

*“Never trust anything that can think for itself
if you can't see where it keeps its brain”*

THE SOCIAL SHAPING OF TECHNOLOGY IN THE WIZARDING WORLD

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INTRODUCTION

The wizarding world offers a compelling site for an analysis of the ways in which various types of technologies are constructed, understood, and used in the wizarding and Muggle worlds. More specifically, the wizarding world provides an important set of case studies that can help reflect our own understandings of our own everyday technologies back to ourselves through a magical lens. To do so, this chapter provides a brief discussion of several theories in a branch of sociology focusing on the social shaping of technology (SST).

Technology is present in society in several ways and used for very different purposes. First, following the revelation of Harry Potter's status as a member of the magical community, we accompany Harry on his journey into this secret world and share his wonder at its many dazzling and strange occurrences. Throughout, we have the opportunity to compare them with the now more mundane Muggle world. Specifically, some of the more everyday types of magical artifacts such as quills show interesting parallels to the development of Muggle writing technologies. Second, Muggle technology becomes a point of reflection through Harry's journey and, at times, is illustrated through comparisons with magical technology. Finally, an important case study is found in Mr. Arthur Weasley, a wizard who attempts to bridge both Muggle and magical worlds through his fascination with magical modifications of Muggle technologies. The tension between his roles as a magical law enforcement officer responsible for regulating the use of Muggle artifacts for magical means on the one hand, and his enthusiasm for tinkering with and modifying Muggle artifacts on the other, provide yet another interesting point of reflection on our Muggle world and our own attitudes towards technology. Understanding the various ways Muggle technology serves as both a counterpoint to and augmentation of magic can help us better understand our own experiences with everyday technologies and understand how they are continually socially constructed.

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SOCIAL CONTEXT AND SOCIOLOGICAL FRAMEWORK: THE SOCIAL SHAPING OF TECHNOLOGY

Contemporary Muggle technologies are shifting, developing, and changing at an unprecedented rate. With this rapid pace, an interesting facet of technology has begun to emerge. Advanced technologies that once seemed magical to Muggles have become more mundane, diminishing much of their fantastic and magical aspects. A recent visit to the headquarters of one of the most prolific Muggle technology firms (Facebook) by United States Muggle president Barack Obama led him to comment on this lack of wonder and awe concerning the rapid pace of technological change. The president suggested this might be remedied through renewed commitments to improving science, technology, engineering, and medical (STEM) education: “I want people to feel about the next big energy breakthrough and the next big Internet breakthrough the same way they felt about the moonwalk” (quoted in Tsotsis 2011).

Devices and gadgets that once seemed the product of fantastical science fiction are now relatively ordinary occurrences. Muggle technology corporations such as Apple, Google, and Microsoft continue a tradition of releasing new products each year in large mediated press events constructed as major spectacles of technological change. However, the release of these “revolutionary products” have become such a regular occurrence (often in bi-annual or quarterly events) that much of the magic of new technologies becomes old news the moment the newest and shiniest version of a particularly piece of technology is unveiled. The Muggle world is a world in which feats such as the near-instantaneous transfer of information through one of the largest, most interconnected infrastructures in history, is shrugged off and accepted as the most mundane of everyday occurrences.

In the wizarding world, the appearance and disappearance of things (apparition and invisibility cloaks), the transformation of objects (transfiguration), the manipulation of time (Hermione Granger's use of the Time-Turner), space (the existence of platform 9 $\frac{3}{4}$), and perception (the confundus charm), all serve as the context in which the magical world operates. However, what is so compelling is the juxtaposition of the magical world against the boundaries of the Muggle world. This difference is most apparent in the contrasting ways both the Muggle and magical worlds have of enhancing everyday existence accomplished through various means. One of the most ready examples is the differences between various means of magical communication (Owls and floo powder) and Muggle communication technologies (email, telephones, etc.). It is in the colliding of these two worlds that we can most easily see differences in the construction of each type of

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communication method. For example, Ronald Weasley's humorous attempt to use a telephone to call Harry at his aunt and uncle's house during summer holidays is a prime example of the ways magical outsiders not socialized to use Muggle technologies encounter our world. Practically screaming into the phone, Ron misunderstands even this most commonplace Muggle technology, in turn highlighting how taken for granted this technology has become for Muggles.

This contrast can help us understand the diminishing magical quality – the banality – of technology in our own social contexts. To that end, SST can provide a powerful tool for understanding the various ways the wizarding world comments upon technology. This area of study is concerned with broadening analyses of technologies to include examinations of socio-economic and cultural patterns embedded in the development, innovation, and content of various technologies (McKenzie and Wajcman 1999; Williams and Edge 1996). As a field, SST emerged in response to and to critique popular ideas about technology which dominated much of the discourse of technology at the time. Known as technological determinism, this view is a conceptualization of technology as being an inevitable, unchangeable, almost non-controllable force that, for the most part, is treated as unproblematic. This mode of thinking about technology was most eloquently unpacked in the work of David Edge (1988). He explains that one of the key dangers of technology's determinism lies in the unproblematic acceptance of technology as a given; that technological changes effecting social, economic, and political outcomes are predetermined and unable to be influenced by anything other than what appears to be the inevitable march of technological progress. Ignoring that technology development is a phenomenon influenced and controlled by social forces is to abdicate responsibility for the ways society shapes and influences technology.

SST has drawn a large number of scholars from a diverse range of academic disciplines. There is now an extensive body of literature on the ways various types of technologies are constructed depending on their social and cultural context, as well as the various meanings assigned to different types of technology over time. The field has offered some important commentary on the ways in which technologies shift and change. It has pointed out how technologies are not only shaped by programmers, engineers, and designers, but are also shaped by their actual users within specific social contexts for various purposes, whether these align with the original intended uses or not. According to Robin Williams and David Edge (1996: 4), SST research is characterized by several key areas of investigation: "SST research investigates the ways in which social, institutional, economic and cultural factors have shaped: i) the *direction* as well as the rate of innovation; ii) the *form* of the

content of technological artifacts and practices; iii) the *outcomes* of technological change for different groups in society" (emphasis in the original).

A perspective that has particular relevance for the exploration of Muggle technologies through a magical lens comes from the work of Hughie Mackay and Gareth Gillespie (1992). These Muggle sociologists explored and extended social shaping of technology by bringing new understandings of the role of appropriation of technology by users. They argue that different technologies are "open" to varying degrees. In other words, certain technologies lend themselves more easily to being changed and modified by end users than other types of technology and that this adaptability has different meanings for users. In many cases, it is precisely this lack of openness which drains innovation of its magical character.

TECHNOLOGY VS. MAGIC: OF APPARITION AND QUILLS

Once Harry's identity as a member of the magical world is revealed, he marvels at the many wonders that magical folk experience in their everyday lives as regular occurrences. When introduced to the various aspects of the fascinating magical world, Harry's encounters with various wizards and witches provide an important counterpoint to Muggle existence. And, aiding in this re-enchantment of the everyday, magical folk themselves express fascination with the various technologies that Muggles have devised in order to go about the daily business of living. In some ways, the fascination with Muggle technologies evinced by various magical folk like Rubeus Hagrid, Keeper of Keys and Grounds at Hogwarts School of Witchcraft and Wizardry, and Mr. Arthur Weasley, agent in the Ministry of Magic's Misuse of Muggle Artifacts Office, can be seen as an appreciation for the efforts Muggles make towards enacting their own type of "magic" under limited circumstances, without any type of magical power or aid. Muggle technology such as ticket takers, turnstiles, parking meters, and batteries are objects of fascination for both Mr. Weasley and Hagrid who marvel at the devices Muggles have developed to help them with the tasks of everyday life.

A Muggle historian and contributor to studies of sociotechnical factors shaping technology development who shares this fascination with everyday technologies is Wiebe Bijker. He has contributed several key works in SST that provides insight into the relationship between various social forces and their influence of Muggle technology development that can also be applied to examinations of magical artifacts. His writing, particularly his collaboration with colleagues Trevor J. Pinch and Thomas P. Hughes in their edited volume *The Social Construction of Technological Systems* (1987), as well as Bijker's own solo-authored book *Of Bicycles, Bakelights and Bulbs: Toward a Theory of Sociotechnical Change* (1995) are some of the major works in SST discussing the

processes influencing the somewhat magical quality of technologies that, due to their ubiquity, seem mundane and an unchanging, taken-for-granted part of everyday life. Bijker explains that what appear to be magical devices in the realm of Muggle technology do not just apparate into existence out of thin air in a finished, pre-determined form. Instead Bijker and other SST researchers propose that there are very specific and deliberate design choices influenced by social contexts that are quite intentional that lead to the final marketed form of various technologies.

If we linger a moment on a memory from Harry Potter's school days, we can revisit that excellent yet potentially hazardous mode of magical travel, apparition. While at first apparition seems to be an everyday occurrence among magical adults, we see how complex a process it actually is as Harry, Hermione, and Ron approach the age when older Hogwarts students begin to learn how to apparate – a process akin to Muggle teenagers learning to drive an automobile. Apparition involves intention. If the proper technique is not employed – if the “user” does not maintain a clear intention of his destination, as Charlie Weasley once did not – the results can be disastrous, perhaps even landing a traveler five miles from their intended destination, on top of an old Muggle lady doing her shopping (GOF 67). Preparation and careful planning are required if one wishes to avoid ending up in the wrong place, potentially violating the statue of secrecy, which protects Muggles by requiring witches and wizards to conceal their powers. In fact, a 12 week course on apparition is offered to older Hogwarts students during their sixth year. Professor Wilkie Twycross hammers home the importance of the three Ds of Apparition – Destination, Determination, and Deliberation in his classes (HBP 384). A particularly painful example of the complexity of the apparition process is shown in Ron's experience of *splinting* – accidentally leaving a body part behind due to insufficient concentration upon the intended destination – during his escape from Voldemort's agents in their search for his Horcruxes.

Bijker also explores the importance of social forces that can shape the development of various technologies as can be seen in his excellent discussions of the historical power struggles that occurred during the development of fluorescent lighting technology. These tensions arose among companies who made the bulbs and fixtures as well as the utility companies who were developing access to electricity. Struggles emerged over the use of filament materials, current and voltage standardization, as well as a host of other factors necessary to deliver fluorescent lighting to private homes and businesses. Bijker emphasizes the importance of these power struggles and how they serve to constrain choices.

Similar struggles and choices constrain the evolution of magical techniques as well. Take the example of the use of quills in the magical world and the

development of the QWERTY keyboard ubiquitous in Muggle computing technologies. The wizarding world has adopted the exclusive use of quill, ink, and parchment for most types of communication. The accessories for writing, and even the use of Owls as one of the major forms of communication, stem from the particular choice of writing implementation. We are treated to an example of this during Harry's first foray into Diagon Alley with Hagrid when each of these technologies must be acquired as part of his school supplies.

Harry, after the first of what would be many unpleasant encounters with Draco Malfoy, engages in a little retail therapy by stopping in to Scribbulus Writing Implements to get quill and parchment, and buys a bottle of color-changing ink that cheers him up (SS 79; HP2). However, as anyone who has ever attempted amateur calligraphy or ink drawing can attest, with the use of a quill nib and ink is a rather messy, slow and inefficient way of writing, but one that still holds a specific social meaning even in Muggle culture. With pen and ink, there is not so much emphasis on speed of communication, but instead on intention, clarity of the thought, and even an aesthetic quality.

Rita Skeeter of the *Daily Prophet*, that ruthless reporter/paparazzi figure who plagues Harry's fourth year at Hogwarts, displays an example of a magical “upgrade” of the traditional quill which illuminates some elements of ideas from SST. With her marvelous and mischievous Quick Quotes Quill, much to the chagrin of her interviewees, Rita Skeeter is able to conduct and record interviews, hands free, and as a result is left with a suitably embellished transcript of the interview that is practically ready for press. Rita Skeeter's quill has the ability to transcribe the words of speakers onto parchment without the use of the writer's own hand. The quill races across the page and words begin to appear. However, it appears that Rita's quill has some additional charms that render not a verbatim transcript, but Rita's embellishments of the facts that give her stories that particular quality of sensationalism that her readers either love or despise. However, we can see an interesting parallel between the ideas of Bijker and other SST scholars when we think about the social shaping of the development of Rita Skeeter's quill just as we can see the development of our own rather ubiquitous writing implement – the QWERTY keyboard.

As I muddle along communication to you through my tray of white plastic Chiclet-like keys, at what I feel is a snail's pace, stopping to correct a mistyped word here and there as a result of my ill-timed, over-eager key presses, I think about the origins of Western Latin-alphabet keyboards and, in particular, the American English language familiarity with the QWERTY keyboard layout. Why do we not use sound recording and transcription? Why not carbon copies of quill-written documents or ball point ink?

That Rita's Quick Quotes Quill not only transcribes audio dialogue and can differentiate between speakers (a feat even the most impressive

Muggle dictation software and computer cannot yet accomplish). It has an added artificial intelligence in that it can improvise and embellish dialogue, an amazing feat in and of itself. However, if we apply Mr. Arthur Weasley's admonishment to "never trust anything that can think for itself if you can't see where it keeps its brain" (COS 329), we can perhaps more easily sympathize with Harry's initial wariness of Rita's quill. Yet even the Quick Quotes Quill can be seen as an example of SST's conceptualizations of technology as emerging from the complex interactions among social, technological, economic and developmental constraints. The Quick Quotes Quill and the development of magical charms that influence its function revolve around several remaining inconveniences of writing with a quill: it must be manually operated and it requires a fixed physical intention to operate. That Hogwarts teachers assign essays in inch requirements as opposed to Muggle teachers assigning page numbers is yet another example of design constraints influencing social practices. As a teacher myself, I have often wondered if Professors McGonagall and Snape ever sighed when reading a student's particularly large, wide-spaced handwriting the way I sigh when I get to the essay typed in 13 point Courier New font in my own student papers. But I digress.

As I conduct interview research on Muggle technology use, I marvel at our own rough version of the Quick Quotes Quill – the Livescribe smartpen. The pen operates with special paper made up of tiny dots read by an infrared camera at the tip to record handwriting strokes while a tap of the pen on a printed "record" button at the bottom of the page turns on an microphone embedded in the pen to record speech and sync it to the handwritten notes. It still can't move through the air by itself though, and after a hand-cramping, three-hour interview, I still think Rita Skeeter's Quick Quotes Quill has my Livescribe pen beat!

HACKING THE MAGICAL WORLD: THE TINKERINGS OF ARTHUR WEASLEY

Mr. Arthur Weasley serves as an interesting case study to examine the ambivalence around technology and technological artifacts embedded in the wizarding world. Additionally, the case study of Arthur Weasley can also serve as a form of critique of social shaping of technology in terms of providing an example of how tinkering represents the appropriation of technology by users. Mr. Weasley's position with the Ministry of Magic involves the regulation, sanctioning, and control of any sort of magical modifications of Muggle artifacts with an emphasis on keeping dark magical items out of circulation. The office is also responsible for regulating the use of charms and other magical augmentations of Muggle artifacts for anything other than the artifact's original intended purpose. However, despite his official role in

prohibiting and discouraging the use and modification of Muggle artifacts, he readily experiments with magical modifications of various types of Muggle technologies, much to the chagrin of his wife and family.

As might be imagined, Mr. Weasley's enforcement of magical law governing the misuse of Muggle artifacts is not always consistent. Displaying a more flexible conceptualization of magical law enforcement, we see Mr. Weasley enforcing the law more strictly for magical augmentation of Muggle artifacts when the witch or wizard being investigated is suspected of engaging in the Dark Arts than when he or she is not. Witness for example his multiple searches of Death Eater Lucius Malfoy's Manor compared to his quick resolution of a disturbance at the residence of Order of the Phoenix member Alastor "Mad Eye" Moody. Moody had enchanted Muggle dustbins as a sort of security device to warn against intruders, and Mr. Weasley attempts to get to the scene to diffuse the situation before Mad Eye is detained by magical law enforcement, which would delay his starting of the position of new Defense Against the Dark Arts teacher at Hogwarts. Unlike his repeated investigations of Lucius Malfoy, who he suspected of possessing Dark objects, Mr. Weasley does not conduct any further inquiries or raids of Mad Eye's property as he considered his augmentations benign.

Mr. Weasley also appears to try to subversively assert special protections and lessen restrictions on his own tinkering via written modifications to magical law within the loophole he created in the Ministry of Magic to allow the flying of his enchanted Ford Anglia. His loophole allowed for modifying the car so that it could fly only if the user does not *intend* to fly the car (COS 39). This particular exception is an interesting example of Mackay and Gillespie's (1992) ideas about the appropriation of technology and the conflicts between the intentions of designers and the end users.

CONCLUSION

In many ways, Mr. Weasley's fascination with all things Muggle, and particularly, with Muggle technology, are understood by him – as with all of us – only through the lens of his context and existence embedded within his everyday world. His tinkering points out that no technology is a finished product, set in stone, but instead always open to re-interpretation as new uses are found. These new uses are always driven by social, economic, cultural, and political phenomena and, as such, are highly contingent on the time and place in which users find themselves.

By reflecting our Muggle world in the magical one, perhaps we can help re-enchant the technological marvels which surround us on an everyday basis. By doing so, we open possibilities of technology ever further. When

we can stop seeing technological progress as a natural, inevitable process, we can better attempt to make technology more responsive to the needs of more diverse groups of people, in varied contexts, even those the designers of such technologies might never have considered.

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