Humanity & Technology: A Case Study of a Textbook's Development Over 20 Years

Brian Cullen

This article traces the conception and development of a textbook called Humanity and Technology over a period of about 20 years. During this time, the textbook has evolved from a pilot edition through several editions until the recent third edition was published in 2018. This article discusses the rationale for changes in content, activity type, artwork, layout, and audio.

1. Introduction

This article traces the conception and development of a textbook called *Humanity and Technology* over a period of about 20 years. During this time, the textbook has evolved from a pilot edition through several editions until the recent third edition was published in 2018. This article discusses the rationale for changes in content, activity type, artwork, layout, and audio.

2. History of the Book

From 1998, I began working as a part-time lecturer teaching English at Nagoya Institute of Technology, an engineering university in central Japan. This suited my own background and experience well because I had graduated and worked as an engineer for several years before switching to language teaching. In the year 2000, I started working full-time at the university and became much more involved with administration and curriculum design.

One of our meetings focused on the need to create a new common EFL textbook for all of the first-year students. It was clear that students needed useful learning activities to develop the four main skills of listening, speaking, reading, and writing. They also needed academic skills such as research and presentation, and stronger critical thinking skills. What was less clear was what the content of the textbook should be. Around that time in Japan, there was a strong move to bring a greater level of ethics into the sciences, and there was a suggestion to include an emphasis on ethics through the textbook activities. Several long meetings later, we were little closer to actually starting the work of creating the textbook, so with time running out, I decided to put together some concrete ideas for the next meeting.

Over the next week, I sketched out two sample units of what would eventually become Humanity and Technology. When I presented these at the next meeting, the members of the curriculum reform committee liked the material and I was asked if I would like to develop the book by myself rather than through a committee. I chose this option, and over the next three months, I put in a huge amount of time to produce the pilot version of the book.

Looking back, it was a very amateurish book in many ways, particularly in the layout. Clip art and hand-drawn simple illustrations were used throughout. I wrote most the readings and listening scripts from scratch but sourced a few from other texts because of time constraints. A friend helped me to proofread it and we ended up with a pilot version that didn't look super, but it at least didn't have many spelling or grammar errors.

My initial plan was to simply have the 128 pages reproduced on a photocopier or a mimeograph. However, copying and collating that many pages for about 1,000 students was going to be a mammoth task and one of the other teachers suggested having it printed and bound by a professional printer. When the books arrived in early April just in time for classes, we set up a desk on the corridor where the English teachers were based and hired

a couple of students for two days to sell the textbooks to the students. For me, it was a very good learning experience to see the book go from first idea to printed book and on to product.

3. Topic and Focus

As stated above, ethics was a topic of discussion when the book was under preparation and from this emerged the simple but explanatory name: Humanity and Technology. The pilot edition of Humanity and Technology came out in 2001. The introductory 'Welcome' unit quoted Einstein, "Our technology must not outweigh our humanity" and the whole book is designed to help students to explore both the benefits and dangers which technology can bring to humanity. The pilot edition had the following 12 units.

1. History of Science and Technology
2. Communication
3. Population
4. Energy
5. Food Technology
6. The Internet
7. Climate
8. Building Technology
9. The Media
10. Pollution
11. Robots and Artificial Intelligence
12. The Future

In the first and second editions of 2002 and 2004 respectively, there were no changes in these topics. In the recent third edition, the unit *Population* has been replaced by *Health* because this is a much more useful topic when thinking about technology and it can also connect to students' lives more easily. In addition, several of the units have been slightly renamed.

Building Technology has now become *City Life* and includes references to smart houses and skyscrapers. *Pollution* has become *Going Green* in order to give it a more positive spin. *The Media* has become the more encompassing *Media* so as to include different media like video games and social media which didn't even exist when the first edition came out. The sequence of the units was also changed slightly, but it still retains the nice opening unit of looking to the past and the final unit looking to the future.

4. Content

Technology has changed considerably over the last 20 years since the first edition was released and it took an enormous amount of time and research over several months to bring the content of the book up to date for 2018 and beyond.

Surprisingly, many sections of the original content could be retained by small updates. For example, food technology has advanced but the basic concepts are still the same and the basic food additives are still preservatives, emulsifiers, thickeners, and so on, exactly as they were when the book was first written. Robots and artificial intelligence have advanced greatly, yet we still see few robots in our everyday lives and the predictions in the first edition that robots would be everywhere by 2010 appear to have been considerably overstated. Practical nanotechnology is still just a little over the horizon as it was 20 years ago. Many minor updates involved fresh statistics or updating the capabilities of technology. For example, in 2001, a supercomputer could carry out billions of calculations per second. In 2018, it can carry out trillions.

There were several major updates of content that influenced huge sections of the book and they were due to technological changes that I hadn't predicted at all. One of these was the rise of the smart phone and the ubiquitous always-on nature of the modern Internet. All of the content in the *Communication* and *Internet* units had to be revamped and brought up to date. Another related major change is social media and YouTube and other technologies which have enabled anyone with an Internet connection to

share information and interact with people all over the world. This caused an obvious need for updates in *Media* and other units. Completely new readings and listening scripts have been developed in many cases.

5. Learning Activities

After the pilot edition of the book, many changes were made to ensure that the learning activities were useful and straightforward for engineering students. These settled down into a standard format by the 2nd Edition. Each unit of *Humanity and* Technology follows the same basic pattern of 12 learning activities. The content of each activity is related to the content of the unit.

1. Starting Out

   A chance for exposure to some of the basic vocabulary and ideas of the unit.

2. Conversation

   A simple conversation practice based on pattern substitution.

3. Reading 1

   A short reading with comprehension questions.

4. Lecture

   A monologue featuring the major topic of the unit.

5. Talking Point

   Listening to model conversations and then using the same conversation questions and conversation strategies to carry out their own personalized conversations. The conversation questions have been brought up to date to reflect modern society and technology.

6. Reading 2

   A longer reading which goes into more depth on one of the key issues of the unit.

7. Debate → Discussion & Debate

   Debate was a buzzword often used by teachers and this activity attempted to get the students to develop critical thinking skills and

to take multiple sides of an argument. In the 3rd edition, this has been changed to Discussion & Debate because the word debate can conjure up images of very formal debating style for many people. More language scaffolding has also been added to these activities.

8. Sound Bytes → Authentic Conversations

In the early editions, these conversations were improvised but the voice actors were asked to keep it fairly simple. In the 3rd edition, I decided to let students get exposure to authentic English. The false starts, repetitions, and grammar mistakes made even by natural speakers provide a good message to students that making mistakes is fine. This was the rationale for the new name of Authentic Conversations. Students are unlikely to understand everything in these conversations, but they are motivational and provide natural exposure to the target language.

9. Writing → Write About It

A basic writing exercise. More scaffolding has been added to the writing activities in some units. The minor name change in the new edition is an attempt to remind students that the focus of the writing should be on the topic of the unit.

10. Reading Exchange

In this activity, Student A and Student B have different texts. Student A asks a list of questions about B's text and vice versa. This information gap provides a good communicative activity and apart from an update in content, this activity has remained almost unchanged since the pilot version.

11. Research & Presentation

A model presentation, presentation tips, and an assigned topic for the students to research and present.

12. Work It Out

A math problem dressed up in language. The students listen to the speaker and try to calculate the single right answer. This has always been a popular activity with the students. Several of the

outdated units have completely fresh exercises whereas the figures and prices in the others have been updated.

6. Layout

The pilot edition of Humanity and Technology had a very home-grown layout. Like most authors with insufficient experience and resources, I over-used clip art and hand-drawn illustrations. These were eventually cut out completely by the second edition and replaced by photographs and professionally drawn illustrations which helped to create a much better image and to act as support for the content of the book.

While the 2nd edition looked much better, it was still in grayscale inside with a colour cover. The 3rd edition is now in full colour, and this makes a huge difference in several ways. First, the appearance is more attractive and modern psychological research has shown that colour engages more of the brain in the learning process. Second, a wider range of photographs can be used satisfactorily because colour prints better than grayscale in many situations. This allowed better photographs which supported the text. Third, the colour allowed for much better signaling of activities. For example, the *Lecture* activity now uses small colourful keywords rather than numbers to label the different section. Whereas previously they used to be 1, 2, 3; now they are *Keywords*, *Meaning*, and *Details*. The colour of the keywords helps them to stand out even though they are in a small font, and they guide students and teachers through the activity reminding them of the purpose of each section. This change was a response to a direct request from one teacher to make it clear what students should focus on in each section. Overall, much of the style and the design elements of the 2nd edition were retained in the 3rd edition. We simplified and reduced the number of fonts to give the book a more modern feel.

Modern design software was very useful. The book originally began life in an old program called Claris Works and was then translated into Quark and later into the modern leading layout software, InDesign. InDesign

offers excellent control over all aspects of layout including character, paragraph, objects, tables, colour, spatial layout, and much more. InDesign allows easy syncing across different computers, all platforms, and interacts well with Illustrator, Photoshop, and other Adobe software. It also automatically backs up the files to the Internet. Finally, each subscriber has 100Gb available and files can easily be shared with other users to facilitate easy collaboration between writers, editors, and designers.

7. Audio

In the year 2000, some students were still using cassette players and teachers still carried the big heavy Sony tape players into classes. Smart phones and computers have completely changed this. Now, most students do not have access to a CD player at home, so including audio CDs with every book is no longer necessary or even useful.

Instead all audio is now available online through a service called *SoundCloud*. Students and teachers can easily access it through a smart phone, computer or tablet. This had some additional knock-on effects. At some point in the editing, I realized that there was no longer any need for CD numbering in textbooks because SoundCloud or wherever it is stored can easily refer to tracks by name, for example, Unit 7 - Talking Point. It is now also possible to have an unlimited amount of audio online. We no longer need to make compromises because the CD has a limited size. In addition, it is easy to record readings and other content which tended to be left out in the past, but which can be very useful to learners and teachers.

8. Conclusion

As I was doing the revisions for the 3rd edition, my first feeling was one of gratitude to my the younger me. Writing a textbook takes a huge amount of effort and time and it was very gratifying to see that the work that the younger me had done was still mainly valid and could be updated to bring the book into the future. I have no doubt that further updates will be

required in future editions, but after the updates and improvements in the 3rd edition, I feel confident that the book can well serve the needs of today's students.

On the matter of content and predictions, it has been interesting to see what has changed, what has not changed, and what I completely failed to predict. Over the coming years, new or better technologies like virtual presence, artificial intelligence, and robotics will undoubtedly change our world. However, if the last 20 years are anything to go by, these may turn out to be less important than the technologies which we have not predicted. Because we cannot predict these new technologies or their effects, the central premise of *Humanity and Technology* remains the same – to examine the benefits and dangers that technology brings to humanity. By continuing to take this approach, we can hopefully follow Einstein's advice to not let our technology outweigh our humanity.

References

Cullen, B. (2018). *Humanity & Technology 3rd Edition.* Published by Intercom Press and PAWS International.