internet Protocol) was developed in 1974, after Hart typed his first e-book. Computer use was not ubiquitous. The first Apple computer, the Apple I, was released in 1977, the first IBM PC in 1981. E-book audiences were small, limited to a handful of academics and scientists.

Early e-book creators faced the twin challenges of building collections and learning how best to use new digital technology. Despite these significant challenges, many of the early collections flourished and survive today.

The World Wide Web and the Expansion of E-books

Many of the technical issues faced by e-books creators were resolved with the advent of the Web, a natural platform for e-books that was far more user friendly than BITNET and previous TCP/IP and FTP platforms. With a viable platform in place and a potential audience of millions, academics, libraries, and enthusiasts jumped into digitization projects and the number of e-book libraries began to increase dramatically. An example of such a site is Renascence Editions, an online repository of works printed in English between the years 1477 and 1799. The site was founded in 1992 by Risa Bear, a staff member of the University of Oregon Libraries (which hosted the site) and an accomplished poetess with a passion for the literature of the period. From 1992 to 2005, Bear and her contributing editors published over 164 e-books on the Web, including works by Shakespeare, Francis Bacon, Mary Wollstonecraft, Edmund Spenser, and Jonathan Swift.

As these libraries grew, people with similar interests began to collaborate and share ideas. E-book communities began to emerge and libraries began to merge. The Luminarium was founded in 1996 by Anniina Jokinen. Initially, Jokinen created the site as a starting point for students and enthusiasts of English literature. The site grew, adding links to similar sites such as Renascence Editions and eventually hosting content shared by colleagues. In essence, the owners of Internet e-book libraries began to do cooperative collection development, often with great success. The process was so easy as to be almost transparent: hyperlink to the other libraries. In June 1993, Lynn H. Nelson launched CARRIE, the first full-text history library on the Web. In a brief article titled "CARRIE: A Full-Text Online Library," Nelson gives a firsthand account of the site's launch, which he indicates was an immediate success. Within a month the site had approximately three thousand links to historical texts.

Despite its success, CARRI E was soon overtaken by other sites. As Nelson writes, "It was only two months until a new day dawned and colleges and universities throughout the country were scrambling to put up World Wide Web sites, and HNSource and CARRIE lost their uniqueness and were overshadowed by the well-funded and professionally staffed projects that began appearing." Libraries and well-funded projects such as the Library of Congress American Memory project, which grew from a pilot digitization project that ran from 1990 to 1994, were uniquely positioned to develop Internet e-book collections. Aside from their obvious expertise in information management and collection building, they also had the funding and staff necessary to meet the increasing demand for more books, better access models, and more advanced searching tools.

One of the best known of these collections was the University of Virginia Library's Etext Center, founded in 1992. E-book libraries of a similar scale, particularly Internet libraries that offer free e-books, are not common. One that has reached a similar size is the Internet Archive, launched in 1996. The Internet Archive offers "permanent access for researchers, historians, scholars, people with disabilities, and the general public to historical collections that exist in digital format" (www.archive.org). The archive's mission is rooted in the library/archive tradition. It is a visionary effort to create a historical record of a new medium, "to prevent the Internet—a new medium with major historical significance—and other 'born-digital' materials

from disappearing into the past." "Born-digital" content included in the archive includes software, audio, video, and e-texts.

As of November 1, 2009, the Internet Archive's Text Collection contained 1,716,115 items. The largest collection, the American Libraries Collection, included 1,139,936 texts. Other collections are Canadian Libraries, 208,867 items; Universal Library, 70,200 items; and Project Gutenberg, 20,377 items. A list of contributors for the American Collection (www.archive.org/details/americana) shows the diverse institutions involved in digitizing books. Contributors include academic and public libraries, the Boston Library Consortium, Lyrasis, and CARLI, the Consortium of Academic and Research Libraries in Illinois. Corporate contributors include Microsoft, Yahoo! and the Sloan Foundation. Microsoft's contribution alone numbers 339,609 books from its defunct Microsoft Book Search.

The Internet Archive includes an open-source e-book reader. The reader is developed and maintained by volunteers. In a refreshing move, the Internet Archive has an open bug reporting system. Readers can report bugs, view a list of known issues, and even see who has been tasked with correcting each issue.

As a result of the combined efforts of all these individuals and institutions, a prodigious number of e-books are available on the Internet. The collections are as diverse as they are numerous. Aficionados of children's books have many sites to choose from: the International Children's Digital Library, Lookybook, Kids' Corner from Wired for Books, Children's Books Online: The Rosetta Project, Children's Literature from the Rare Book Room of the Library of Congress, and a scan of the Original Alice, by Lewis Carroll, in the British Museum's Turning the Pages collection. All these sites are easily found with a search engine.

The Internet also caters to more rarified tastes. Fans of H. P. Lovecraft can read all of his tales of horror at Dagonbytes.com. Readers curious about evolution can browse Darwin's complete works online at the Thackray Medal–winning Darwin Online. Classical music fans might be drawn to the Bavarian State Library's digital library of Felix Mendelssohn's writings. In short, there are many wonderful e-books collections on the Internet waiting to be discovered.

Commercial E-books on the Web

All of these efforts at e-book digitization served as a proof of concept for commercial publishers. Still, it was only after the successful transition from print to electronic journals proved the viability and profitability of electronic publishing that publishers warmed to the idea of e-books. Even then, publishers faced several practical issues including digital rights management, the risk of e-book sales undercutting print sales, and finding a suitable electronic format and reader. Many of the early efforts to sell e-books were by aggregators who modelled their databases on commercial journal databases and marketed e-books to libraries.

NetLibrary launched the first e-book database for libraries in 1998. Modelled on journal databases, the platform coupled a discovery interface for finding e-books with a reader for viewing the full text of the e-book.NetLibrary's key innovation was allowing readers to search the full text of an entire e-book library at once. Once an e-book was open, readers could take notes electronically, add bookmarks, link to outside resources, and copy and paste the text. Reading from cover to cover was an option, of course, but the emphasis was on research use, similar conceptually to the periodical databases NetLibrary emulated. Within a few years, other e-book aggregators entered the market, including EBL, ebrary, MyiLibrary, and OverDrive. All these platforms offer similar base functionality, but each has its unique features as well.

As aggregators were marketing to libraries, other companies sought to break into the consumer market. The history of these efforts is often a study in mergers and acquisitions as opposed to selling e-books. In 1998, Peanut Press began selling e-books online. Peanut Press was subsequently renamed eReader, then after its purchase by Palm was renamed Palm Press.

In 2008, eReader (which had reverted to its earlier name after Palm spun the company off) was purchased by Fictionwise, an e-book company that had formed in 2000. Soon afterwards, March 5, 2009, Fictionwise was acquired by Barnes and Noble for $15.7 million. Barnes and Noble have parlayed this property and its other e-book holdings into one of the largest e-book stores on the Web, with over 500,000 books available. Individual publishers were a little slower in moving to e-books. The publishers that jumped in most quickly were those successful with e-journals. Notables include Springer and Elsevier, both of which added e-books to their respective proprietary platforms, SpringerLink and Science Direct.

The direct-to-consumer market began to open for publishers with the development of affordable e-book readers. Ultimately, Amazon's Kindle may have the same impact on e-books as Mosaic did on the Internet. The Kindle was not the first reader to market, but it has captured public attention. Amazon, which offers over 350,000 e-books on its website, recently announced plans to sell the Kindle in over one hundred countries. Other companies are competing for the growing market. Sony recently partnered with Google to make over 500,000 books available online. Barnes and Noble unveiled a new e-book reader, the nook, in October 2009. The nook can store and play MP3 files, and it also allows readers to lend electronic books to friends. Apple introduced the iPad and corresponding iBooks app in April 2010. Asustek, the maker of Asus netbooks, will soon release its Eee Reader, and Samsung is set to release its Papyrus reader, already available in South Korea, in the United States. Major publishers now sell front-list e-books direct to consumers. HarperCollins, Random House, Macmillan, Simon and Schuster, and Penguin all offer e-books and downloadable audiobooks online. Learners should download audiobooks free of cost from the given link: https://www.learnoutloud.com/ . Books have been selected from different genres for instance travel, science, philosophy, business, education, politics, religion etc. Publishers are also adding free e-books to the Internet, often as part of promotional campaigns.

Graphic novel publishers are also getting into the mix. Every week, Marvel Comics offers fifteen free comic books to users who are not ready to subscribe to the Marvel online library, Digital Comics Online. This is a subscription service with over five thousand comics available, including classics like The Amazing Spiderman.

The availability of e-books on both noncommercial and commercial sites coupled with publishers' growing enthusiasm for the direct-to-consumer market is a strong indicator that e-books are reaching maturity on the Internet.

Google Books

Google's plan to make money from e-books is straightforward. First, digitize as many in-print and out-of-print books as possible, thus creating a massive e-book library. Next, when the inevitable lawsuits are filed, negotiate a settlement with industry associations that sanction your business model and establish a revenue-sharing model that heels your biggest threats. Finally, make gobs of money with your e-book storefront, print-on-demand services, e-book subscriptions to libraries, and advertising revenue. The more complex issue is whether Google's strategy is a good or a bad thing for anyone other than Google employees and the company's shareholders. In creating Google Books, Google has done an excellent job of building partnerships. Initially, Google partnered with publishers. Among the first to join in were Cambridge University Press, the University of Chicago Press, McGraw-Hill, Oxford University Press, Penguin, Springer, and Taylor and Francis. In December 2004, Google partnered with prominent libraries in launching the Google Print Library Project, subsequently renamed Google Books. Google sought to work with prominent libraries such as Harvard, the University of Michigan, the New York Public Library, Oxford, and Stanford. Eventually, other libraries joined in the effort, including the University of California, University Complutense of Madrid, and the University of Virginia.

It was the Google Books project—specifically the scanning of the libraries' books—that provoked a lawsuit by the American Publishers Association and the Authors Guild. At the heart of the lawsuit was the assertion that Google had violated copyright law by digitizing dozens of works without the copyright holders' permission. The lawsuit played itself out in a series of increasingly self-serving and tedious pronouncements by both Google and the APA.

In October 2008 they announced a settlement, detailing the key terms in a lengthy (some might say tedious) legal document. Google got the right to scan and display books. For books in copyright, rights holders have to opt in to have their material included; for out-of-print materials,

rights holders have to opt-out. Google retains 37% of the profits from sales of the texts; the remaining 63% is divided between the publishers and the authors.

The settlement also calls for the creation of a Book Rights Registry. The registry, a nonprofit institution, is to track sales and hold money in escrow for copyright holders until the funds are claimed.

One might be justified in thinking that perhaps the Google uproar is overdone. The Google Books project will make more books available to readers than ever before. Those books will be easier to find and relatively inexpensive. There is also a built-in safety valve of sorts, for if the experience of the music industry has proven anything, it is that today's tech-savvy consumers will find alternatives to commercial sites if the price is too high or if the information is too restricted.

E-books and Authors

The e-book is still in the early stage of development as a medium. Now that e-book technology is reaching a level of advancement where it does not distract from the text, many writers are no longer content with simply replicating the print. Blogs are alive with discussions about multimedia e-books.Writers are experimenting with embedding video, audio, and animation in their work. More engaged authors have already begun to influence the form and the market.

In 2000, Stephen King released his novella **Riding the Bullet** exclusively as an e-book on the Internet. Scribner's servers were so busy that many people were unable to download the work. King had demonstrated that authors (well-known authors at least) could effectively use the Internet to publish their writing. On October 21, 2009, Scribner announced a $35 list price for the e-book edition of **Under the Dome**, Stephen King's latest epic. Evidently, King and Scribner are hoping to prove the point once more at a significantly higher price point.

King's **Riding the Bullet** was a conventional e-book (in terms of its technology, not the text) that was marketed unconventionally. As King was releasing his novella, other authors were working with the medium in less conventional ways. In 1999 the Kennedy Center and RealNetworks launched Storytime Online, a project aimed at using the Internet "to make the unique power and magic of children's books more accessible."

Each story featured audio of the authors reading their works combined with visual and textual accompaniment. Stories included Judith Viorst's Alexander and the Terrible, Horrible, No Good, Very Bad Day; Debbie Allen's Brothers of the Knight; and the poem Harlem by Walter Dean Myers. In merging audio, video, and text, the program demonstrated the e-book's potential as a multimedia medium.

The Screen Actors Guild took a similar approach with Storyline Online, which featured members of the Guild reading children's books, with accompanying text and video. Stories on the site include To Be a Drum, by Evelyn Coleman, read by James Earl Jones; My Rotten Redheaded Older Brother, by Patricia Polacco, read by Melissa Gilbert; The Polar Express, by Chris Van Allsburg, read by Lou Diamond Phillips; and Enemy Pie, by Derek Munson, read by Camryn Manheim. Sadly, at the time of this writing, a note had been posted on the site indicating that funding for the project had run out.

The concept of creating Internet e-books by merging text with Internet technology was taken to another level by writers participating in the Penguin Books project **We Tell Stories**. We Tell Stories features six different stories from six different authors told over a series of six weeks. Each story incorporates the Internet in the storytelling uniquely. For instance, Charles Cummings's **21 Steps** uses Google Maps to track the movements of the characters. Each chapter is accompanied by a map of the city of London indicating where the characters are standing. Toby Litt's Slice uses a weblog to tell its story. Litt encourages readers to e-mail the characters, and the characters send text messages through Twitter. Nicci French wrote her story **Your Place and Mine** live on the Internet while readers followed along.

Other Internet e-book projects have more of a retro feel. USAToday .com's Open Book series features original works of fiction published in weekly instalments, similar to serialized stories published in popular magazines. Although Open Book does not use the Internet as innovatively as We Tell Stories, it takes advantage of the Internet's strength as a syndication tool.

As writers continue to explore the medium, they will necessarily stake out a position in the ongoing debate about a standard file format for e-books. Indeed, they could conspire to

render the notion of a single standard obsolete by working across formats as artists might work in a combination of inks, pastels, watercolours, and oils.

A significant change is not likely in the immediate future. Text will remain the most critical element in an e-book, as is appropriate. Moreover, the adoption of the EPUB standard, which supports multimedia functionality, will accommodate most writers' needs. Authors will be able to incorporate video or even soundtracks in their works. Authors/publishers will be able to create so-called deluxe editions of books, just as movie studios have released director's cuts of movies and recording companies have included bonus tracks and video on CD reissues. Soon readers will be able to hear Dan Brown explaining obscure references in **The Lost Symbol** or J. K. Rowling's feelings on how sections of the Harry Potter books were adapted for the screen. Successive editions of books will be just as, if not more, desirable than the first edition. Readers will experience books in a very different way than they previously have.

E-books and Their Future on the Internet

The thirty-year history of the e-book on the Internet began with slow and steady development and then launched into accelerated progress. Early efforts focused on putting public domain, rare, and unique content online, in Michael Hart's words, "to make the full record of humanity as intellectually accessible as possible to every human being, regardless of linguistic or cultural background." As the commercial implications of Internet e-books became clear, aggregators and publishers joined in, focusing on the Internet as a market for frontlist titles. Authors became involved too, wrestling with the commercial implications of e-books while exploring them as a new medium. The interests of all those involved are largely complementary.

For instance, digital projects tend to focus on books that are out of copyright, and publishers are concerned about their catalogue. All want to promote e-books, even Google Books, which has caused the most legal commotion and disharmony to date.

Academics and enthusiasts will continue to create websites with free downloadable e-books. Authors will use the Internet as they explore e-books in their literary work. Consumers will make purchasing decisions based on costs (monetary and otherwise). If the costs are too high, independent-minded consumers will find ways to "liberate" e-books by harvesting and sharing the content.

Today more books are available for readers than ever before; they are also easier to access and less likely to go out of print. E-books are searchable, interactive, and less expensive (millions are free). Writers are exploring the e-book medium and are using it in novel ways. The future of the e-book, and the e-book on the Internet, has never looked brighter.