ETEC 540: The Invention of the Pen Video Documentary Script

The Evolution of Communication

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## The Invention of the Pen Script:

Video: <https://youtu.be/keA0GsFJomw>

## Is anything going to be lost apart from the habit of writing with pen on paper? Will some part of our humanity, as we have always understood it, disappear as well? (Hensher, 2012, p. 5)

The history of writing technology is sometimes referred to as mankind’s first revolution in communication (Gunaratne, 2001, p. 460) Walter Ong suggests that writing itself is a radical technology that has transformed human consciousness. (Ong, 1982, p. 81) As our tools for communication transform we transform alongside them. The word “literacy” today is beginning to mean something very different than it meant 20 years ago because our tools and spaces for reading and writing are changing rapidly. The invention and refinement of pen technology paved the way for individuals to become creators (and consumers) of written texts. It is not dissimilar to the moment we find ourselves in today where web 2.0 tools have paved the way for us to become creators (and consumers) of media texts.

## The history of the modern writing instrument is “…the story of the slow evolution of practical means of solving age-old problems with the assistance of developing technology.” (Daniels, 1980, p. 312)

The first writing hardware was likely a human finger, dipped in plant juice or animal blood. (Lambrou, 1989, as cited in Gabrial, 2007, p. 23) The next innovation is thought to be the hunting club which prehistoric man used to etch the surfaces cave walls

. (Mugo, Muthwii, & Gakuru, 2014, p. 85)

In ancient Mesopotamia the abundance of clay is credited with development of a refined stylus for making triangular shaped impressions in that clay, which led to the development of cuneiform writing. (loumbrou, 1989; Fang, 1997, as cited in Gabrial, 2007, p. 23).

As writing systems evolved, more elaborate surfaces and tools for writing developed. Egyptians are credited with inventing the reed pen, made from bushes of the sea rush plant (Mugo, Muthwii, & Gakuru, 2014, p. 86) which grows in the shallow waters of Egypt. (Owen, 2010) “Reeds made suitable writing instruments because they could be trimmed to make broad or fine lines with simple inks from native plants.” (Gabrial, 2007, p. 25) River reeds were also used to create papyrus, a light, flexible, easily stored material that had an immense advantage over clay tablets. Writing on it with ink was quick and required less area per word than cuneiform wedge symbols. The earliest discovered papyrus dates from approximately 3000 BCE and continued to be used for approximately 3700 years. (Fischer, 2001, pp. chapter, para. 22)

The origins of Chinese writing are thought to be traceable to primitive cuneiform. With the first Chinese characters developing during the Shang dynasty approximately 1700-1100 BCE, (Gunaratne, 2001, p. 460) inscriptions were found on bones and shells called “oracle bones”. (Leung, 2008) “Chinese used bamboo pens with ink of soot …to write on bamboo, wood or silk. (Gunaratne, 2001, p. 464) The brush pen was invented sometime during 1st Millennium BCE (Li, et al., 2016, p. 166) however the roots of calligraphy may be traced further back, perhaps as far as 4000 BCE. ( (History of Ink Brush and Calligraphy, 2018) Brush pens were made from a bamboo holder with a tip of “wolf, rabbit or goat hair.” (Leung, 2008). In China, the four implements of “…brush, ink, inkstone and paper, were later dubbed the ‘The Four Treasures of the Scholar’s Studio’.” (Leung, 2008)

**The Stylus:**

Romans also converted bamboo stems into primitive writing pens with a well-cut nib. (Mugo, Muthwii, & Gakuru, 2014, p. 85) Greek and Roman writers began to experiment with more durable materials such a bones and horns. (Gabrial, 2007, p. 25) These were often called styluses and were used on wax tablets. Writing in wax required more pressure than ink on papyrus, and more dexterity. A spatula like implement could be used to scrape the wax, acting like an eraser. (Wax Tablet, 2018, p. para. 1)

## “Once the specialized domain of only a few thousands, today writing is a skill practiced by about 85 percent of the world’s population – some five billion people” (Fischer, 2001, pp. preface, para. 2)

In 700 CE quill pens were introduced, made from the first five flight feathers of the left wing of moulting birds. Feathers from the left wing were preferred because of the way they curve outwards and away from a right-handed writer. (Mugo, Muthwii, & Gakuru, 2014, p. 86) The word pen itself is derived from the Latin *penna*, meaning feather (Daniels, 1980, p. 312) The quill pen was the primary writing instrument of the Western world from the dark ages until the middle of the 19th century (Mugo, Muthwii, & Gakuru, 2014, p. 86) The end of the feather was shaped into a point and the hollow part of the shaft could serve as an ink reservoir. (Quill Pen, n.d.) The strongest feathers were carefully selected and meticulously processed using hot sand or acid to strengthen the end. It was then sharpened with a special knife called a pen knife. (Mugo, Muthwii, & Gakuru, 2014, p. 86) The quill pen was functional and inexpensive and remained in use long after the introduction of newer writing tools. (Daniels, 1980, p. 312) The early one room school houses in the West from 1700 to 1800 used quill pens to teach students how to write. It is documented that quill pens were used to write the American constitution in 1787. (Mugo, Muthwii, & Gakuru, 2014, p. 86)

**The Steel Pen:**

The steel pen was created in England by Samuel Harrison in 1780. The pen was made from a single sheet of steel, rolled into a tube. Also known as barrel pens because the point and the shaft were a single unit, they were expensive to replace when they wore out. In 1809 Joseph Bramah patented a machine for cutting a single feather into a (The Steel Pen, 2018) series of nibs that could be inserted into a reusable pen holder. Over the next several decades, the principal was applied to steel pen nibs, which eventually replaced barrel pens. (Daniels, 1980, p. 313) In 1838 Joseph Gillott improved on the steel pen nib by adding a strategic hole to the base of the points central slit, which increased flexibility. Over time, a variety of shapes and cuts were introduced to steel pen nibs to accommodate personal preferences in point and flexibility. (Daniels, 1980, p. 313)

## “The miraculous pen that will revolutionize writing”. (Daniels, 1980, p. 313)

Before the development of the fountain pen, writing was slowed by the frequent requirement to replenish ink and to write away from one’s desk was cumbersome and required carrying an ink bottle. Attempts to create an effective, leakproof fountain pen began before the introduction of the steel pen. Between 1830 and 1873 there were no fewer than fifty-eight fountain pens patented in the US. It was not until 1884 that Lewis Edson Waterman developed an effective fountain pen, less prone to blotches and leaks, which would become the model for all future pens. (Daniels, 1980, p. 316) To control the flow of ink the principle of capillary attraction was applied, keeping the ink confined to a narrow channel until the point was pressed to paper. Fountain pens continued to be improved in the decade following Waterman’s development. (Daniels, 1980, p. 313)

**Ballpoint Pen:**

In 1888 (only 4 years after the most effective and leakproof fountain pen had been invented.) John Laud patented the first ballpoint pen, but it failed to take off. Approximately 50 years later, in 1938 the ballpoint pen was reinvented by two Hungarians, Ladoslao and Georg Biro. The Biro ballpoint pen had a rotating ball bearing in the socket at the tip that transferred ink from the reservoir to the writing surface. By the end of World War II Biro pens were licensed and produced world wide. (Daniels, 1980, p. 318) In 1945 American businessman Milton Reynolds redesigned the feeding system and marketed his ballpoint pen as “the miraculous pen that will revolutionize writing”. (Daniels, 1980, p. 313) Unfortunately, the new ballpoint pens wrote poorly until a new glycol based, quick drying, self sealing ink was invented in 1949. After the development of improved ink the ballpoint pen rapidly replaced the fountain pen for every day use in the US. (Daniels, 1980, p. 318) Interestingly, it was just recently, in 2017 that China refined their steel production processes enough to start producing their own ballpoint pen tips, which is a surprisingly complex process. (Taylor, 2017)

## “Technologies are either warm or cold, either attached to us with their own personalities, or simple, dead, replaceable tools to be picked up and discarded. The pen has been with us for many millenia that it seems not just warm but almost alive, like another finger…” (Hensher, 2012, p. 11)

Digital pens that work on tablet devices have become more popular and refined in the last few years. The Apple pencil and Microsoft’s Surface pro stylus have reached a level of precision where average users can pick them up and use them for drawing or taking handwritten notes easily. 3-D pens that heat and quickly cool plastic have recently emerged as affordable novelties in North America, raising questions about what gap these technologies fill or what technology they might remediate.

The pen is one of the earliest technologies for recording language. The reed or bamboo pen dipped in ink created an entire scribe class in societies, (Mugo, Muthwii, & Gakuru, 2014, p. 84) which led to a greater production of texts and reason to have literate citizens who could read those texts. The refinement of pen technology in precision, reliability and production, alongside paper technology has allowed for a society to where learning to read and write is considered foundational knowledge for all citizens.

As computers and web 2.0 advance, educators and researchers wonder whether students should bother to learn cursive writing anymore. In a recent 2016 review of literature on the impact of pen and paper compared to digital writing in early writing instruction outcomes results published 5-10 years ago pointed more in favour of pen and paper, whereas studies conducted in the last 5 years suggested no clear differences. (Wollscheid, Sjaastad, & Tomte, 2016, p. 29) David Bolter suggests that digital media is beginning to challenge writing in any form and questions whether writing can compete with the “…visual and aural sensorium that surrounds us.” (Bolter, 2000, p. 12)

Writing with a quill and parchment is a different skill from writing with a fountain pen which in turn differs from writing with a modern ballpoint pen, felt-tip pen, or with a digital pen on a computer tablet. “However, all writing entails method, the intention of the writer to arrange verbal ideas in a space. In Orality and Literacy (1982) Walter Ong argued that writing is ‘interiorized’…[which] makes it difficult for us to recognize writing itself as a technology…Ancient and modern writing are technologies in the sense that they are methods for arranging verbal ideas in a visual space.” (Bolter, 2000, p. 15) The evolution of the pen suggests that functionality and low cost drove change (Daniels, 1980) resulting in the point we find ourselves today where pen and paper are low cost, plentiful and disposable.

The pen, as a technology, has been influencing the technical state of mind for communication for thousands of years. Many people, like Henscher, feel a sort of anthropomorphic attachment to it, lamenting the possibility of its remediation by newer and significantly different communication technologies. (Hensher, 2012) This emotional response to such an ancient and seemingly simple technology brings perspective to criticisms about humanity’s unhealthy attachments to modern technology (deLang, 2013) and suggests that the process of merging human consciousness with machines may have begun long before the era of mechanization.

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