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Unravelling Disembodiment: The Production Of Power In Disembodied Learning Processes

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Introduction

As a tinkerer in Do-It-Yourself technology, I am ambivalent towards tutorials. I rely heavily on tutorials, but I also abhor them. Tutorials are my primary source to acquire different types of knowledge. The types of knowledge can be a protocol, a programming library, and how to conduct hardware configurations. These tutorials are published in various media across different platforms. Various types of medium include explanatory text, illustrative images, and demonstrative videos; different platforms refer to online question and answer forums, project repositories, and massive-open-online-courses (MOOC). As I define medium, I emphasize how each as an instrument of communication, has an impact on the transfer of knowledge; as I define platform, I emphasize how the platforms' agendas inform knowledge transfer processes.

As learners, we are quick to assume that tutorials are easily accessible, understandable and objective. However, as I navigate myself in the sea of knowledge consisting of tutorials, feelings of alienation, frustration, and doubt are my perpetual company. Very often I found myself scrolling over trunks of text consisting of unintelligible technical jargon. From time to time, I felt offended by how certain content creators acted as able-minded, meritocratic know-it-alls.

By all means I acknowledge that the acquisition of knowledge often goes hand in hand with an incremental learning curve. The fruit of knowledge is only attainable with utmost patience and diligence. However, the concern of this thesis is the mobilization of knowledge. While the process of acquisition emphasizes the efforts and skills coming from the learners themselves, the mobilization of knowledge concentrates on the dynamics surrounding the transfer of knowledge, from one party to another, such as between teachers and students, from documentation creators to users, or amongst users themselves. I see these relationships bearing structural power dynamics potentially resulting in feelings of alienation. The media and platforms that mediate the transfer of knowledge also contribute to feelings of alienation, as we are dealing with disembodied media such as text, video, and images.

This thesis is an effort to trace and resolve the felt experiences of alienation from learning with tutorials in disembodied form. First, I establish the framework of structural power dynamics. It is informed by Rancière's *The Ignorant Schoolmaster* (Rancière, 1991). The treatise identified how structural power dynamics excluded under-represented population from accessing knowledge. With

slightly more attentive eyes one would normally devote to tutorials, I will identify the structural power dynamics manifested in tutorials. It is important to analyze the power dynamics in context of the platforms that facilitate knowledge production, in order to investigate if and how these platforms' agendas perpetuate these dynamics. These steps pave the way to answer the research question from the perspective of disembodiment: how does disembodied medium produce notions of power, such as authority and authenticity? Based on my project, an archive devoted to the repeater as a disembodied medium, I will propose ways to remedy the feelings of alienation resulting from disembodied learning experiences.

In the course of writing this thesis, I received education from a publicly funded institution; outside of school, I spent a lot of time learning from external online resources: Stack-overflow, Github, and Coursera. The public sector is not the only place to offer education today. The production of knowledge is greatly affected by conditions of neoliberalism, which externalize public affairs such as education to the private sector and promote individualism. The coinage of Do-It-Yourself is most representative of the neoliberal ethos – I bear the sole responsibility to guarantee my survival. Virtual education decentralizes education, as learners are no longer restricted by factors of location and time. However, the structural barriers continue to reproduce and reinvent themselves, despite of the decentralizing forces brought by virtual media.

Chapter 1: The Power Dynamics in Tutorials

Part 1: The Ignorant School Master: Power Dynamics in Teaching and Learning

To examine the power dynamics manifested in tutorials, I must return to the essence of performing and receiving tuition. Historically, teaching and learning have been institutionalized as part of state welfare (Illich, 1971). In *The Ignorant Schoolmaster* (Rancière, 1991), Jacques Rancière recounted a narrative challenging the common doctrines of formal education. His intellectual itinerary was deeply embedded in the May 1968 revolution, which exposed the structural inequalities present in all realms of life in French society. *The Ignorant Schoolmaster* was an urge to understand how power structures perpetuated inequalities, focusing on knowledge production.

Rancière's account was based on a series of events that took place in the 19th century. The

protagonist Jacotot, a native of Dijon, was employed as a French instructor in the Flemish speaking Leuven. The Flemish students spoke no French, and Jacotot spoke no Flemish. The teaching agenda revolved around a bilingual edition of *Télémaque*, a familiar mythological legend. Students were assigned to decipher French noun by noun, verb by verb, going back and forth between French and Flemish texts. The process was self-reliant, as if the students were learning their mother tongue as infants. Periodical sessions were held to assess the students' learning progress. Surprisingly, they were able to acquire French autonomously: they mastered the *Télémaque's* content very well (Rancière, 1991).

Jacotot's teaching philosophy refuted conventional pedagogy, and was later termed as the "universal education" method, which radically changed the distribution of authority amongst teachers and students. From the success of the initial experiment, he was invited to carry out tutorials in subjects in which he held no expertise – piano, chemistry, and law; verifying a principle that sounded like hyperbole: one can teach what one does not know (Rancière, 1991; Hewlett, 2007). Jacotot's testimony verified the keystone grounding Rancière's body of work – the presumption of intellectual equality in all human beings. Intellectual hierarchy is a matter of power constructs. Intrinsically, nobody is intellectually inferior than anybody else, and nobody is intellectually superior than anybody else.

Intellectual hierarchy is a power construct, and the production of knowledge continued to perpetuate power hierarchies. To explain how the hierarchies came to place, Rancière developed a set of vocabularies and frameworks. To produce authority, the teaching process proceeds with the explicative order[1]. First, a body of knowledge is organized to formulaic, repeatable modules. The "explicator", who we can also understand as the instructor in the conventional sense, transfers knowledge by repeating knowledge to the student. The explicative order is a hierarchical order, rising from the simple to the complex. The order is to elevate the student to acquire the knowledge to align with the highest social destination they are predetermined to inherit, such as lawyers, artisans, and doctors (Rancière, 1991). While the explicator indoctrinates, the learners receive passively. The process implies the the explicator's superiority of intelligence, and assumes the learners' inferiority. The explicative order is of perpetual reproduction: as the formerly inferior subjects advance in the hierarchical order, they assume positions of superiority and look down upon the new inferior subjects (Ibid).

1. In Rancière's original writing, he used l'explication, which means explanation in French. The English translation chose to use explication and explicator. In an interview, Rancière said he is not familiar why the translator used explication, since he cannot find it in the dictionary, and explication can be well understood as explanation.

The equality of intelligence is fundamental to universal education's ethos– nobody knows any better than anybody else. The instructor is to motivate the students to autonomously acquire knowledge by themselves. This is an emancipatory process, freeing both teachers and students from the iron casts imposed by the power relation between the explicator and the students. This process liberated intellectual autonomy: the possibility to acquire knowledge outside of social, cultural and economical constraints.

The explicative order explained the how power dynamics flowed in education. However, there are thresholds that exclude populations from receiving education in the first place. Bourdieu, a French sociologist contemporary with Rancière, proposed two structural reasons that caused unfair exclusion, summarized by Rancière as the "Bourdieu Effects". They are drawn respectively from Bourdieu's *Les héritiers : Les étudiants et la culture[2]* and *La reproduction[3],* both identifying how social inequalities reproduce themselves in the education sector during the 1960s in France. The working-class youth were excluded from the university because they were unaware of the true reasons for which they were excluded (Bourdieu & Passeron, 1964; Rancière, 1991). And their ignorance of the true reasons for which they were excluded was a structural effect produced by the very existence of the system that excluded them (Bourdieu & Passeron, 1970; Rancière, 1991*).* Although theories observed by academics, such as Bourdieu's, helped to articulate how structural exclusion perpetuated inequality, Rancière found them limiting, as they were words spoken from the privileged intellectuals, rather than directly from the mouths of the excluded. With this revelation, Rancière stepped outside of traditional academia to experiment with decentralizing ways of knowledge production (Deranty, 2010).

My visitation to Rancière's reflections is to lay out the groundwork to explore two processes I will continue to address: the production of authority, and the production of authenticity.

Part 2: The Reproduction of Power Dynamics in Tutorials

More than two hundred years have passed since Jacotot's experiment with universal education, and more than fifty since the May 1968 revolution triggered structural critiques in French society. Today, education is not only mediated through text and speech held in a physical environment, but

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2   The Inheritors: French Students and Their Relations to Culture
3   Reproduction in Education, Society and Culture

also virtually. Virtual education is presumed to lower the thresholds formerly made education a privilege – income, class, and gender. It decentralized learning processes in time and space: today, we can learn fragmented pieces of knowledge on the web regardless of temporal and geographical restrictions. However, the elimination of certain thresholds does not imply the elimination of power dynamics. Today, the power dynamics continue to be inherited and mutated. In this section, I will try to address the phenomena that indicate the existence of patriarchy, gender biases, and co-optation found in tutorials. I will categorize them individually for clarity, but in reality they are interwoven.

A. Behind the Screen: Traces of Patriarchal Representation

In my master curriculum, we develop a lot of prototypes in Python. As an expressive language with a smoother learning curve, it's a popular choice for students with an art and design background who may not have prior programming experience. To polish my Python skills, I subscribed to a series of Python video lessons published on Bilibili.com, a Chinese video streaming platform. The series is titled "Python for Newbies", and covered Python's basic syntax and gave examples of practical applications such as crawling web data. As I watched the introductory video, I could not help but raised my eyebrows.

As the instructor introduced prospects of learning Python, he cited words from Pan Shiyi, a Chinese real estate tycoon - "To learn Python is the best gift for oneself once in a lifetime." He referred to Pan as "dà lǎo", a title referring to male leaders of gangs, and later appropriated to refer to male tycoons. It is a frequent word appearing in Chinese news media, used as a synonym for successful male leadership in a corporate context. The word choice disturbed me a little, but I can put up with that. As I continued to watch, however, I discovered more uncomfortable nuances.

Like many online courses, the video was predominantly oriented towards learners who aimed to gain employment. To illustrate the employment prospects, two cartoon illustrations accompanied the instructor's narration. "Python crawlers are efficient and easy to use" was accompanied by a caricature of the quintessential male geek. He was dressed in a buttoned up shirt and wore glasses, focusing on a desktop screen. "It is a bonus to learn Python to seek jobs and promotions" was accompanied by a figure of the male white collar worker. He was dressed in a suit and stood with his arms akimbo. His upper lip tilted slightly upwards, conveying a sense of confidence.

Screenshots from Python for Newbies (Bilibili, 2020)

Hearing the narrator's word choice and looking at these images, I felt alienated towards the tutorial's agenda. The video perpetuated a set of patriarchal values that I would never find myself in alignment with. As a female learner, I felt my presence was not considered by the tutorial's agenda, hence not embraced or welcomed. Facing the screen, the narrator is the only person I am remotely in contact with. Behind the screen, the production team consisted of more roles: copy writers, illustrators, and video editors. I wondered what shaped the production team's decision making, to portray future programmers solely as male figures and elevate Pan as a patriarchal commander. The the screen was the only substance I interfaced with, and I wasn't given any other clues to answer my questions.

This initial encounter that caused my feelings of alienation urged me to probe what triggered these feelings. I thought of Jacotot's universal education, and the Bourdieu Effects as summarized by Rancière. My situation coincided with the context their theories applied to – receiving tuition; the only difference being that technological advancements enabled me to receive tuition virtually, via disembodied media such as the web and the screen. Despite of the difference, the power structures remained apparent. In studies of Jacotot's universal education method, an evened-out distribution of power among the students and the teacher was key to unleashing students' potentials. The video was very much the contrary. In the video, Pan was addressed as a "dà lǎo", installing him as a superior figure. As I was told to learn per the prospects he promised, I was placed in an inferior position in relation to his authority.

The Bourdieu Effects helped to explain how I felt excluded by the video's gender representation of programmers. The decision to portray programmers as solely male figures implied a power structure, that determined only men were entitled to learn Python and become successful with programming careers. Mediated by the disembodied medium: the screen, the web, and the video, I was in no position to interrupt the production team's decision making. Therefore, I was not able to

know how this structure of exclusion came about, and was provided no means to escape from it.

B. The Commodification of Immateriality

This February, when the COVID-19 pandemic affected China, I received an email invitation from the University of Michigan to subscribe to their online Python courses hosted on Coursera. Established in 2012, Coursera's mission started out as pro-bono. It aimed to bring education opportunities to anyone from any parts of the world (Coursera, n.d.). The invitation was addressed to scholars from China to alleviate their loss due to travel restrictions. At the time, Chinese scholars were the first to be hit by international travel restrictions, unable to attend to the previously scheduled events. Hence, the course was offered at a nominal price of $1. Normally, one course would cost at least $49.

Momentarily I was excited about the cost reduction. I've been using Coursera as a resource since 2014, after I graduated from college and lost my entitlements for organized education. My college experience studying fine art revolved around limited technical knowledge, and Coursera greatly made up for that. Even the most entry-level courses such as HTML/CSS invited me to discover a brand new field. I was able to apply these skills to the informal web design jobs I had landed on. Coming outside of design training, those jobs were the limited choices I was qualified for. But as I acquired new knowledge assets offered by Coursera, I was invited for more fulfilling and challenging opportunities. Under such humble circumstances, the significance of Coursera was invaluable: it helped me to gain intellectual and technical advancement autonomously.

However, after 2014, Coursera ceased to be my Eden for exploring knowledge. The change started with the monetization of course certificates. After the completion of a course, I was entitled to earn a certificate for $49, or receive a "Statement of Accomplishment" without cost. The value of the certificates lay in its credibility on platforms such as LinkedIn, where users can showcase them on LinkedIn profiles as symbols for employable assets. This business model generated great revenue from the sheer selling of certificates (Shah, 2017; Eckstein, 2019). Since then I rarely sought after Coursera as my virtual mentor.

Seeing the invitation valued at $1, I wanted to try out Coursera again. But as I proceeded to subscribe, I was still obstructed by a paywall asking for $49. Since I live in the Netherlands, I used a VPN service to route my IP address back to China to see if it made any difference, but the paywall

remained. I felt fed up with the ever lingering presence of the paywall and closed the browser tab.

The trajectory of Coursera from an open access reservoir to a certificate vending machine consisted one segment of my journey looking for intellectual emancipation. In the beginning, I was garnered as one of the many loyal users, convinced of its egalitarian vision for open knowledge access. Indeed, before its closure of resources, Coursera helped me to realize mobilities of various sorts: intellectual, technical, and economical. The realization of mobilities was only temporary. *The Californian Ideology* analyzed such course of disillusion from the perspective of techno-capitalism, under which immaterial resources such as course certificates were commodified and traded (Barbrook & Cameron, 1995). With the commodification of immaterial assets, the structural inequalities between the privileged and the deprived enlarged even further.

C. Reflections

Two common threads are present in the two examples above. First, the presence of the disembodied medium; second, how disembodied medium reproduce existent power dynamics and structures. From the example of Bilibili, the opacity of the disembodied environment obstructed me from challenging the power structures the video established. As for Coursera, power reproduction in disembodiment is best understood in tandem with immateriality. The commodification of immaterial assets such as the course certificate built higher thresholds for accessing common knowledge, and had reproduced the existent power dynamics and structures to severer extents.

The examples from Bilibili and Coursera scratched only the bare surface of disembodied medium. These examples revealed the phenomenal effects that disembodied medium resulted. Experiencing these effects had been painful revelations – realizing that I would be trapped in perpetual power structures. At the same time, the revelations urged to unravel the further: beyond the phenomenal effects to the intrinsic qualities of disembodied medium, and how they impact the reproductions of power.

Chapter 2: How Disembodied Experiences Produce Power

A. Portsmouth Sinfonia and the Phonograph

Disembodiment is a very abstract notion to begin with. To illustrate it in a convivial yet critical way, I will start with the eccentric anecdote from the Portsmouth Sinfonia. In 1974, a composer named Gavin Bryars, who was teaching at England's Portsmouth School of Art gathered a group of students and initiated the symphony. Its two entry criteria were unlike any other conventional symphonies – 1. The applicant should not have received prior training in music 2. If the applicant had prior knowledge of an instrument, they can only play another unfamiliar instrument in the symphony (Han, 2017).

The symphony was enthusiastically received by the public. It signed with a record label, and even made appearances to prestigious venues such as the Royal Albert Hall. The audience enjoyed the humor and irreverence created by the symphony's discord - "Cringe-inducingly bad, with plenty of off-notes and random blasts of noise (Grundhauser, 2017)". The symphony made a conscious decision to play well known classics in the UK such as the William Tell Overture, so that despite the symphony's off-key presentation, the melody remained recognizable by the audience. The symphony was later on joined by experimental musicians such as the later celebrated Brian Eno, who started to work with notions of expectedness – chance, error, and deviation. The symphony dissolved five years after to preserve its founding ethos: as its members became skilled at their instruments from practices, the symphony was no longer amateur (Han, 2017).

An off-beat symphony's popular success offers us an inverse example on the notion of authority. Brian Eno's interpretation of the phonograph helped to trace the trajectory of authority's formation. Prior to the phonograph's entry to regular households, small towns and villages in Europe had their own bands. Limited by travel mobility at the time, the musicians were unable to frequent larger cities where formal concerts were performed. Eno speculated that, due to the lack of access from the sounds deemed as standard, the provincial bands' performances would have resembled those by the Portsmouth Sinfonia: occasionally derailing away from what we later came to know as standards, but largely remained enjoyable and vibrant for the locals.

The entry of the phonograph to common households radically changed how music was produced and experienced. In a recording studio, the sound of the music underwent a transformative process of abstraction. Sound, as an embodied substance, was reduced to wavelengths, and represented by corresponding grooves engraved onto the records' surfaces. Steven Connor's study of sound helps to articulate what's lost due to the abstraction process (Connor, 2000, 2010). To start with, sound is a profoundly embodied substance, defined not only by the audio attributes we

conventionally assign to it, but also by other embodied attributes unregarded for sound, such as space. "Sound assumes space, and clings to that space. If I record a sound in one space, and play it back in another room, at another time, the sound recorded refuses to relinquish its hold on the space in which it first resounded. "(Connor, 2010)

Precisely because sound refuses to relinquish its hold on its original space, as it undergoes the processes of abstraction, its spatial quality is lost, along with many other qualities that synthesize sound as an embodied experience. Another example is the visual attributes of sound. Experiencing music through the phonograph, we are unable to witness the gestures of the musician, and synthesize these visual rhythms as we listen. The phonograph flattened sound from a rich embodied substance to abstract representations such as wavelengths and grooves. We became to experience sound in their representational form. As the needle of the phonograph swept through the engraved grooves of the record, it re-enacts sound of not of its essence, but of its representation. Such transformation continued to impact our understanding of sound today, as we think of sound, we continued to conceive it by its ever evolving representational forms, such as electro-magnetic signals and digital file formats.

The abstraction process was not only purely technical. As Connor interlinked sound with space, he referred to the pure sensual effects from these qualities. Aside from the sensual, space is ever laden with social and cultural implications. The abstraction process also entailed the deprivation of the social and cultural dimensions of experiencing sound. The townspeople never met the musicians employed in the orchestras in the capital – a relationship unlike the ones they had with the local band. Lisa Gitelman's extensive research on inscriptive techniques revealed how phonographs and records circulated widely as consumerist items (Gitelman, 1999). From their relative lightness, they were extremely portable and easy to trade. The affordable prices also contributed to their popularity. Underlying this change is the possibility to commodify immateriality, such as embodied experiences.

As the phonograph entered the townspeople's households, it began to extend its impacts in un-precedented ways. As many other consumerist items, it promised abundance and convenience. The townspeople could access music selections at a quantity far more than the local bands could offer; additionally, they didn't need to travel to the center of town. They realized the melodies sounded different than how the local bands played – the tunes were more in place; they started to cultivate judgements for the quality of music. Their scale of judgement inclined towards the melodies from

the records. "They are played by the orchestras from the capital." Hierarchies of superiority and inferiority began to come to place.

The process establishing notions power, such as authenticity and authority, took place through the disembodied medium. In the village and towns, the bands played less on a regular basis than they used to. Nevertheless, on occasions of weddings and funerals, it was the band, but not the phonograph, that was invited to perform. Since the townspeople had long held the phonograph, they had come to realize its limitations, and found themselves longing for the presence of the local band.

B. Disembodied Learning Experiences from Childhood

Portsmouth Sinfonia's story playfully revealed how the phonograph was able to establish notions of authority and authenticity through disembodied instruments. Brian Eno's speculation is hard to be contested today, since the sounds of the provincial bands were not archived by recording technologies. Despite of the speculation's credibility, I resonated deeply with Portsmouth Sinfonia's amateur spirit. The resonances came from episodes from my childhood, in which I learned through the disembodied medium of cassette tapes.

At 10 years old, I, among many other schoolchildren living in China, commenced our English learning careers. The primary method to get acquainted to oral English outside of class was by listening to cassette tapes. The narrations were arranged in slow and clear pronunciations on purpose, to make an easy start for schoolchildren. The cultural resources of our city provided limited interaction with English and its culture. Despite of these limitations, some of us were able to pick up nearly authentic London accent without ever setting foot in the UK, only by listening to tape recordings and mimicking the phrases repeatedly. To foster an authentic learning environment, schools with the financial capability would invite native English speaking instructors to hold oral practice sessions. We were thrilled and curious to interact with our instructors, however the conditions of disembodiment remained, despite us physically sharing the same space. We knew very little about the social backgrounds they came from, their customs and conventions. During one session, we saw a teacher with a Macintosh laptop and we were excited to see a laptop with a luminous apple shape. As we advanced to high school, we had opportunities to live abroad as exchange students. During our initial arrivals, it was common to struggle for several months to adjust to understand English as used in real life interactions. The adjustment was to cognitively

transition from the disembodied to the embodied. In disembodiment, we learned spelling, phonetic symbols, and grammar; in real life, we synthesized and embodied the abstract rules.

Learning in embodied contexts exposed us to formerly unknown insights. We came to know the diverse types of English spoken around the world: Indian, Singaporean, African, including "Chinglish", which suggested the speaker's lower prestige and limited education in Chinese-English bilingual communities. So long as the language is communicated within a community, it deserves to be treated as legitimate. The English we were formerly indoctrinated with presented only a small fraction of the many forms of English that exist. Yet those are not considered as authentic. The process of filtering a small fraction of esteemed English onto cassette tapes, handing them over to school children, was a process of constructing concepts of authenticity and authority.

Tapes not only accompanied my language learning career, but my learning to play instruments. As a child I learned to play the violin and struggled with tone registration. In order to improve my sense of intonation, I recorded my performances on cassette tapes and compared them to the originals. The process was arduous though rewarding, since by gaining precision I came to greater appreciation for the music's composition. However, the tapes had little to offer, in terms of cultivating an cultural understanding of classical music. The violin is not an instrument native to China, but a foreign import, circulated widely only since the country's modernity. The corpus of canonical works was directly imported from the West, with limited number of adaptations of Chinese folk music. One of the adaptations was the *Butterfly Metamorphosis*, a tragedy involving two young lovers' transformation to butterflies. I greatly appreciated the melody since the composition sounded distinct from the Western canon. I inquired my teacher why a Chinese folk tragedy was adopted for the Western string instrument, and he didn't seem to have the answer either. The curriculum emphasized the perfection of technique and precision, and tended to overlook violin's cultural context. The relative brevity of time the instrument had been imported, the high expenses for lessons and to buy the instrument, kept it within a niche. I could not imagine the violin in a playful context such as jam session. My fascination for the Portsmouth Sinfonia very much derived from my lack of culturally embodied experiences with classical music.

Portsmouth Sinfonia's agenda, the phonograph's transformative impacts, and snippets of my childhood learning experiences nourished my understanding of disembodiment. Disembodiment is not only a process of technical abstraction, which transforms embodied experiences to artifacts that contain abstract information translated and recorded by inscriptive instruments. Disembodiment

also entails social and cultural abstraction, resulting the absence of contexts in which the original experiences took place. Processes of technical, social and cultural abstraction contribute to how notions of authenticity and authority become established, since the processes involved great amounts of intentional selection and elimination.

It's also helpful to understand how abstraction works from the perspectives of production and consumption. When a record is produced, only the most esteemed orchestra is appointed to perform for production. The selection process eliminates the many provincial bands from its scope. When a record is consumed, the audience consumes in the most alienated, singular manner: sitting still in a chair, listening to the sounds emanating from a playback device. This way of consumption deprived the audiences of the plural possibilities granted had they been present during the original's production: striking conversations with the musicians, making a physical effort to travel to the performance venues, and holding a expectations and excitements along their way – these possibilities are extensive. Experiencing music through disembodied instruments, it's impossible to synchronize processes of production and consumption in the same place, at the same time, to stimulate active engagement. The itinerary of a piece of music record is destined to follow the pathway of any other consumerist items during its production and consumption processes, in which each micro-processes are assigned of distinct roles and not to be intermingled with each other. These highly classified and separated processes of how we produce and consume music contributed to the feelings of alienation.

As our experiences gone through layers of abstraction and alienation, very little room is left for us pose questions. We tend to acknowledge the hierarchical values coded onto the records and tapes: this is original, that is authentic. We come to incorporate values of authority and authenticity ourselves and perpetuate these values, further strengthening the existent power structure.

C. Reinterpreting Home: DIY Tutorials

The two examples above analyzed how disembodied instruments using analog signal produce notions of power. These analyses shed light for analyzing DIY tutorials circulated on digital platforms as well.

Last spring, I began to tinker with the Raspberry Pi. Charged with immense interest, I found

myself leafing through tutorials to absorb all the capabilities of this small but incredible computer. In a YouTube video, I discovered that installed with the proper software, the Pi can work as a VPN (Virtual Private Network) connected to my home network.

The video was shot by a prolific YouTuber. The background cabinet featuring the diverse tech gadgets reflected the degree of expertise and wide selections of his channel. To start out, he used the corner cafe example to explain network privacy. "The VPN software routes the traffic from the cafe's public network, back to your home network, which is private and safe".
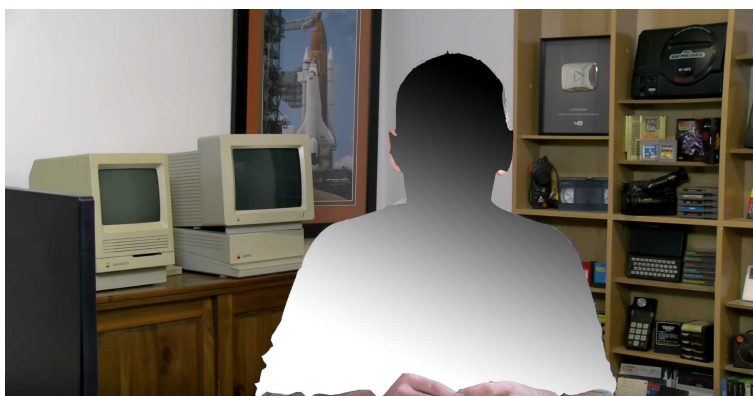
Still from a VPN tutorial on YouTube with figure redacted. (Lon.TV, 2019)

I quickly realized how the concept of VPN materialized very differently between myself and the YouTuber. As a teenager in 2008, I knew VPN as the "wall-climbing software"[4]. The neologism illustrated the software's objective to surpass the great firewall of China to access sites served from abroad and blocked by the firewall. The sanction continued today for Twitter, YouTube, Google, etc. Knowing the software from this particular context, I did not know that VPN is designed for network privacy.

I tried to digest this situation – if the software can route traffic from a cafe to a home, then I can also route network traffic from Beijing to Rotterdam. During that summer I planned to return to Beijing. Since my email was hosted on Google, I was eager to see if I could reinterpret the tutorial to serve my agenda. There were several things I kept in mind: the VPN must be set up in Rotterdam and not the other way around; the software and the Pi need to be stable, since when I am gone, no one can help me to fix it. Squatting on my couch I followed the video step by step, connected my

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4   翻墙软件 fān qiáng ruǎn jiàn

Raspberry Pi to the router and crossed my fingers. I shared the account information with friends in Beijing, they sent me a screenshot of YouTube: it is working! During the summer, I subleased my home to a temporary tenant, and reminded him to please not unplug the Pi or the router.

This experience provoked me to question the alignment between tutorials and the situations in which learners live. I thought of the word "homebrew", which derived from the Homebrew Computer Club, an informal gathering of computer hobbyists in California during the 1980s. The first personal computer was a brain child of the club, which consisted of proficient engineers who already worked in the industry and had the knowledge and means to invent things on the side. I want to question the a sense of homogeneity the concept of home entailed, when mentioned in projects produced in, on the contrary, different types of home.

The presentation of home as a space with diverse manifestations should not be flattened and universalized. After a long day in school, I squatted on my couch for another several hours to install the VPN. Unlike the YouTuber, I was not so well equipped or well versed in the technicalities, hence several days to comprehend the steps done during a half an hour video. My intention was also entirely different: to prepare for network access due to the unique socio-political condition I live with. Homebrew projects implied a universality that these projects can be carried out anywhere, and by anybody. As I attempt to realize these projects, the challenges I encountered due to my technical and cultural specificities disillusioned the universality's fantasy.

It was a privilege to have a home as a shelter in the first place; and even more to maintain a home overseas in Rotterdam. More recently, the COVID-19 pandemic painfully drew a stark contrast between those who can afford a home for quarantine and those who can not. The concept of home is not universal, but multifaceted: political, cultural, and social. Likewise, tutorials are not universal either.

Chapter 3: Re-engaging With Disembodiment: The Repeater Archive

Part 1: The Repeater: A Short Story

The common thread of this thesis is how disembodied media produce power. To materialize the trajectory of this thread, I chose the repeater, a disembodied learning device from my childhood to

develop an archival project. The device was invented in China's mid nineties, by a telecommunications engineer while in his forties. After China's economical reform, the engineer was able to take trips to Western Europe and North America. Upon realizing his insufficiency in English, he invented the repeater to aid his studying. For his generation, the instructed language in school was Russian.

Two core components make up the device: a hub for cassette tapes, and a digital interface. As the tape plays, the learner can manipulate the digital interface to select a phrase, listen to its playback, record their own repetition, and compare the repetition to the original. It was not only a device of technical inventive value, but also of pedagogical significance. The "listen, record, compare" method was welcomed by students, teachers and parents, since it amended for the scarce opportunities to practice English in real life.

A typical appearance for a repeater, the upper blue part for cassettes and the lower silver part for the digital interface. (Shasha, 2019)

It is a device deeply ingrained in the collective memory for my generation: every student was ordered to have a repeater at home to listen to English audio tapes. In addition to the tapes accompanying school textbooks, demanding parents ordered children to study advanced material outside of school. An audio interview recorded with my childhood friend excavated one quintessential "out of school" material, the "New Concept English" textbook. Since our parents all worked in education, they were educated and familiar with the strategies to keep us "ahead of the game", a phrase frequently used by my parents. Some of my peers did not study advanced materials outside of the mandatory curriculum. Either their parents did not know about these materials, or they did not want to impose extra workload on their children. This recollection was a realistic and

17

uncomfortable testimony of the Bourdieu Effects as discussed earlier. As my friend and I held structural privileges inherited from our parents, we managed to "stayed ahead of the game". For our peers who did not inherit such privileges, their access for advancement were denied since they did not know these resources; the uneven distribution of knowledge access caused by the power structure further hindered them from gaining access to these resources.

For the ones who held privilege, the aid from this device did lead to advancements of all sorts – cultural, social, economical. As a child, I was impressed by a sense of cultural mobility delivered by the engineer in his TV lectures. He emphasized how the access to cultural resources greatly expanded his vision, even though he is professionally trained in engineering. As my childhood friend and I travel overseas today, our trajectories testified to the mobilities the repeater was able to facilitate.

However, I also abhorred the device. During summer holidays, I could play half of the day and the other half devoted to the repeater. The sense of alienation was shared by another interviewee, Xuanxuan, whom I met while looking for second hand repeaters on a trading app. In the app, many of the repeaters were decorated with cartoon stickers, and Xuanxuan's repeater was the most outrageously decorated one, covered with stickers of cupcakes, lollipops, and hello kitties. As my parents received the repeater I ordered from Xuanxuan, they also found a letter handwritten by her. Growing up, she had always been an unmotivated student, and looked down upon in the meritocratic hierarchy prevalent in Chinese schools. Upon discovering her passion for learning English, she transformed her study routine and motivation: using whatever time available from her packed schedule during high school entrance preparation, reciting words and phrases with the repeater. For her, the stickers worked as a rewards during these arduous moments of learning.

The playful stickers and the sincere letter from Xuanxuan drew me to discover the repeater's role as embedded in common people's daily lives. Attached to the ubiquitous surface of the repeater, the stickers appear to me as symbols for overcoming the feelings of frustration and loneliness felt during disembodied learning processes. They suggested a rich field for putting together an alternative archive for the repeater, one that critically embrace and overcome the felt feelings of alienation.

Part 2: Publishing Noise

To interpret the concept of noise at the end of this thesis draws the circle complete. In the beginning, the anecdote of the Portsmouth Sinfonia led me to question how notions of authority and authenticity are constructed. The construction process is a filtering process, and what is filtered out is regarded as noise. Understanding sound in context of power structures, Rancière draws a distinction between what is deemed as speech and what is neglected as noise: "Not only is the speech of ordinary people ignored, but their words are not recognized as speech at all; rather, they are taken to be mere noise, a type of Aristotelian blaberon of meaningless utterances" (Hewlett, 2007).

The repeater's technical operation and pedagogy transformed noise to speech, through disciplinary processes of repetition and self-correction. We listen to the original, record our mimicry, and compare to the original. The design of such process departed from a divnisioning hierarchy as Rancière's distinction between speech and noise suggested. The authentic spoken English were considered as speech, and our voices were considered as noise.

This interpretation of noise extends to publishing practices as well. In DIY publisher Miekal And's *Why Publish Noise,* he used the phrase "print noise" to refer to contents laying outside of what is considered coherent and appropriate to be included by the mainstream media (And, 1989).

Further, he expanded the definition of publishing outside of its traditional definition, such as from the production of books and magazines, to a wider varieties of media: fax, telephone, and radio (Ibid).

Textbook cassette tapes I have used.

My project responds to And's statement in its two folded implications. First, the inclusion and

exclusion of noise. Second, the adoption of unconventional media as publishing formats. For the inclusion of noise, I worked with audio samples from the conducted interviews, where the interviewees and I shared our experiences with the repeater. The archive aims to provide space to house our voices and speech, which had been formerly interpreted as noise. For the adoption of unconventional media, I chose cassette tapes as one of the forms to materialize my archive. They were found in the dusty compartments of the bookshelf and sent to me by my parents, adding another personal significance to this particular medium. These tapes contained the English textbook recordings that I used to listen. Working with the techniques such as overlaying, I produced sound collages mixing the voices from the interviews and voices of the textbook recordings, as a gesture to blur the division between noise and speech and invite more diverse and non-hierarchical interpretations.

Conclusion

Throughout this thesis, I traced the how feelings of alienation are produced via disembodied learning processes. In the first chapter, I grounded the method of my research referring to Rancière's reflections on structural power reproduction. I also identified the situations in which I experienced feelings of alienation studying via disembodied media, and interpreted the situations with the method of structural power reproduction analysis. In the second chapter, I zoomed in my lens, focusing on how power reproduction happens in disembodied forms, such as the phonograph, the cassette tapes, and online tutorials. The unique attributes of these media enlarged the gaps of structural power hierarchies. In the third chapter, I outlined the unique social and cultural significances of the repeater. In my project, I embraced the concept of noise as a way to challenge notions of power, such as authority and authenticity.

The reproduction of power through disembodied media reflected my larger interests in disembodiment and inscriptive devices. The writing of this thesis led me to discover a rich varieties of research done on disembodied devices such as the radio and the phonograph, in the writings of Steven Connor, Lisa Gitelman, and Friedrich Kittler. These resources offered valuable insights for framing a critical context for the repeater, since it is very much a under-researched object in media study. I also realized that there are many other perspectives to approach disembodied media, and the perspective of power reproduction is only one facet of this rich terrain of study. In the future, I am interested in researching further on how technical abstractions occurred in inscriptive devices worked, and how do these abstractions result to the loss of cultural and social contexts.

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